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# **Intentional friction in the User Interface of Digital Games**

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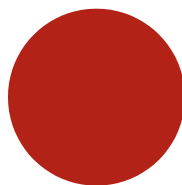
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Mestrado em Multimédia da Universidade do Porto

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# Abstract

Conventional user interface practices are frequently influenced by an overarching paradigm of user-friendliness and enjoyment, however intentionally designing friction in game user interfaces may be a suitable strategy for challenging players' beliefs and prompting reflection. This dissertation investigates how designers might employ intentional friction in digital game user interfaces to create meaningful experiences and inspire reflection in its players. First, we review the literature to frame what constitutes interface elements in Game Design, the user-friendly and enjoyment paradigm, and other perspectives that offer context to using friction as a strategy. Afterwards, we explore game instances that use user interface friction when appropriate as a strategy to express a point of view, to challenge current systems, or to foment critical reflection. The starting point for our observations is to critically contrast Donald Norman's seven design principles and Jakob Nielsen's usability heuristics with the interface design of these games. As a result, we identify six distinct intentional friction strategies. Next, we ran two co-creation workshop sessions with a total of seven participants with User Interface or Game Design backgrounds to identify additional strategies and perspectives. The strategies gathered were collected in a deck-based tool. Finally, we ran an initial tool appraisal session with four participants with promising results, suggesting that the tool's friction strategies were able to drive expressiveness as an important component of the participant's discussion and ideation process. Although this work is not focused on collecting all friction design approaches indiscriminately, the identified strategies suggest more nuanced techniques than just framing the principles to create a friendly design in reverse.

*Keywords:* user interface (UI), game design, friction, card deck, co-creation



# Resumo

As práticas convencionais de interface do utilizador são frequentemente influenciadas por um paradigma abrangente de facilidade de uso e prazer, entretanto, projetar fricção intencionalmente em interfaces do utilizador de jogos possa ser uma estratégia adequada para desafiar as crenças dos jogadores e estimular a reflexão. Esta dissertação investiga como designers podem empregar fricção intencional em interfaces do utilizador de jogos digitais para criar experiências significativas e inspirar reflexão nos seus jogadores. Primeiro, revimos a literatura para enquadrar o que constitui elementos de interface no game design, o paradigma de usabilidade e diversão e outras perspectivas que oferecem contexto para o uso da fricção como estratégia. Depois, exploramos instâncias de jogos que usam fricção na interface do utilizador quando apropriado como estratégia para expressar um ponto de vista, desafiar sistemas atuais ou fomentar a reflexão crítica. O ponto de partida para nossas observações foi contrastar criticamente os sete princípios de design de Donald Norman e a heurística de usabilidade de Jakob Nielsen com o design de interface desses jogos. Como resultado, identificamos seis estratégias de fricção intencional distintas. Em seguida, realizamos duas sessões de workshop de co-criação com um total de sete participantes com experiência em interface de utilizador ou design de jogos para identificar estratégias e perspectivas adicionais. As estratégias coletadas foram reunidas numa ferramenta de cartas. Por fim, realizamos uma sessão inicial de apreciação da ferramenta com quatro participantes com resultados promissores, sugerindo que as estratégias de fricção da ferramenta conseguiram impulsionar a expressividade como um componente importante do processo de discussão e ideação dos participantes. Embora este trabalho não esteja focado em coletar todas as abordagens de design de fricção indiscriminadamente, as estratégias identificadas sugerem técnicas mais subtis do que apenas enquadrar em reverso os princípios para criar um design amigável.

*Palavras-chave:* user interface (UI), game design, friction, card deck, co-creation

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Isabella Barbosa Silva

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# Abbreviations

DDE	Design, Dynamics, and Experience
GUI	Graphical User Interface
HUD	Heads-Up Display
HMW	How Might We
HCI	Human-Computer Interaction
MDA	Mechanics, Dynamics, and Aesthetics
OS	Operational System
RPG	Role Playing Games
UX	User Experience
UI	User Interface

# Introduction

## Context

Digital games have been explored for decades as tools for promoting social engagement, reflection, and political change. Yet, they have different design considerations and usability issues than other types of software (Federoff, 2002). Many works seek to discuss strategies to reduce friction between the user and the interface to enhance the player's experience. These works are often presented as heuristics and design principles. However, there is still room to investigate how designers can insert intentional friction into the interface of Critical Games to elevate the players' experience.

Although conflict is an integral part of Game Design, a paradigm of user-friendliness and enjoyment permeates the design field, especially concerning UI (User Interface) and UX (User Experience) practices. It seems this phenomenon may be due to our society desperately running away from pain and negative experiences (Han, 2021). As Kuang and Fabricant (2020) revealed, in depression-era America, the products someone consumed in pursuit of individual happiness were linked with the industry's steady growth. Consequently, businesses and designers began to employ behavioral and cognitive psychology to create painless experiences via easy-to-use interfaces. Despite that, commercial imperatives and business goals to increase usage time and streamline consumption do not always align with human objectives (Yablonski, 2020).

Games offer a ground to explore a vast scope of experiences, especially when communicating ideas, building arguments, and promoting reflection. For instance, we can aim for discomfort since it is essential for thinking and, in contrast to pleasure, initiates a reflective process (Han, 2021). And although conflict and friction are often thought of at a more mechanical level in Game Design, there is room to explore how the UI can be used as the venue to challenge players' assumptions and design itself.

## **Relevance of the study**

HCI (Human-Computer Interaction) and Game Design discuss many strategies to limit or eliminate friction in games UI. Comparatively, little work has gone into depth on how intentional friction in the interface of digital games can serve as a strategy to shape the UX. Additionally, there is still plenty of room for analyzing the intersection between HCI principles and methods, and their application in digital games. Although they are related fields, they have different needs and objectives. Thus, this work is interested in the wealth of knowledge afforded by behavioral and cognitive psychology from the perspective of varying design objectives other than facilitating player pleasure and positive emotional states.

We see great relevance in deepening the knowledge about UI Design in games through this work, not just by understanding how they are created today, but also how they can be created in the future. The discoveries of this work may inform future design decisions for those aiming to be intentional with the technologies they produce by challenging conventions and paradigms when appropriate. We also propose a diversified look into the conflict outlet of games, moving past mechanical aspects. Finally, this work aims to supply Critical Game designers and all those interested in creating expressive interfaces with awareness of strategies that may assist them in conceiving reflection opportunities for players.

## **Research question**

### ***Main question***

How can intentional friction in games UI be used to communicate ideas, to build arguments, and to promote reflection?

### ***Sub-questions***

1. What techniques or strategies can be used to tackle friction beyond the mechanics aspects of Game Design?
2. How can the abstracted solutions be applied to a specific context?
3. How can a designer apply in a practical way the abstracted solutions?

## **Hypothesis**

Under the perspective of indirect control, there are strategies to design intentional friction in the game UI that deviates, misleads, constrains players from their goals, or causes negative emotional

states. Game UI designers can employ these strategies when appropriate to express a point of view, to challenge current systems, or to foment critical reflection.

## Goals and contributions

In the face of the opportunity to assess alternative UI Design strategies in games with design objectives other than player enjoyment and positive experiences, this work seeks to discuss the potential of intentional friction and to make this strategy accessible to more designers for practical usage. Thus, this work has the following goals:

1. Discuss the potential of using intentional friction in the UI as a strategy to communicate ideas, to build arguments, and to promote reflection;
2. Develop a model for creating expressive video game interfaces using friction.

## Methodological approach

The work was divided into two parts to achieve the established objectives. Part I is composed of a literature review and exploratory investigation of friction strategies. Part II is composed of co-creation and participatory design and tool development, appraisal, and refinement.

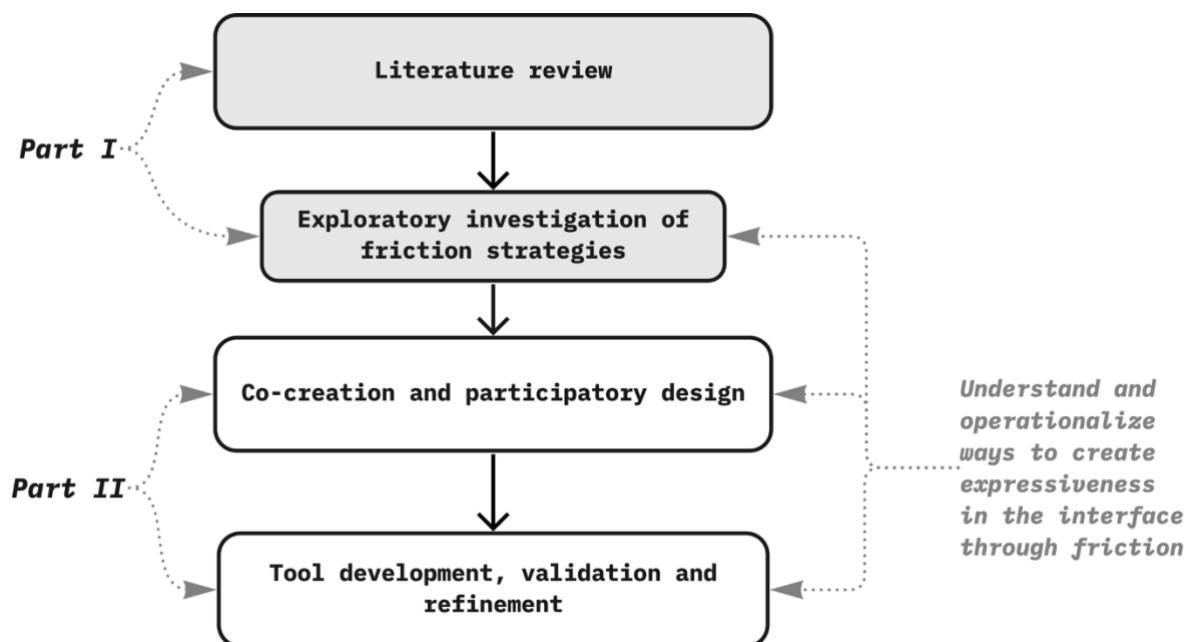


Figure 0.1: Overview of the methodological approach

### ***1) Literature review and exploratory research of friction strategies***

To understand how to use UI friction as a design strategy in games, we first need to understand design and usability principles and contrast them with the intent of the experience we want to create. Thus, this study consists of a descriptive and exploratory literature review. The first part of the literature review consists of mapping and exploring connections between various themes concerning digital games, interface design, and socio-political messages to familiarize with the domain and assess the most relevant concepts for the context of this work. As a result, three main topics and intersections are identified: UI Design, digital games, and meaningful/expressive experiences.

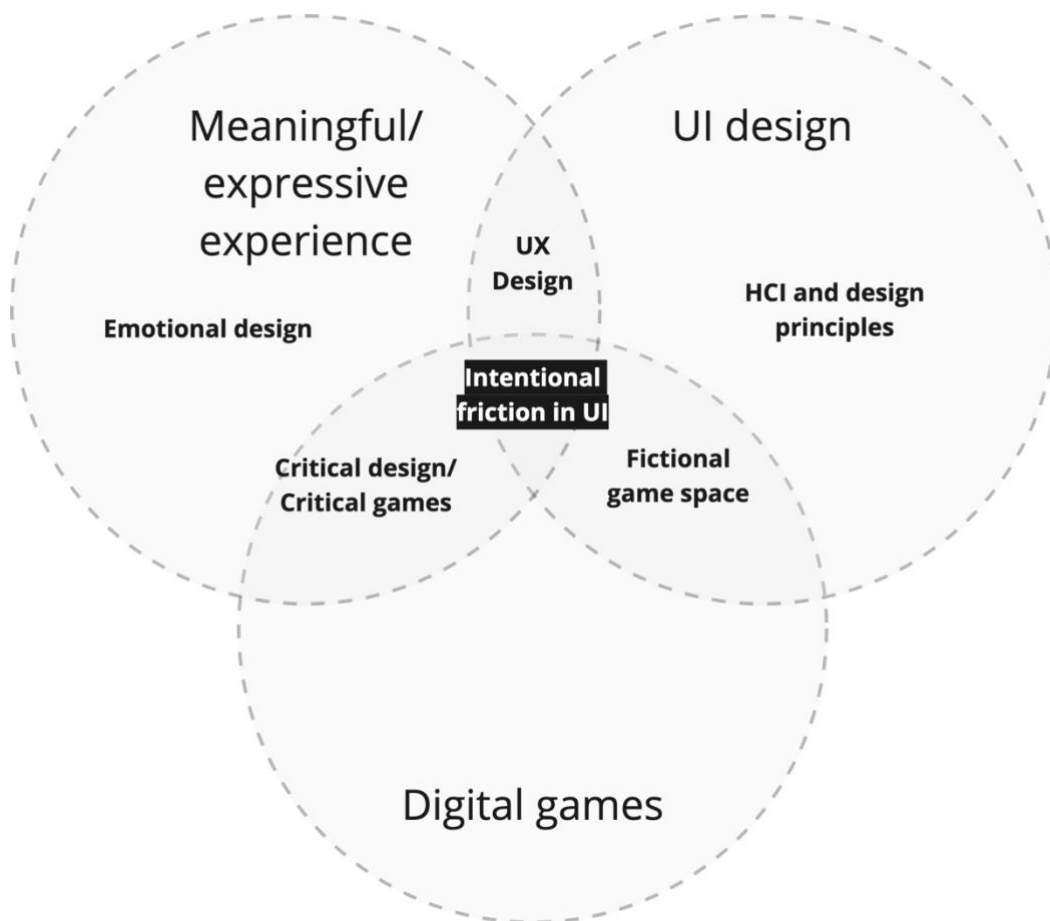


Figure 0.2: The three main topics of interest and their intersections

Afterwards, we selected the literature based on the topics covered to meet the investigation goals. To understand the definition of UI in the context of this work, we heavily consider the Design, Dynamic, and Experience (DDE) framework proposed by Walk et al. (2017) as it offers a robust perspective. We also look into Erik Fagerholt and Magnus Lorentzon (2009) classification of UI components based on their association with narrative and the space of the game's world.

Additionally, we outline the paradigm of user-friendliness and the relationship between HCI and digital games. For this, we look into authors such as Kuang and Fabricant (2020), who aims to provide a narrative thread that explains how the practice of UX and the user-friendly paradigm came to be, and Federoff (2002), one of the first authors to create game-specific heuristics.

To understand expressiveness and meaningful experiences in games, we look into several authors that discuss relevant concepts such as *Emotional Design*, *Critical Games*, *Serious Games*, *Flow theory*, *Procedural Rhetoric*, and others.

Lastly, we look at games that purposefully created friction in the UI to convey a message and previous experimental works that might be relevant to assess strategies for intentional friction in the interface and to serve as inspiration. To further explore the research question, we consider how the design principles intended to minimize friction from the UI may be used to create deliberate friction – particularly by looking into Donald Norman’s seven design principles (Norman, 2013) and Jakob Nielsen’s usability heuristics (Nielsen, 1994b) as a basis. The game selection and analysis were exploratory, and we identified six distinct strategies in this process. The identified strategies are: 1) to exploit memory shortcomings; 2) faulty feedback; 3) mismatched mental model; 4) impairment of ability; 5) deliberate inefficiency; and 6) oppressive constraints.

These six strategies identified and some of the context presented in this section of this dissertation are described in a proceedings’ paper entitled *Strategies of intentional friction in the user interface of digital games* (Silva et al., in press).

## **2) Co-creation and participatory design**

Parallel to a more general understanding of the topics of interest, we started to ideate how to create expressiveness in the UI through friction. We began with activities conducted with students of the Specialization Course in Interaction, Web, and Games Design at the University of Porto<sup>1</sup>, where seminars were held, followed by practical exercises employing creativity techniques. In these preliminary activities, observing the points raised by the groups made us detect some possible topics for further investigation and iterations in the process. The main challenges were adapting the strategy to multiple game genres, defining critical design goals, and assessing the limits between interface and mechanical aspects.

After considering the results from the preliminary activities, we iterated on the approach to better define the intentionality of the frictional interventions. Additionally, we saw an opportunity to gather insights into participants’ perceptions of intentional friction as a strategy. Thus, we run two workshop sessions. In total, seven participants attended. They were either UI Design professionals or Game Design students. The first part of each workshop consisted of a focus group that aimed to discuss friction as a concept and as a strategy. In the sessions, we also conducted a

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<sup>1</sup> The Interaction Design, Web, and Games specialization course is mostly laboratory-based and hands-on, emphasizing the acquisition of knowledge and skills in interaction and Game Design.

collaborative co-creation brainstorming activity, considering the method suggested by Yablonski (2020, p. 124) This activity aims to identify further strategies for creating intentional friction and frame decision-making. After the ideation, participants were asked to make an affinity map of each other's ideas. Next, we did a thematic analysis of the qualitative data collected during the workshop to extract key insights.

### ***3) Tool development, appraisal, and refinement***

For the tool development, we compiled the strategies identified in the literature review and those generated in the co-creation workshop in a deck-based tool aimed to help ideate expressive interfaces using intentional friction strategies. The results of the co-workshop heavily informed the tool development and content. To establish the tool utilization flow and its process, we considered an adaptation of the Infiltration-opening process presented by Brandalise (2016). She proposes an approach in which the designer or artist appropriates characteristics of a system structure to question and subvert it through unconventional interventions. Thus, we defined and described the steps that compose the tool usage flow. We also compiled all the cards' content in a spreadsheet.

We then created a prototype of the card deck and prepared a workshop intended to be a appraisal session to compare the artifact to its intended purpose and expected performance. We gathered four participants in this session to interact with the tool based on a predefined design challenge. Participants were asked to answer a survey after the workshop to measure their perceptions of satisfaction, fun, understandability, and usefulness of the card deck tool. After the session, we conducted a thematic analysis of the qualitative data collected during the workshop to extract key insights and feedback for future improvements.

## **Structure of the document**

This dissertation is divided into two parts. Part I (Appraising friction in the interface of digital games) aims to present and contextualize the main concepts and to assess possible strategies. Part II (Designing expressiveness using intentional friction) seeks to identify further strategies, to formalize the identified strategies in an ideation tool, and to experiment with these strategies' usage in a practical context. Lastly, it will offer results and considerations.

### ***Part I – Appraising friction in the interface of digital games***

**Chapter 1:** Presents fundamental concepts and examines how the UI is represented within the fictional game space, Game Design frameworks that encompass the interface, considerations on HCI, friendly design paradigm, and the role of friction in Game UI Design.

**Chapter 2:** Focuses on discussing approaches to creating game experiences with expressive and meaningful intentions. This chapter examines games as a medium capable of communicating ideas and fostering critical reflections, the design of the player's emotional journey, and considerations regarding standard Flow architectures.

**Chapter 3:** Presents possible approaches and examples of deliberate friction used in UI to suggest meaning. Next, this chapter explains some of the foreseen limitations and summarizes the potential of intentional friction founded on the overview provided in the previous chapters.

## ***Part II – Designing expressiveness using intentional friction***

**Chapter 4:** Presents the two preliminary activities conducted with participants in 2020. These activities served the purpose of experimenting with the interface in the space-fiction of games and observing the implications of different approaches. For each activity, we present the process used and its results. Later, we present a summary conclusion of this stage.

**Chapter 5:** Focuses on the co-creation workshops that aimed to incite a group discussion about using design friction as a strategy for the UI in games, to collect opinions and perspectives on the theme, and to brainstorm ideas for design principles in a co-creation activity. We present the methodology, the tools, the workshop agenda, and the participants pool. We later describe the analysis and the results, and offer further considerations.

**Chapter 6:** Focuses on the card deck tool development and describes the development process, the tool structure, and each step of its use flow. It also presents each card deck's content and the card deck's layout.

**Chapter 7:** This chapter focuses on the tool appraisal session workshop, describing its objectives, methodology, and an analysis of the results. In the methodology section, we describe the process of the appraisal workshop, the tools used, the workshop agenda, and the participants pool.

## ***Conclusion***

**Conclusions:** We present a summary of the work and final considerations, the limitations of the study, and future work.







# **Part I – Appraising friction in the interface of digital games**

# 1. Interface in the fictional game space

## 1.1 Diegetic, non-diegetic, meta, spatial interfaces

In electronic media, games are essentially software systems involving organic and nonorganic agents, in which the player (also known as operator or user) interacts with the machine (Galloway, 2006, p. 5). Hence, User Interface (UI) refers to the space where the interactions between machines and humans occur. This interaction allows the user to control and operate the machine and offers feedback to help them in their operational decision-making.

One aspect that differentiates a game's UI from other UI designs is that it may incorporate the fictional space of the game in its design. Erik Fagerholt and Magnus Lorentzon (2009) identified different categories on how UI elements fit depending on how associated they were with narrative and the space of the game's world. We can distinguish between categories by verifying if a UI element exists in the game's spatial and fictional world. The game's fictional world is the imaginary narrative story or event of the game, while the game's spatial world is the space and geometry of the game. The identified categories (Fagerholt & Lorentzon, 2009, p. 51–52) can be summarized as:

- **Diegetic:** Diegetic UI exists in both spatial and fictional game worlds. They are represented so the player character can interact with them in the game world through visual, audible, or haptic means;
- **Non-Diegetic:** Non-diegetic UI elements reside in the non-fictional, non-spatial part of the design space. They are frequently represented in an overlay manner, such as the head-up display (HUD);
- **Spatial:** Spatial UI elements exist in the game's spatial world and geometry without being an entity of the fictional game world. They break the narrative to provide information that the players' characters should not be aware of;
- **Meta:** Meta UI elements exist in the narrative and fictional domain, but not in the spatial and geometry world of the game. One example is a blood spatter on the screen to indicate character damage in shooter games.

To aid this categorization, one could represent this division in a table by asking the following questions: Is the interface element represented in the game space? Is the interface represented in the game fiction?

Table 1:1: The design space and how different identified categories of UI elements fit into it, adapted from Fagerholt and Lorentzon (2009, p. 51)

		Present in the game space?	
		No	Yes
Present in the fictional game world?	No	<b>Non-diegetic</b>	<b>Spatial</b>
	Yes	<b>Meta</b>	<b>Diegetic</b>

Another aspect that can be considered is that game UI may support user operations and provide feedback on different game phases. While analyzing non-diegetic operator actions, Galloway (2006) mentions *preplay*, *postplay* and *interplay* activities. This can support thinking of the game UI in different moments and may help us understand its role beyond in-game activities and operations. Operator actions that reside at the preplay moment may include setups and configurations such as selection of levels, difficulty, and number of players. Post-play interfaces may consist of feedback such as game over screens and scoreboards. Interplay UI may comprise activities such as saving, pausing or interacting with inventories and skill trees.

Table 1:2: Examples of operations in different moments of play, adapted from Galloway (2006)

<i>Moments</i>	Preplay	Interplay	Postplay
<i>Operations and system feedback examples</i>	<ul style="list-style-type: none"> <li>• Settings</li> <li>• Game configurations</li> <li>• Loading</li> </ul>	<ul style="list-style-type: none"> <li>• Saving</li> <li>• Pause</li> <li>• Inventory</li> <li>• Skill tree</li> </ul>	<ul style="list-style-type: none"> <li>• Game over</li> <li>• Scoreboards</li> </ul>

Jesse Schell writes that “every designer has a vision of what they would like the players to do to have an ideal play experience” (Schell, 2008, p. 293). We can interrogate how to design the desired experience beyond mechanical aspects and game rules. When considering the UI scope, the ideal interface design is often regarded as “invisible to the player” (Schell, 2008, p. 227). This statement can lead to common misunderstandings about potential approaches for UI in video games. For instance, game designer Lawhead (2020) remarks that “UI is viewed as a necessary evil. It’s kind of like some element in the corner of your game that lets players adjust some setting, or manage saves”. Lawhead (2020) expresses that this might be due to designers often designing UI as an afterthought, causing it to be strongly separated from the game world. From this perspective, it can be valuable to understand how UI and UX fit into predominant Game Design frameworks.

## 1.2 User interface in Game Design frameworks

When looking into the gaming industry's UX and UI practices, it is essential to understand how the UI fits into Game Design processes and frameworks. We first looked at frameworks such as (but not limited to) the Elemental Tetrad outlined by Jesse Schell (2008), the Activity-Based Framework for Describing Games by Staffan Björk and Jussi Holopainen (2005), the Transformational framework by Culyba (2018), and the Formal, Dramatic, and Dynamic Elements (FDD) by Tracy Fullerton et al. (2008). Yet, we chose the frameworks further outlined in this section based on the perceived usefulness for understanding the UI domain in Game Design. Thus, this is not meant to be an exhaustive compilation of the extensive list of Game Design frameworks available. Although they represent a limited selection, it was the intention to look at the most popularized Game Design frameworks, as they may offer the mainstream outlook, and the ones that explicitly acknowledge the interface. It is possible that the omission to clearly identify the interface as a formal element in popular frameworks reflects the attitude of viewing the UI as an afterthought, as indicated by Lawhead (2020) at the ending of the previous chapter.

One of the most cited and accepted frameworks is Mechanics, Dynamics, and Aesthetics (MDA), designed and introduced by Robin Hunicke et al. (2004). It aims to clarify the iterative process of developers and scholars and make it easier to decompose, study, and design a broad class of game designs and game artifacts. The authors defined the MDA components as follows:

- **Mechanics** describes the particular components of the game at the level of data representation and algorithms;
- **Dynamics** describes the run-time behavior of the mechanics acting on player inputs and each other's outputs over time;
- **Aesthetics** describes the desirable emotional responses evoked in the player when they interact with the game system. (Hunicke et al., 2004, p. 2)

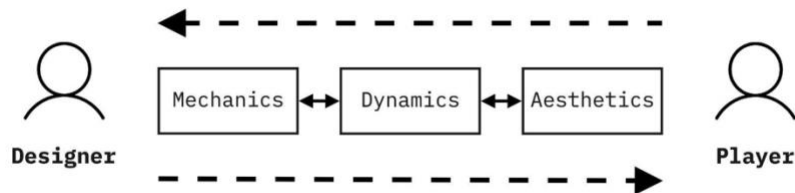


Figure 1.1: The MDA framework, adapted from Robin Hunicke et al. (2004)

One of the MDA strengths is that it acknowledges the difference in perspective between the designer and the player, and invites designers to reflect on the overall experience of the game (O'Shea & Freeman, 2019). Although the MDA framework is one of the most accepted and used in the Game Design community due to its conciseness and elegant simplicity, it has been criticized

by some. Some of the criticisms exposed by Walk et al. (2017) fall on the fact that the MDA neglects many design aspects of the games by focusing too much on game Mechanics. Therefore, in his view, it is not suitable for experience-oriented design as opposed to functionality-oriented design. Furthermore, the MDA framework assumes that the game's Dynamics and Aesthetics result from its Mechanics, neglects the purely aesthetic requirements, and does not address aspects beyond the gameplay, including storytelling and UX (Walk et al., 2017).

Aiming to address some of these limitations and provide a formal Design approach to *Serious Games*, Winn (2009) introduced the Design, Play, and Experience (DPE) framework.

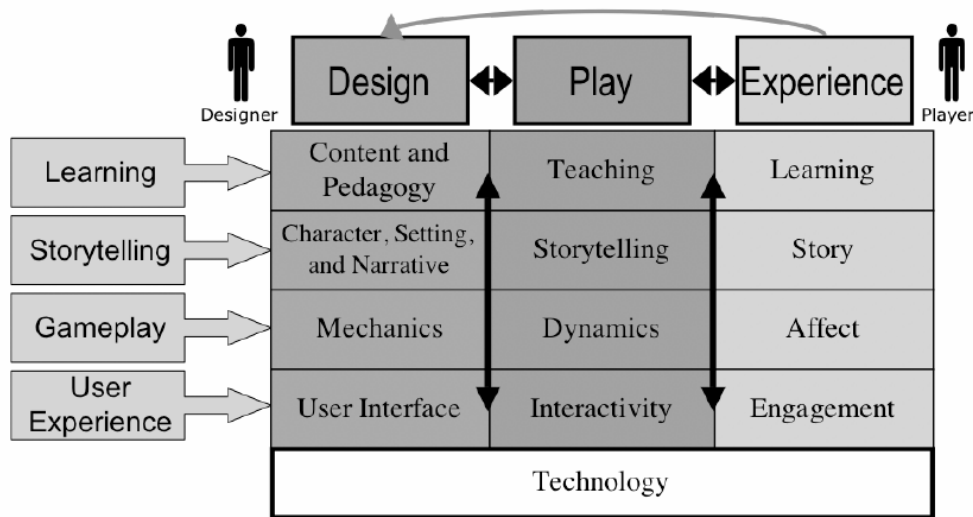


Figure 1.2: The Design, Play, and Experience (DPE) framework (Winn, 2009, p. 7)

While this framework also depicts the relationship between the designer and the player as in the MDA, it provides additional layers, such as the UX. This UX layer puts the UI under the designer's direct control while the player experiences this layer by engaging with the play experience. From the player's perspective, Winn considers this layer to be the most visible (or surface) layer. For the author, a game's design manifests itself through the UI, and the UI encompasses everything the user sees, hears, and interacts with and how that interaction happens. The author also points out that "good user interfaces are said to be transparent, that is, the player does not have to focus their attention on how to play the game (i.e., what button to press), but rather on the gameplay, storytelling, and learning experience" (Winn, 2009, p. 12).

Another framework created on the basis of the MDA is the Design, Dynamics, and Experience (DDE) proposed by Walk et al. (2017). This model uses the term design as its cornerstone instead of mechanics in the MDA. The author argues that the label Mechanics does not fit as a descriptor for several elements that designers have full control over and would be problematic to summarize under the Mechanics label, including (but not limited to):

- WORLD DESCRIPTION (documentation): World & Game Rules, Flora & Fauna, Societies, Characters, Religions, Laws, Physics;

- **STYLE** (documentation): Graphics, Sound, Narrative,...
- **FUNCTIONAL INTERFACE** (data representation): Diegetic, Non-Diegetic, Spatial, Meta;
- **CONTENT INTERFACE** (data representation): Interaction Design (interface level), Graphics & Sound, Narratives,... (Walk et al., 2017, p. 6)

To contemplate such aspects, the design pillar of the DDE framework is then further broken down into three subcategories.

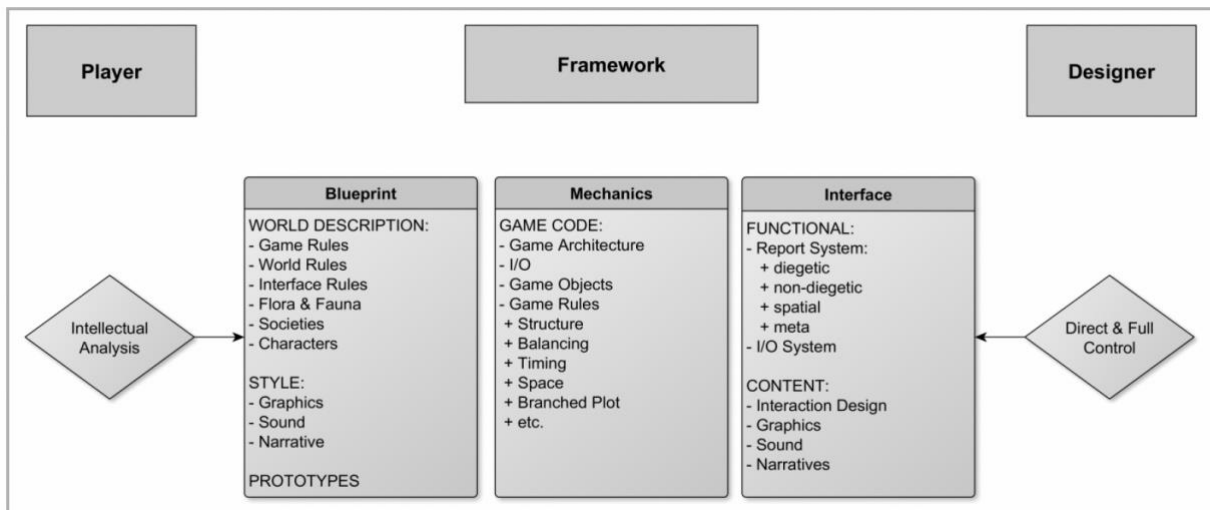


Figure 1.3: The Design part of the DDE framework by Walk et al. (2017)

The *Blueprint* subcategory refers to the part of the design dealing with the game world in concept, including its cultures, religions, and other world rule sets, along with the developed styles of the art design, narrative design, character design, and sound design that together create the aesthetic experience. The *Mechanics* subcategory consists of elements on the invisible and abstract layer of code, including the game rules and objects interaction, algorithms, and other code-related elements. Finally, the *Interface* concerns the design and production “of elements creating the game in the concrete: everything that serves to communicate the game world to the player – how it looks, how it sounds, how it reacts and interacts with the player, and the game’s internal feedback loops” (Walk et al., 2017, p. 7). In sum, the author points out, it is everything the player hears and sees. Every piece of data that does not belong to the executable or configurative code level of the game and, different from the Mechanics, is visible and concrete.

The dynamics part of the DDE framework and its relationship to the player experience is similar to the MDA. It encompasses the relationship of the game’s different parts interacting with each other and the player. Similar to the Mechanics and Dynamics in MDA, the critical difference pointed out by Walk et al. between the design and the dynamics category is that the designer’s control over the dynamics is indirect since the aspects the designer can fully control fall under the



design category. For that reason, the dynamics category always implies emergency and unpredictability.

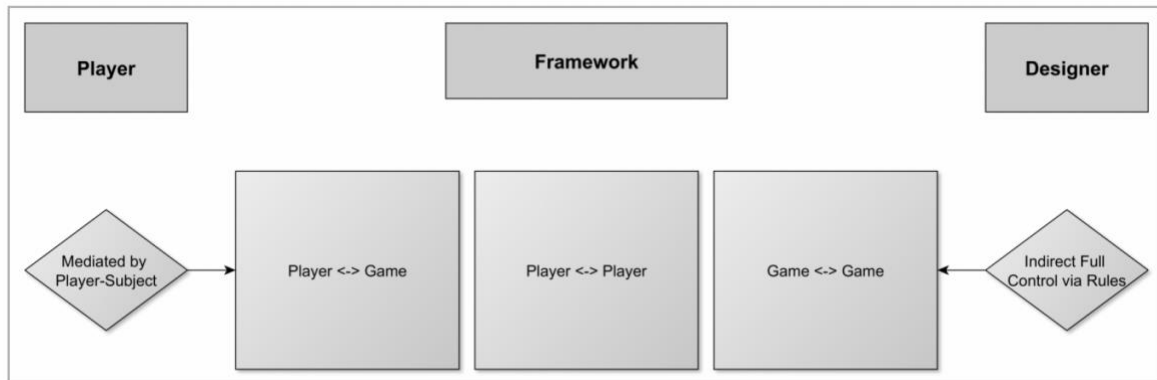


Figure 1.4: The Dynamics part of the DDE framework by Walk et al. (2017)

Finally, instead of the Aesthetics in the MDA, the DDE framework proposes the experience category. The authors favored the term Experience instead of Aesthetics because the latter can be confusing as it is a philosophical term with more than one meaning. Hence, experience seems a more appropriate term as “by its very nature, Game Design is or should be experience design” (Walk et al., 2017, p. 10). They point out that this is even stated in the original MDA paper, where it is declared that thinking about the player helps encourage experience-driven design instead of feature-driven design.

Furthermore, the experience category in the DDE framework also processes important aspects left out in the MDA framework, namely the *Player-Subject* and the concept of an *Antagonist*. The Player-Subject is described as akin to a mental persona. It is distinct from the player itself, but heavily influenced by it. This mental character has a different set of abilities and ethics from the player, and it is created due to the indirect nature of the interaction. The Player-Subject allows the player to experience situations and ethics safely without exposing them to actual harm and real-life consequences. Thus, the framework’s Design and Dynamics do not deal with the player directly, but rather with the Player-Subject.

Finally, the Antagonist entity of the experience category helps understand what the authors view as the goal of Game Design. Walk et al. point out that:

In different guises the Antagonist exists in every art form, be it the counterpoint in music or complementary colors in painting. The reason is obvious: it is through conflict, contrast or tension that almost all art generates interest at differing levels of awareness. (Walk et al., 2017, p. 11)

The Design and Dynamics categories construct an Antagonist for the Player-Subject. As a result, playing the game creates an experience journey that works on different levels:

- **Senses:** The organoleptic journey consists of all the player’s sensory experiences from start to finish. It is the totality of what the player sees, hears, and senses through the output devices, and perhaps even from the surroundings;
- **Cerebellum:** The cerebellar journey consists of all the emotions the player experiences while playing the game: fears and horrors, sadness, guilt and anger, happiness, joy, and other emotions;
- **Cerebrum:** The cerebral journey consists of all the intellectual challenges and decisions the player experiences and consciously contemplates. (Walk et al., 2017, p. 11)

These experience journeys are then processed by the Player-Subject and give rise to the player’s individual perception of the game, which designers have no complete control over, since it is subjected to a series of emergent factors such as player mood and personal preferences, taste, and bias. Perception is also the level of immediate confrontation.

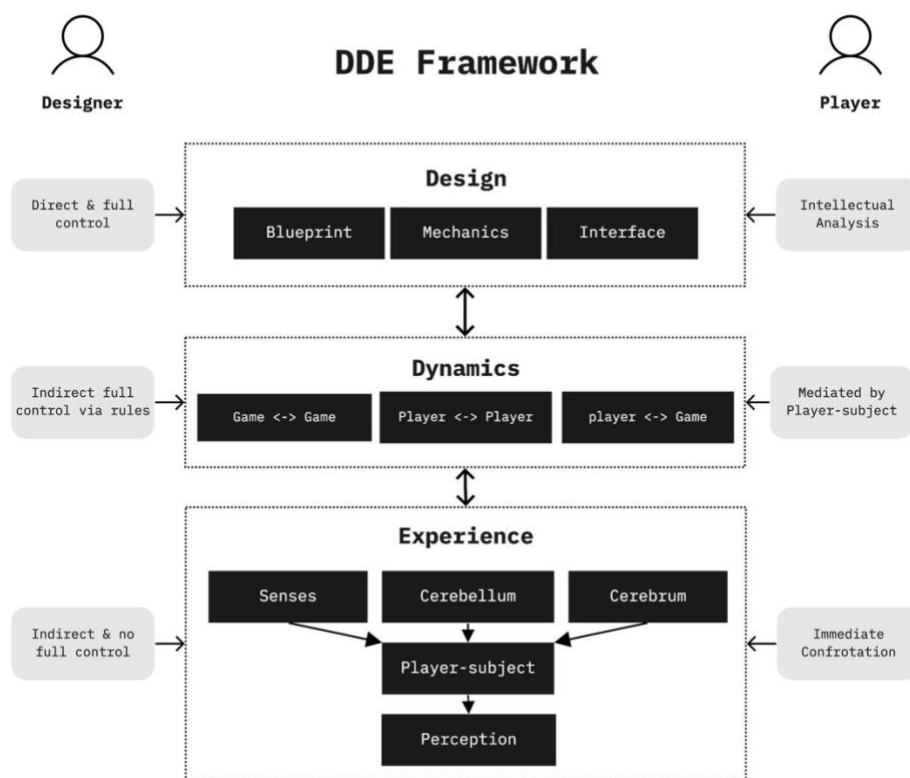


Figure 1.5: Summary of the DDE framework, adapted from Walk et al. (2017)

The DDE framework offers a comprehensive perspective for Game Design since it supports the notion of conflict with the consideration of the Antagonist and distinguishes essential design aspects from each other such as the Interface and the Mechanics. We believe that the DDE framework could offer a robust overview for understanding the systemic involvement of UI components in Game Design and could be of interest to the design sphere in creating meaningful

experiences. As the Interface is the more visible and concrete layer and under direct control by the designer, the UI can be used to create the Antagonist figure of the game and support experience-driven designs. It is also possible to highlight the potential of creating friction beyond the Mechanics' aspects and uncover alternative strategies.

### **1.3 HCI and game interface design**

In Game Design, UI and UX practices are often subjected to misconceptions about the role of friction and the paradigm of user-friendliness. This paradigm dominates the field outside the game industry and occupies a central place in modern life. Most UX designers work on websites and application softwares and focus almost entirely on interface design. As a result, many UX designers that work in the game industry may have a background of working in non-gaming companies, an assumption shared by Wheeler (2020), a UX designer at Riot Games. UX is still a relatively new practice in the industry. Hodent (2018) pointed out that there is still work to clearly outline its definition, framework, and approach within game development.

Kuang and Fabricant (2020) seek to offer a comprehensible narrative thread of how the practice of UX and the paradigm of user-friendliness came to be. Their work regards the rebuke of the enlightenment's worldview of the perfectibility of humanity's reasoning as one of the greatest intellectual and cultural shifts of the twentieth century. In the last fifty years, with the advance in fields such as cognitive psychology, we have come to understand better how imperfect our minds are, our propensity to make errors, and our use of shortcuts to make sense of the world. Therefore, designers concluded that if they understood why these errors occur, they could design them out of existence (Kuang & Fabricant, 2020).

This shift of worldview greatly impacted how new products and technologies are developed. There is a broad trend and an expectation for things to become easier to use (Kuang & Fabricant, 2020). Usability has become one of the central pillars of design. There is a considerable effort by the HCI community to increase the awareness and impact of the practice on world technology, products, and services. These endeavors led the United Nations to establish World Usability Day as an internationally observed day listed on their calendar (United Nations, 2021). The charter for the 2021 edition of Usability Day adopts the paradigm that it is necessary to reduce the human errors that result from poor design. The text states that technology should improve our lives and not add stress or cause danger through poor design and poor quality. They believe in a coordinated effort to develop reliable, easy-to-use products to serve people in all aspects of their lives. This goal is extended to entertainment products about which it is communicated that usable entertainment systems, such as games, will make the experience less tiring and frustrating.

It is possible to infer a paradigm on how good design on UX practices are expressed and characterized. Don Norman (2013) states that, when done well, products are pleasurable. When poorly done, products are unusable, leading to great frustration, confusion, and irritation. While

stating the fundamental principles of interaction, he indicates that “great designers produce pleasurable experiences.” (2013, p. 10) and later affirms that “experience is critical, for it determines how fondly people remember their interactions. Was the overall experience positive, or was it frustrating and confusing?” (2013, p. 10). Malone (1984), in *Heuristics for designing enjoyable user interfaces: Lessons from computer games*, suggested that the features that make systems enjoyable can also make them easier to learn and use. By this, computer systems could be made “not only easier and more productive to use, but also more interesting, more enjoyable, and more satisfying” (Malone, 1984, p. 12). All in all, the dominant view is that the artifacts of our lives must be designed to serve us, our limitations, and our flaws in order to make us happy. This pursuit of happiness and enjoyment is also conceived as a path for the steady growth of industry, where user-friendly systems are the elixir for sales growth (Kuang & Fabricant, 2020).

Hence, according to Kuang and Fabricant (2020), in the user-friendly world, all the nuances of designing new products can be condensed by two basic strategies: 1) find what causes us pain and try to eliminate it; or 2) reinforce mental models that make it so easy it becomes second nature.

The usability principles of the HCI field have a crucial role in making digital products easier and more pleasurable to use. Created by the International Organization for Standardization, the ISO 9241-11 norm defines basic terms and concepts and explains the benefits of measuring usability in terms of user performance and satisfaction. In this norm, *usability* is said to be a more comprehensive concept than what is commonly understood by *ease-of-use* or *user-friendliness*. Also, *usability* is defined as “the extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use”. In this context, there are three essential concepts listed in the ISO 9241-11 norm:

- **Effectiveness:** accuracy and completeness with which users achieve specified goals
- **Efficiency:** resources used in relation to the results achieved (Typical resources include time, human effort, costs, and materials.)
- **Satisfaction:** extent to which the user’s physical, cognitive and emotional responses that result from the use of a system, product or service meet the user’s needs and expectations (Satisfaction includes the extent to which the user experience that results from actual use meets the user’s needs and expectations. Anticipated use can influence satisfaction with actual use.) (International Organization for Standardization, 2018, subsection 3.1)

One of the most widely known techniques to assess the usability of a UI is the usage of Jakob Nielsen’s (1994a) *10 Usability Heuristics*. These heuristics consist of general principles for interaction design and are meant to be broad rules of thumb and not specific usability guidelines (Nielsen, 1994b). An editorial article on Norman and Nielsen’s group website explores how the notorious Jakob Nielsen’s 10 Usability Heuristics for UI Design can also be applied to video games as a technique to improve the player experience (Joyce, 2019). Other authors, such as

Federoff (2002) and Hodent (2018), also articulated how these heuristics could be relevant in the realm of video games, Federoff being also one of the first authors to propose game-specific heuristics. The author proposes a list of compiled game heuristics, categorizing them into Game Interface, Game Interface and Play, Game Mechanics, Game Mechanics and Play, and Game Play (Federoff, 2002, p. 41–42).

Table 1:3: A compiled list of game heuristics for the interface, adapted from Federoff (2002, p. 41–42)

Game Interface	Controls should be customizable and default to industry standard settings
	Controls should be intuitive and mapped in a natural way
	Minimize control options
	The interface should be as non-intrusive as possible
	For PC games, consider hiding the main computer interface during game play
	A player should always be able to identify their score/status in the game
	Follow the trends set by the gaming community to shorten the learning curve
	Interfaces should be consistent in control, color, typography, and dialog design
	Minimize the menu layers of an interface
	Use sound to provide meaningful feedback
	Do not expect the user to read a manual
	Provide means for error prevention and recovery through the use of warning messages
	Players should be able to save games in different states
Game Interface and Game play	Art should speak to its function

Moreover, Nielsen discusses usability and video games in a recent video about games requiring a different UX approach than more traditional systems (NNgroup, 2021). In his view, in many ways video games are similar to other traditional digital products, since they are UI and

are designed as such; so, ultimately, it is a UI and a UX. Nielsen states that games also have a context of use, and mentions that for advanced UI “if they were not easy to use, the game actually would be boring” (NNgroup, 2021, 4:29). Nonetheless, this view can be dismissive of the fact that “the discovery of the user interface can be very ergodic, a satisfying gameplay experience in itself and, therefore, rewarding” (Gustav, 2021), as pointed out by one of the comments in the video. However, Nielsen acknowledges that, in video games, the usability’s *satisfaction* attribute becomes more important than more work-oriented tools (NNgroup, 2021).

Furthermore, Nielsen mentions that games do not strive for ultimate efficiency – for example, clicking one button to win – and are “fighting oriented in various ways” (NNgroup, 2021, 1:15). He also points out that the critical difference between traditional systems’ UX and video games is that video games, in some sense, have “no real purpose other than being fun and enjoyable to play” (NNgroup, 2021, 0:38). Therefore, “they are not achieving anything” (NNgroup, 2021, 0:47). In contrast, “traditional interfaces have some external goal, I mean, external to the application or external to the website” (NNgroup, 2021, 0:50). Nevertheless, as will be discussed in further chapters, critical consciousness needs external perspectives, which can be part of a design strategy.

In the past years, there have been discussions about how game UX practice may differ from mainstream UX, such as in the development of apps and working systems. For example, Raph Koster (2015) once expressed that UX design is about removing problems from the user while Game Design is about giving problems to the user. From his point of view, both explore the users’ cognitive reasoning and process capacity, but they are separate disciplines. However, one could argue that while game designers such as Raph Koster view UX as a separate discipline from Game Design, experience design is Game Design (Walk et al., 2017). That perspective is exposed in the DDE framework, in which Walk et al. (2017) articulate that Game Design is or should be about experience design.

The idea of games having different needs than other digital products is not new. Sometimes, it is necessary to break the paradigm of user-friendliness in favor of the intended experience. On a SIGCHI (Special Interest Group on Computer-Human Interaction) workshop on Game Design and HCI in 1997, it was promoted a dialogue between professionals and the game community where, among other topics, it was discussed the notions of “fun” and “easy to use”, as these are often confused (Cherny et al., 1997). “Being easy to use does not necessarily imply being fun or vice versa, although it may” (Cherny et al., 1997). Almost two decades ago, Federoff, in *Heuristics and usability guidelines for the creation and evaluation of fun in video games* (2002), stated that video games have different design considerations and usability issues than other types of software. The author also mentioned the primary importance of satisfaction in relation to effectiveness and efficiency in video game usability. When discussing marrying usability and games, Jørgensen (2004) cites “challenge by ways of intended difficulty” as the most important factor, mentioning that it can be handled by balancing the gameplay.

Norman (2013) also recognizes that there are instances where good design is actually about difficulties being deliberate and that violating the rules of ease of use is what is needed. He cites games as a category in which designers deliberately defy the laws of understandability and usability since games are meant to be difficult. Ortman (2018) also expresses a similar point of view:

Designers or artists will fear that applying UX practices will “over-simplify” the experience. This is of course not the case as Usability at its core is about identifying *unwanted* friction and removing it. Games are unique in the sense that friction is often a core part of the experience whether it comes from conflict, tension or difficulty. We just have to be mindful about where that friction fits. (Ortman, 2018)

Gonzalo Frasca (2007), a notorious game designer and academic researcher that focuses on serious and political games, likewise argues that games can explore a vast spectrum of experiences and rhetorics:

Human computer interaction (HCI) and design theory generally assume that the user is always after a positive, enjoyable, and satisfactory experience. This may be true for designing tools that have a specific practical goal. However, the rhetorical spectrum of play is far vaster than simply fun and enjoyment. (Frasca, 2007, p. 139)

Frasca proceeds to draw an analogy between architecture and games. The author explains that, in many instances, buildings are not created to be useful in the design sense of usability. He cites that, for example, pyramids and cathedrals are meant to impress humans; labyrinths are a usability headache by design; a horror house in an amusement park is intended to scare its visitors (Frasca, 2007).

Thus, Celia Hodent points out that HCI is primarily concerned with making interfaces more useful and pleasant; yet, it frequently does not address the overall experience that users may have when using a product (2018, p. 99). In contrast, the author states that the UX discipline considers the emotions and behaviors elicited via interactions the end-user will have using knowledge from research methodologies and cognitive science (2018, p. 98). Therefore, the main goal is to provide the end-user with an approximation of the experience intended by the designer by fitting it to the human using it. The author delineates the game UX as how players will perceive and understand a game, interact with it, and the emotions and engagement elicited via this interaction. She recognizes that friction and other types of emotions that are not pleasurable can be catered by UX practices as well:

The main purpose of UX practices is to offer the experience *intended* to the targeted audience. Therefore, if your audience is hardcore gamers and the experience you want for them is suffering, then UX guidelines will absolutely help you accomplish your sadistic goal. (Hodent, 2018, p. 100)



Others go even farther to challenge Game Design theorists, who have frequently positioned game creation as the craft of satisfying players' needs. Douglas Wilson and Miguel Sicart (2010), for example, proposed the notion of Abusive Game Design as an aesthetic provocation critiquing some conventionalisms in mainstream Game Design. The authors characterize abusive games as unmistakable examples of user-unfriendly design, as objects that specifically contradict the concept of player advocacy and force players to confront and grasp the creator.

Nonetheless, friction may be used in games as a means not only to increase difficulty levels or target hardcore gamers, but also to play a core part of the experience by conveying meaning through conflict and tension apart from the mechanics. It appears that we could explore how the rules that intend to eliminate friction from the interface can be applied as a strategy for intentional friction. We see an opportunity to propose intentional friction as an alternative strategy for games' interfaces to potentially explore a broader range of emotions and overcome potential bias created by the paradigm of user-friendliness, challenging design conventions themselves.



## 2. Criticism, expressiveness, and emotion in digital games

### 2.1 Games as a medium for critical reflection and expressiveness

Digital games are a form of media that stands out for having a distinct advantage often lacking in other art forms: the call for agency and its inherent participatory aspect (Crawford, 2011, location 43). This particular understanding substantiates the theoretical concept of *Procedural Rhetoric*, developed by Ian Bogost (2007), as he argues that games can make statements about how the world functions not just through words or images, but also through the processes they embody and the interactions that they incorporate. He describes games as an expressive and persuasive medium to communicate messages, build arguments, and influence players through interactions present in a rule-based environment. They represent how real and imaginary systems work, inviting players to interact with such systems and form judgments about them (Bogost, 2007).

Because games are an action-based medium, when they represent a real-world system, they require a unique correspondence between the social reality depicted in the game and the one lived by the player (Galloway, 2006). Therefore, “video games absolutely cannot be excised from the social context in which they are played” (Galloway, 2006, p. 84). Games are a medium that can be used for representing social realism, and Galloway (2006) argues that, while the first two moments of realism were in the narrative (literature) and images (painting, photography, film), games reside in a third moment of realism: realism in action.

Therefore, realism can be comprehended in games not only as a mere realistic graphic manifestation. Instead, it is preferable to define realist games as games that “reflect critically on the minutiae of everyday life, replete as it is with struggle, personal drama, and injustice” (Galloway, 2006, p. 75).

Another pertinent concept to comprehend in the realm of games that aim to provide critical commentary is the notion of *Critical Games*. Lindsay Grace, in *Critical games: critical design in independent games* (2014), states that this type of game “critique conventions of gameplay, player expectations, and the myriad of entities and relationships that define digital games. This includes their relationship to the societies in which they exist” (Grace, 2014. p. 1–2). Hence, Critical Games provide meaningful critique by challenging conventions of the digital experience to provide social analysis, to examine gameplay assumptions, or to create a playful design (Grace, 2014).

Grace (2014) proposes that Critical Games types can fall between mechanical critique and social critique. The author suggests that, while social critique is typically *reflective* because the

design reflects specific social characteristics, mechanical critique is usually *recursive*, focusing on the experiential implications of operation. Grace furthermore categorizes Critical Games by their structural delivery. Games that rely on a repetitive critical design are called by the author *continuous critical designs*. In contrast, games that deliver their critique only in some pivotal moment, usually when player expectations are broken, can be comprehended as *discontinuous critical design*.

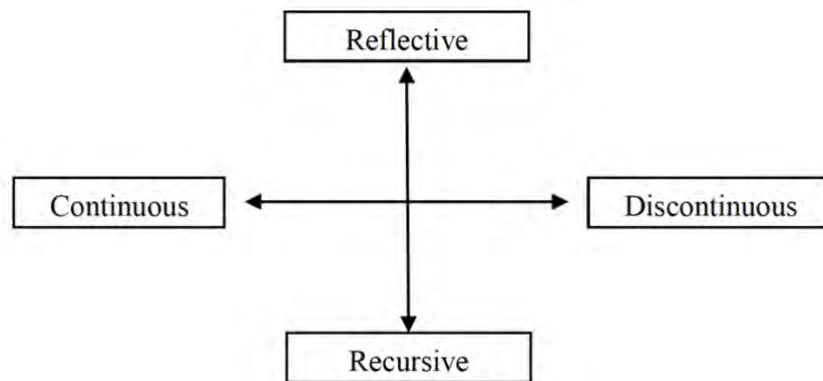


Figure 2.1: The spectrums of Critical Games (Grace, 2014, p. 8)

He notes that, to function as a social commentary, critical design must generate conflict between established norms and its own assertions. For example, “a racist game in a racist culture has less chance of being critical design, because it fails to provide contrast” (Grace, 2014, p. 5). Thus, “critical design, and counterpart movements, such as speculative design, situates provocative designs—often counter functional—in the world to challenge our thinking about products and the ways that we live” (Hanington, 2017, p. 165). Accordingly, the author reasons that Critical Games that aim to make reflective criticism need, as like most critique, a subject to comment on.

In *Critical play: radical game design*, Mary Flanagan (2009) proposes a model for designing the subject to comment on into the game. In this model, “human concerns, identifiable as principles, values, or concepts, become a fundamental part of the process” (Flanagan, 2009, p. 267) and are defined in the early stages of the process. Therefore, the designer, activist, or artist could revisit these goals later to reassess the game against it. To support these goals, Flanagan (2009) points out a second stage where it is necessary to develop the rules and constraints that support the value goals. Although the author mentions rules and tasks, the UI could also be understood as a significant design material to support the game’s values.

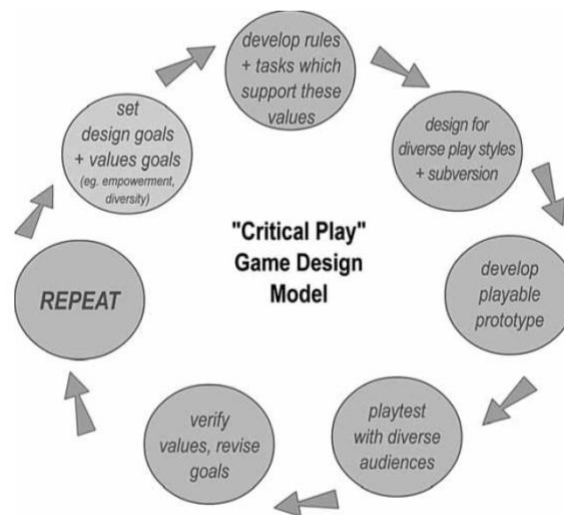


Figure 2.2: Mary Flanagan's model of critical play method (Flanagan, 2009, p. 257)

However, although it is a valuable model that helps establish the basis of the critical play method, it may be too broad when the value goals aim to deal with real-life complex social systems, dominating structures of power, or institutions. In other words, how to design the rules and tasks that support values associated with complex systems remains an unknown inside this model.

One might consider that designing artifacts that challenge the current systems, including design itself, could prove to be a challenge. A designer colleague named Isabella Brandalise (2016) proposed a compelling process called “Infiltration-opening” that may offer a possible approach for the challenge of infiltrating real-life dominating systems of power and institutions that seem rigid and infrangible. She proposes a strategy where the designer or artist appropriates

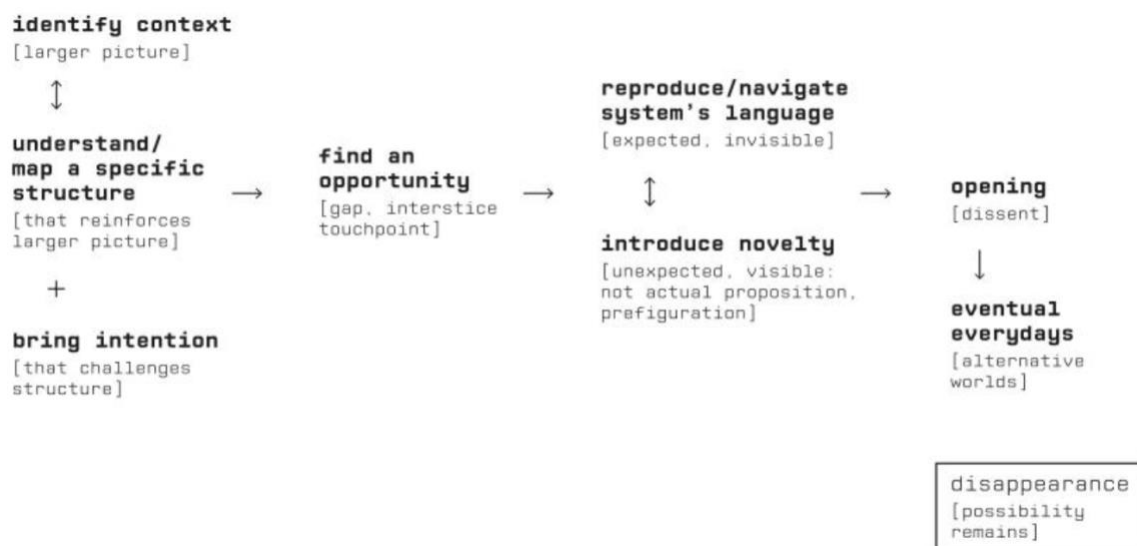


Figure 2.3: The moments in the Infiltration-opening process (Brandalise, 2016, p. 53)

the characteristics of the system structure to question and subvert it using out-of-ordinary interventions.

This process offers a perspective on how design can support dissent and otherness. In the context of Game Design, it may be possible to utilize the Infiltration-opening process to create an expressive and reflective UI capable of profound social-political commentary. Possibly, designers can use the UI language to introduce the unexpected aspects required in the Infiltration-opening process and challenge current systems and UI Design itself.

The so-called *Serious Games* also often exploit the player agency and the capability of the medium to foster critical thinking skills. A serious game is understood as a game created to entertain and fulfill at least one additional objective – such as formal or informal learning (Dörner et al., 2016). As explained by these authors in the book *Serious games: Foundations, concepts and practice*, the additional objective, or characterizing objective, can comprise a wide range of skills: cognitive, emotional, sensory and motor, social (such as cooperation, empathy, interaction, communication, and moral judgments), and personal (such as self-criticism, self-observation, and identity). In this scenario, it is argued by the authors that the characterizing objective is not defined only by the game developer, but actually by the player's own intention. Thus, any game could be understood as a serious game when the player uses it not only for entertainment, but also for acquiring some other skill of interest.

However, Bogost proposes the terminology of *persuasive games* as an alternative to Serious Games, given that, in his view, Serious Games are often created to perpetuate established interests of political, corporate, and social institutions (Bogost, 2007, p. 56). According to the author, persuasive games may build arguments that speak past or against the traditional worldviews of institutions and use *Procedural Rhetoric* to alter or affect player's opinion outside of the game instead of merely keeping the user to continue playing.

These persuasive games use Procedural Rhetoric by employing processes, such as the methods, techniques, and logic that drive systems' operation, to create compelling and persuasive expressions (Bogost, 2007). This Procedural Rhetoric can be assembled by embodying procedural tropes.

Outside of video games, procedural tropes often take the form of common models of user interaction. Elements of a graphical user interface could be understood as procedural tropes, for example, the scrollbar or push-button. These elements facilitate a wide range of user interactions in a variety of content domains. (Bogost, 2007, p. 13)

These tropes can be called interface logics, and the author suggests that this and other procedural tropes “form the basis for a variety of subsequent expressive artifacts” (Bogost, 2007, p. 14). In addition, the author points out that procedural tropes can be equated to forms of literary or artistic expressions, such as a sonnet, a short story, or a feature film.

Yet, Bogost appears to hint that these common elements of a graphical UI may be a user interaction model that resides outside of the realm of video games. As per the DDE framework

(Walk et al., 2017) introduced in previous chapters, the UI is an integral component of Game Design. Commonly used UI elements are part of systems of rules that relate specific signs with specific meanings and, thus, could be understood as agreed interaction language. “Languages impose internally checked compositional rules, which in turn produce the possibility space for expressive output” (Bogost, 2007, p. 249). Then, we could aim to employ UI in various expressive practices, including games.

In sum, in the context of this work, the UI may be used in games as a procedural trope to deliver expressiveness recursively. As for reflective criticism, designers can potentially use the UI to infiltrate systems in order to introduce novelty and tension, and to open opportunities for social commentary through reflection.

## 2.2 The emotional aspect of design and its expressive and critical potential

One helpful approach to consider when designing digital interfaces is the approximation model of human cognition and emotion proposed by Donald Norman (2004). As visited in the DDE framework (Walk et al., 2017), the experience journey of the player is made by the organoleptic journey, the emotional journey, and the intellectual journey. Although designers have only indirect control over the player’s final experience, as this is very sensitive to factors such as culture, education, and past experiences, the Emotional Design approach is a valuable opportunity to understand how to explore this aspect of game UI Design.

For Norman (2004, p. 5), the practical elements of a product are less critical to a product’s success than its emotional aspects. Thus, in his model, Norman considers three levels of processing emotions. The three levels of processing are called *Visceral*, *Behavioral*, and *Reflective* and can be mapped to specific product characteristics:

Visceral design	➤	Appearance
Behavioral design	➤	The pleasure and effectiveness of use
Reflective design	➤	Self-image, personal satisfaction, memories

Figure 2.4: Three levels of processing emotions (Norman, 2004, p. 39)

To consider addressing these processes, the author reasons that design must take place at all levels, as any real experience will involve all three (Norman, 2004, p. 39). While describing the relationship between cognition and emotion, the author explains that cognitive thoughts lead to emotions, and emotions drive cognitive thoughts, being unseparated.

Yet, Norman proposes that most human behaviors result from subconscious cognitive processes. So, accordingly, only the reflective level occurs at a conscious level. This being the case, Norman asserts that our reflective responses are the ones that are part of our memory, lasting

much longer than the direct experience or the period of usage of the product (2013). Because of that, the reflective level becomes essential as “the reflective value outweighs the behavioral difficulties” (2004, p. 85).

Table 2:1: Subconscious and conscious systems of cognition (Norman, 2013, p. 49)

<b>Subconscious</b>	<b>Conscious</b>
Fast	Slow
Automatic	Controlled
Multiple resources	Limited resources
Controls skilled behavior	Invoked for novel situations: when learning, when in danger, when things go wrong

Thus, characteristics of the three levels from Norman (2013) could be summarized as such presented in Table 2.2.

Table 2:2: Visceral, Behavioral, and Reflective characteristics, adapted from Norman (2013)

<b>Visceral</b>	<b>Behavioral</b>	<b>Reflective</b>
Making quick judgments about the environment: good or bad, safe or dangerous	Learned skills, triggered by situations that match the appropriate patterns	Deep understanding, where reasoning and conscious decision-making take place
Subconscious	Largely subconscious	Conscious
Fast and automatic; Responds to the immediate present	Fast and automatic; Responds to the immediate present	Slow and deep; Extend longer and often occurs after the event has happened
Style and appearances: Sound or sight, touch, and smell drive visceral response of attraction or repulsion	Expectations: Every action is associated with an expectation. Confirmation or disconfirmation of expectations, resulting in satisfaction or relief, disappointment or frustration	Reasoning: Evaluate circumstances, actions, and outcomes, often assessing blame or responsibility. Causes are assigned and predictions of the future take place

It is worth noting that the behavioral level deals with largely subconscious cognitive processes (Norman, 2013). When a skill is learned, it can be performed primarily subconsciously when the user is presented with situations that match the appropriate pattern. Therefore, “for experts, only especially difficult or unexpected situations require conscious attention” (p. 47). Accordingly, “it is only when we come across something new or reach some impasse, some problem that disrupts the normal flow of activity, that conscious attention is required” (p. 42).

Then, one could argue that friction may play a part in creating reflective levels of emotion and conscious cognition. By introducing novelty, defying expectations, and introducing tension, the user is called upon to use its conscious system of cognition and, consequently, its reflective level of emotion.

It is also possible to trace a parallel between the emotional levels of Norman (2004) and the spectrums of critique proposed by Grace (2014). We could understand the behavioral level of emotion as where the recursive critique occurs initially, as both deal with more operational and mechanical aspects of the experience. However, by introducing tension and subverting expectations, the recursive critique could lead to a more reflective level of emotion and cognition since players need to use conscious attention to evaluate the unique situation presented to them. Then as well, the reflective levels of emotion and the reflective critique spectrum both use the conscious system of cognition since social analysis requires players to assess presumed causal agents and often consider blame or responsibility.

Forgas (2017) also investigated how affect influences our thinking and behavior. For the author, the mood-induced influences on the content and process of thinking have significant implications for HCI. In his research, Forgas (2017) mentions supporting evidence suggesting that both negative and positive moods can produce advantages in how we process information, as a response to different situations and contexts. The *assimilation and accommodation* model suggests that mood essentially triggers different processing styles that best prepare us to respond to different challenges (Forgas, 2017). As explained by the author:

Positive mood indicates that the situation is safe and familiar, and that existing knowledge can be relied upon. In contrast, negative mood functions like a mild alarm signal, indicating that the situation is novel and unfamiliar, and that the careful monitoring of new, external information is required. (Forgas, 2017, p. 104)

Thus, for example, negative moods may optimize the way people process, produce, and respond to a persuasive message (Forgas, 2017). The author also suggests evidence that a negative mood can have real-life implications on reducing stereotyping and biases, improving detection of deception and skepticism, judgmental accuracy, memory performance, and even beneficially affecting interpersonal strategies. However, he mentions that “given the almost exclusive emphasis on the benefits of positive affect in our culture, this is an important message with some intriguing real-life implications” (Forgas, 2017, p. 104). The author points out, however, that the benefits of the processing style linked to negative moods reported in his study apply only to mild, temporary moods and can not be generalized to more enduring and intense negative states, such as depression.

Emotion and cognition manipulation has recently become an often explored strategy for UI and product designers on various media. For example, in the more traditional UI of websites and apps, it is possible to observe the use of *dark patterns*, a term first coined in 2010 by UX designer



Harry Brignull (2010). Dark patterns are deliberate deceptive UI choices that pressure, trick, or mislead users into something they do not intend to do.

Although persuasive design methods in themselves are not to be feared, the very same understanding of the human mind could just as well be used for malicious purposes, paving the way for manipulating people's decision making in a manner unaligned with their own goals and desires. (Maier & Harr, 2020, p. 171)

This can be achieved by exploiting users' cognitive and emotional biases. The employment of persuasive technology and dark pattern strategies in games, apps, and websites has risen in various ethical debates over the years. Amongst many other types of dark patterns, one example that exploits user emotions is the aesthetic manipulation of interface interference, such as a website displaying a false message intended to create feelings of pressure and anxiety in users (UXP2 Lab, 2017). According to Maier and Harr (2020), this kind of psychological pressure is a widespread approach used by companies pressing for sales. The authors cite as an example the "only three rooms left" messages seen on websites such as *Booking.com*.

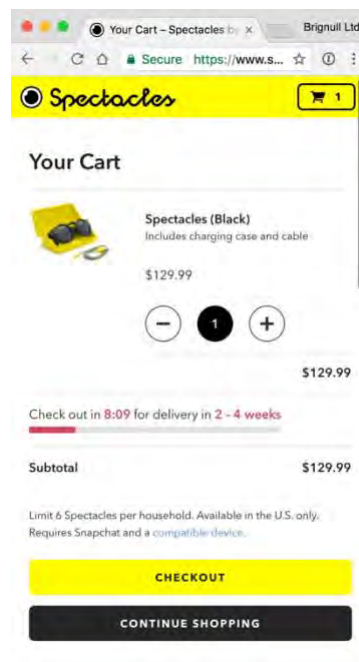


Figure 2.5: Screenshot of Spectacles.com: Fake Countdown Timer (UXP2 Lab, 2017)

Dark patterns can also be observed in games that use UI elements to subconsciously influence players' emotions and decisions in a detrimental or unwanted way, such as an expenditure of money or game addiction. Zagal et al. define a dark Game Design pattern as "a pattern used intentionally by a game creator to cause negative experiences for players which are against their best interests and likely to happen without their consent" (2013, p. 7). These patterns can take the form of visceral and behavioral levels of Emotional Design, for example, over-the-top feedback by "using extreme graphics, sounds and vibration when you win or lose" (DarkPattern.games,



2020). The lack of friction can also be used as a way to shape behavior since the more convenient an action is, the more likely it is for users to perform it and form a habit around it (Yablonski, 2020).

However, game designers have also explored emotion on game UI in a less pernicious form. For instance, independent game designer Nathalie Lawhead (2019) offers a different perspective on using the interface to communicate feelings and emotions and create personality. All her work heavily relies on UI to convey the game's message or further build on it (Lawhead, 2019). She cites several ways to achieve this, including treating the interface as a game character or exploring the trust relationship between humans and machines by rejecting players' suppositions and expectations (Lawhead, 2019).

There is an emotional reaction that happens when a computer doesn't do what you want it to do (things crash, close, errors = confusion, loss, chaos). This is something you can use to enhance your game's theme. Work with the ways that UI is emotional. (Lawhead, 2019)

In the award-winning game *Everything Is Going to Be OK* (2017), Lawhead heavily employs Emotional Design on the UI to make impressions on life experiences and "commentary on struggle, survival, and coping with the aftermath of surviving bad things" (Lawhead, 2017). The game explores all three levels of emotional processing in the UI:

- The jarring and off-putting aesthetic of the UI works on a visceral level;
- The disconfirmation of expectations of interactions works on a behavioral level;
- The remembering of past experiences and the game theme's interpretation, understanding, and reasoning works on the reflective level.



Figure 2.6: Everything Is Going to Be OK (2017)

Being aware of the approximated model of human emotion and cognition (Norman, 2004) could lead the way to UI Design decisions that may enrich the player’s emotional journey in the play experience. This understanding may also help achieve recursive and reflective critical intentions. However, one should be mindful that the manipulation of subconscious emotions and persuasive technologies techniques should not be used to the player’s detriment or with malicious intent. That being said, we should not be afraid to explore the broad range of human emotions as “both positive, relaxed states and anxious, negative, and tense states are valuable and powerful tools for human creativity and action” (Norman, 2013, p. 49).

## 2.3 Flow theory and its relationship with critical stances

As discussed, UX and UI designers can explore various emotions in Game Design. Norman references that “one important emotional state is the one that accompanies complete immersion into an activity” (2013, p. 55), explicitly citing the concept of *Flow* forged by the psychologist Mihály Csíkszentmihályi (2008). In particular, Norman mentions how Flow acts on the behavioral level and notes how Csíkszentmihályi’s work demonstrates that Flow can create robust emotional responses (2013, p. 56).

Flow is regarded by Csíkszentmihályi as an optimal experience and as the secret for enjoyment and happiness in life. It comes from the perspective of positive psychology: “a science of positive subjective experience, positive individual traits, and positive institutions promises to improve quality of life and prevent the pathologies that arise when life is barren and meaningless” (Seligman & Csíkszentmihályi, 2000).

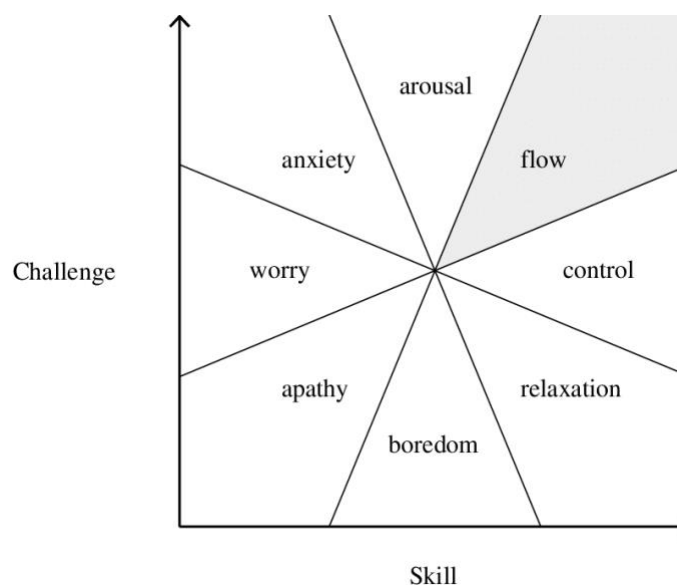


Figure 2.7: The quality of experience as defined by skill and challenge, adapted from Csíkszentmihályi (1997, p. 31)

The Flow theory is a well-known concept for game designers, as it seems to produce a state of enjoyment that maintains players engaged and immersed in an intrinsically motivating activity (Hodent, 2018). In particular, it is typical to balance a game's difficulty levels by ensuring that tasks are not too easy and not too hard, thus ensuring players achieve the Flow state. Overall, for Flow to be attained, it is necessary to make sure the level of the challenge matches the player's abilities as their skills increase.

Indeed, Hodent (2018) summarizes Csíkszentmihályi's eight critical components to the experience of Flow and mentions these components are remarkably relevant to video games:

- A challenging activity that requires skills (which we know we have a chance of completing);
- The merging of action and awareness (the activity completely absorbs the person's attention);
- Clear goals (when the goal is challenging to accomplish and is meaningful);
- Direct feedback (feedback is immediate and related to the goal);
- Concentration on the task at hand (we forget the unpleasant aspects of life and information irrelevant to the task);
- The sense of control (developing sufficient skills to master the task);
- The loss of self-consciousness (no room for self-scrutiny);
- The transformation of time (losing track of time). (Hodent, 2018, p. 167).

Since Flow leads players to lose self-consciousness and a high concentration level on the task at hand, it facilitates forgetting external conditions. In other words:

Flow quiets anxiety, worry, doubt, depression. Instead of rampant self-criticism or stress caused by external issues, flow facilitates the loss of self-consciousness and focus attention on an activity, not on one's worries. (Soderman, 2021, p. 71)

Soderman (2021), in *Against flow: Video games and the flowing subject*, provides a broad critical debate surrounding Flow theory and its politics, ideology, and history, aiming to contribute to a more nuanced articulation of Flow in games and beyond. The author exposes that Flow leads to enjoyment while privileging self-determination over the idea that external forces shape human action and consciousness. For instance, through the Flow perspective, problems people may experience in western societies are not due to external factors such as poverty, inequality, oppression, or exploitation. Instead, they are due to personal feelings of loss of control, boredom, anxiety, and self-criticism (Soderman, 2021).

Eventually, Soderman (2021, p. 70) writes that Flow creates “momentum that inhibits adopting an outside perspective from which to reflect on and consider the meaning of their actions”. Indeed, we could say Flow operates at the behavioral level of emotion, as it privileges action over reflection. Csíkszentmihályi reinforces this perspective when discussing the merging of action and awareness:

In normal life, we keep interrupting what we do with doubts and questions. “Why am I doing this? Should I perhaps be doing something else?” Repeatedly we question the necessity of our actions, and evaluate critically the reasons for carrying them out. But in flow there is no need to reflect, because the action carries us forward as if by magic. (Csikszentmihályi, 2008, p. 54)

The blind focus on action can lead us to a presumption that what users want can be reduced to what makes users click, and that presumption completely “omits motive in favor of impulse and action” (Kuang and Fabricant, 2020, p. 227). Yet, as revealed by a critical consciousness viewpoint, it is imperative to have a critical distance from the experience “to think more deeply about dominant and oppressive forces that circumscribe consciousness” (Soderman, 2021, p. 70). Therefore, one might consider that Flow could hinder a more reflective level of cognition and curb the external perspective present in Critical Games that aim to provide social commentary.

Moreover, Soderman (2021) indicates the implicit ideological perspective contained in Flow theory. The author reasons that Flow is excellent for reinforcing ideals present in neoliberal, individualistic, and capitalist societies. One motive is that Flow constructs a parallel with capitalism’s obsession with endless growth and surplus-value as it aims to keep the Flow subject engaged and productive for long periods, always in search of expansion of capacities and skills (Soderman, 2021, p. 60). It is, therefore, a mirror of consumerism and accumulation (more energy, more points, more happiness, and more productivity).

In addition, Han (2021) alerts that, through positive psychology, happiness becomes a new formula for domination, as pressuring individuals to be happy and free produces coercion much more readily than being obedient. The author revealed that self-motivation and self-optimization make neoliberal domination very efficient, as it exercises itself without much effort. Furthermore, he also suggests that neoliberal happiness ensures that individuals occupy only with themselves instead of critically reflecting on social relationships.

Then, Flow could be seen as a coping mechanism to deal with personal and social problems (Soderman, 2021, p. 80). There is no need to remove or solve the external cause of anxiety within Flow, but simply distract ourselves from its causes with feelings of enjoyment and individual achievement. However, Soderman points out that more than a coping mechanism to distract people, “it might become a form of psychosis that disconnects people from reality” (p. 74).

Despite this, we could strive to use Flow critically or resist it in meaningful and expressive ways. Notably, Soderman mentions various ways game designers could explore different Flow architectures. For example, the author suggests that one could: eject players from the Flow to break the player’s deep involvement with an action; jarring players from Flow for aesthetic purposes; employ Flow to motivate players to pursue political goals and actions; highlight positive feelings of enjoyment of Flow as a critique to everyday life and alienation; or experiment with other forms of immersion for players unhappy with the standard form of Flow in games (p. 265).

Accordingly, the perspective discussed in this section sheds light on alternative strategies for designers aspiring to explore other experiences and emotional qualities other than Flow and enjoyment in order to foster critical reflection.

# 3. Antagonism and intentional friction in the interface

## 3.1 Strategies and examples

Friction in the UX could be understood as “anything that prevents users from accomplishing a task” (Swallow, 2018) or “points of difficulty occurring during interaction with technology” (Cox et al., 2016, p. 2). UI designers can use friction to produce positive and negative experiences. Swallow (2018) noted that the purpose of empowering users and giving control might be as much about applying friction as removing it. He cites as an example of positive friction methods of error prevention. Similarly, Cox et al. (2016) argue that small microboundaries can prevent us from rushing from one context to another and add moments of friction that create reflective, informed, and safe interactions. Norman (2013) also classified deliberate difficulties and constraints that ensure people’s safety and well-being as good design.

Yet, as seen in previous chapters, design practices are often submitted to the easy-to-use, enjoyment, and happiness paradigms. In the design-thinking process, issues that inconvenience or annoy a prospective customer are often called pain points, which must be addressed and eradicated from experience. Our society desperately runs away from pain and negative experiences (Han, 2021). In turn, this leads to coercion to conform and pressure for consensus. We end with only variations of the same creations as pain and commerce are mutually exclusive (Han, 2021). Therefore, as exposed in *Breaking the hedonistic loop: Meaning before fun in videogames* by Cardoso et al. (2019):

Conventional Game Design practices focus on providing clear affordances, on implementing mental models that are adequate to genre conventions and target audiences, on avoiding boredom or steep learning curves, on maximizing the potential for replayability, and so on. (Cardoso et al., 2019, p. 2)

Still, to err is human, and the human mind is prone to mistakes and behavior patterns. And although it might be dangerous for every type of system or software to exploit this characteristic, games offer a safe space for players to err, fail, and misbehave, as their missteps will often lead to no grave real-life consequences. Instead of designing human error and negative experiences out of existence, we can envision this as an opportunity to insert expressivity. The negative experience of discomfort is an integral part of learning. It is also constitutive for thought and, in opposition to pleasure, puts into motion a reflective process (Han, 2021). Furthermore, art (and consequently games) can provoke strangeness, disturb, upset, and hurt (Han, 2021). This

experience may offer the opportunity for players to reflect on their actions, motives, and social relationships, or undergo a broader range of emotions.

Building upon similar reasoning, Cardoso et al. (2019) propose the concept of *aesthetic friction* as an alternative to the hedonistic loop: the loop made of positive feedback guided by pleasurable and familiar experiences. According to the authors, the change of emphasis from friendly and frictionless to unfamiliar and uncomfortable is where the experience is less concerned with fun and more with meaning. Frictionless aesthetics prioritizes fun; in contrast, what the authors call *aesthetic friction* prioritizes meaning and expressiveness (Cardoso et al., 2019).

A promising way to consider UI Design under a friction perspective is by thinking of designers as akin to architects. By indirect control, both architects and designers try to guide people into having the right kind of experience (Schell, 2008, p. 330). To help ensure players do this on their own free will, in lens #72 of indirect control Schell poses the following questions:<sup>2</sup>

- Ideally, what would I like the players to do?
- Can I set constraints to get players to do it?
- Can I design my interface to get players to do it?
- Can I use visual design to get players to do it?
- Can I use music or sound to get players to do it? (Schell, 2008, p. 293)

To further understand potential strategies to achieve intentional friction, we might consider that as procedural rhetoricians, we should try to understand the materials from which our procedural argument is formed (Bogost, 2007, p. 63). In that way, even where a lack of usability and understandability is deliberate, it is still essential to know the principles of good design<sup>3</sup> since they can state in reverse how to go forward with our designs (Norman, 2013). Therefore, we can take as foundation Norman's (2013, p. 72) 7 design principles: discoverability, affordances, signifiers, constraints, mappings, feedback, and conceptual models. The author mentions one could systematically violate the rules by this:

- Hide critical components: make things invisible.
- Use unnatural mappings for the execution side of the action cycle so that the relationship of controls to the things being controlled is inappropriate.
- Make the actions physically difficult to do.
- Require precise timing and physical manipulation.
- Require precise and accurate input.
- Do not give any feedback.

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<sup>2</sup> While Schell makes a distinction in the list on interface design, music, sound, and visual design, per the DDE framework by Walk et al. (2017), all these aspects can be part of the game interface.

<sup>3</sup> Good design is context-dependent, given the myriad of goals and problems that design may intend to address. However, here Norman is referring to designing optimal usability and understandability.



- Use unnatural mappings for the evaluation side of the action cycle so that the system state is difficult to interpret. (Norman, 2013, p. 256–257)

Further expanding on this list and thinking about the specific space of the UI of games, we did an additional exploratory investigation to find examples of deliberate violation of rules and other possible techniques to insert intentional friction.

We were able to identify six distinct strategies in this process. These six strategies we identified were described in the paper *Strategies of intentional friction in the user interface of digital games* (Silva et al., in press). Thus, what is presented here is part of the content that is to be published in the near future.

### 3.1.1 Exploit memory shortcomings

In line with Norman's (2013) suggestion of deliberately hiding critical components, we could expand this strategy by considering how human memory operates. For instance, human behavior is guided by a combination of external and internal knowledge, being the internal knowledge stored in our short-term or long-term memory (Norman, 2013).

However, to use the information in our memory, we have to store and retrieve it, which may need considerable learning (Norman, 2013). One design implication is that “as a rule, it takes time for information to get into long-term memory and time and effort to get it out again” (Norman, 2013, p. 95).

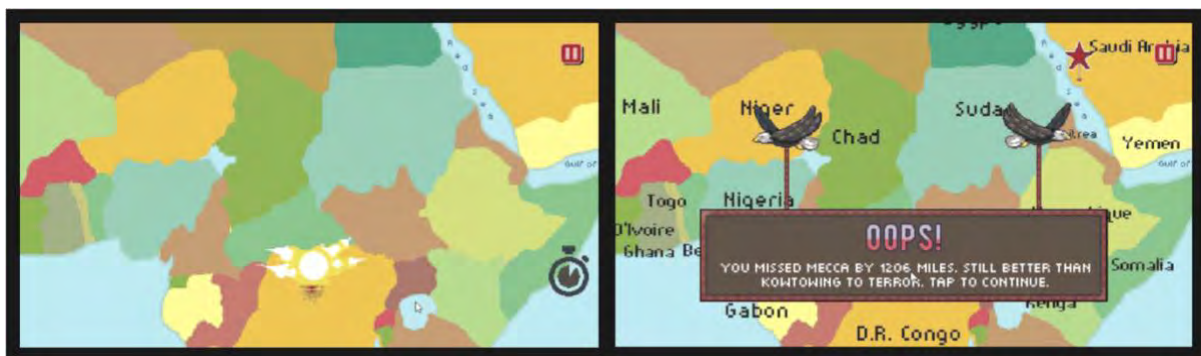


Figure 3.1: Bomb the Right Place (2016)

In the game *Bomb the Right Place* (2016), the player is a US commander-in-chief tasked with ordering missile strikes on real-life foreign countries. The rules are straightforward, as the player is requested to click on the correct target in a map in a limited time. In other words, the game pushes players to provide accurate input in a restricted time frame. However, the UI deliberately conceals the labels for the countries and cities on the map, limiting the external knowledge available and forcing players to retrieve this information from their memory (if ever learned previously), demanding much more effort. This effort sets players to failure and serves the purpose of compelling them to contemplate their ignorance, insensitivity, and detachment



regarding geopolitical conflicts and foreign hardships. This example likewise violates Nielsen's (1994b) usability heuristic #6 of recognition rather than recall since it forces players to recall the precise location of several foreign cities and countries at the same time. It also violates heuristic #5 of Error Prevention since this UI design makes the user's decisions and actions prone to error.

### 3.1.2 *Faulty feedback*

Feedback is communicating the results of an action (Norman, 2013). Besides giving no feedback, as suggested by Norman, a potential strategy consists of employing faulty feedback to mislead or overbear players (p. 256).

*Hellblade: Senua's Sacrifice* (2017) is a game that proposes to portray psychosis and mental illness, and, during development, several team members would interview psychosis patients about their experiences (Messner, 2017). In the opening scene, players are met with a message that declares that the dark rot on the main character's arm will grow each time the players fail. If the mark reaches the character's head, the quest will be over, and players will lose all progress.



Figure 3.2: *Hellblade: Senua's Sacrifice* (2017) opening scene message

Thus, every time the player fails in-game, the mark slowly crawls her arm in the direction of her head, as feedback of the player's failure and a constant reminder of the ultimate punishment of permadeath<sup>4</sup>. However, this treat turns out to be a bluff. In reality, it does not matter how many times players fail; they are not in actual peril of losing their progress in the game as they can always continue from the last saving point as the mark will never reach Senua's head. As explained by one of the developers, the game deliberately employs this deceiving feedback to provoke fear and anxiety in players with the prospect of losing all the time invested as a form to suggest the analog fear of death experienced by those with psychosis (Purslow, 2018).

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<sup>4</sup> Permadeath is a game mechanic in which the game fully restarts when the player character dies, potentially causing players to lose all of their progress.

Moreover, the game uses sound as a UI tool to allude to the auditory hallucinations experienced by people with psychoses. Norman (2013) mentioned that although feedback is essential, it should not overwhelm users' calm and relaxing environment. Yet, the game purposefully defies this premise aiming to create a tense and distracting environment. It accomplishes it by using voices that provide conflicting, unreliable feedback and warnings about Senua's actions or surroundings.



Figure 3.3: Hellblade: Senua's Sacrifice (2017) gameplay screenshot

Finally, the game's lack of HUD interferes with players obtaining feedback on their performance by not displaying the health levels of bosses, enemies and the player character. This example flouts Nielsen's (1994b) usability heuristic #1 of visibility of system status, as users are not getting clear communication and feedback about the system state. No feedback can produce a feeling of lack of control that can be unsettling (Norman, 2013). Therefore, this design choice for the UI also contributes to creating the anxious emotional states envisioned by the designers.

### ***3.1.3 Mismatched mental model***

*Mental models* are “the conceptual models in people's minds that represent their understanding of how things work” (Norman, 2013, p. 26). Players with experience with multiple games developed a determined level of gaming literacy and may form assumptions regarding specific game genres and terminology. For example, Toby Fox, in the game *Undertale* (2015), exploits players' mental models in its UI by utilizing typical RPGs (Role-playing game) acronyms for the game stats. For example, it uses acronyms such as HP (Hit Points or Health Points in most RPGs), AT (Attack or ATK traditionally), DF (Defense or DEF traditionally), EXP (traditionally standing for Experience Points), and LV (traditionally standing for Level). However, the acronym EXP is designed to mislead players, as it stands for Execution Points in the game and is gained by killing

monsters that the player could befriend. The LV is also misleading as it stands for “Level of Violence” or, in the remarks of one game character, “A way of measuring someone’s capacity to hurt” (Undertale, 2015).

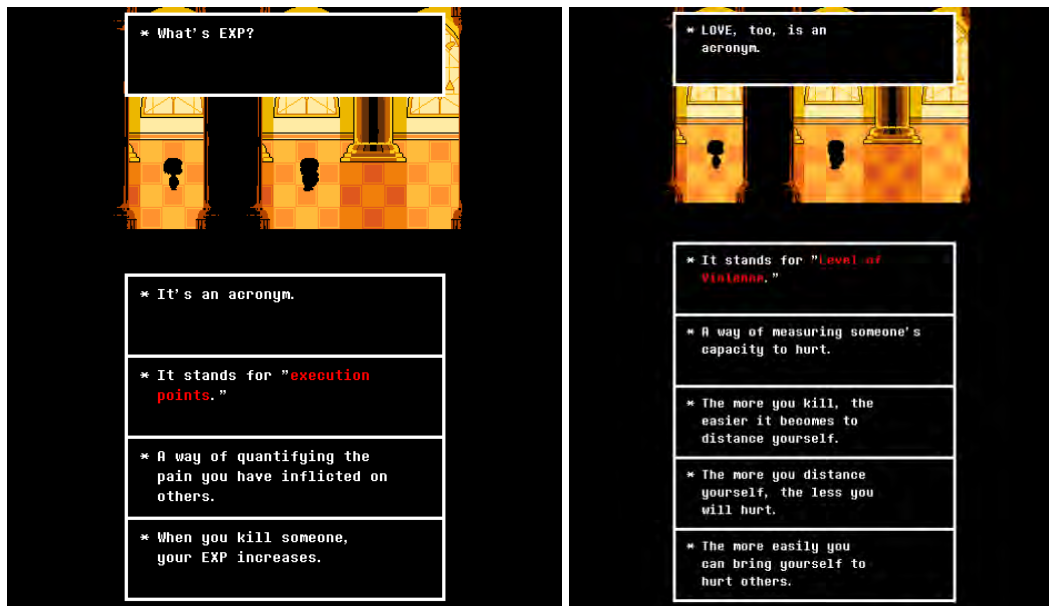


Figure 3.4: Undertale (2015) endgame where stats acronyms are revealed to the player

Indeed, this example also transgresses Nielsen’s (1994b) usability heuristics #4 of Consistency and Standards and #5 of Error prevention. Furthermore, creating this deliberate mismatch between the player and the game conceptual model delivers a discontinuous critique by Grace (2014) structural delivery classification and challenges the player’s assumptions.

Another example that exploits users’ mental model mismatch is *September 12<sup>th</sup>, a Toy World* (2003). The game was based on the Afghanistan invasion led by the US after the 9/11 attacks. The UI design decision of using a cross-hair as the mouse pointer deliberately makes the game look like a shooting game and suggests that players attack to win. However, if the players choose

to shoot the terrorists, it causes destruction that encourages more civilians to become terrorists, making it a game that is impossible to win.



Figure 3.5: September 12th, a Toy World (2003)

These examples produce the opportunity for players to contemplate the innate violence proneness that occurs in games that do not require the player to reflect on the motives and consequences behind their actions. It also makes a parallel point to Han (2021) as he argues that in a society where everything is consumable, so is violence, to a point where even the act of killing becomes an act without pain. Thus, by the constant exposure of individuals to violence, we become anesthetized and insensitive to the pain of others (Han, 2021).

#### ***3.1.4 Impairment of ability***

This strategy comprehends utilizing or simulating sensory (vision or auditory) or other types of ability and perception impairment. It aims to develop empathy or provoke reflection and understanding through experience.

The intentional impairment of one's abilities is a known approach utilized in the design field for professionals and students to experience firsthand the frustrations or challenges an individual might have (Kim et al., 2015). For instance, the old man suit is a costume that emulates the aging process. It may consist of yellow glasses that simulate difficulty with contrast and fine print reading, earplugs that limit hearing, and other components that restrict the user's range of motion, strength, balance, and tactile sensitivity (Lavallière et al., 2016).



Figure 3.6: Aging suit (Lavallière et al., 2016)

Likewise, UI designers could adopt a similar approach to employ intentional friction aspiring for a meaningful experience. As an example, we can mention *Hypnospace Outlaw* (2019). It is a simulation game where the player navigates a diegetic interface that parodies the early internet of 1999 and where it is possible to download a “helper” software assistant named Professor Helper. While being marketed as a tool for users to better understand and operate the world of the game, in reality, it only seeks to annoy and irritate users by mimicking Microsoft’s Clippy and malware and adware software. In the Professor Helper page, the game UI purposefully utilizes low color contrast between the text and the background of its large terms of service localized below the page, making it deliberately difficult to read. It offers an opportunity for players to reflect on real-life companies’ malicious intent when utilizing similar techniques, such as low contrast “unsubscribe” links commonly found in email newsletters. It also presents a chance to experience firsthand the difficulties experienced by individuals with low vision.



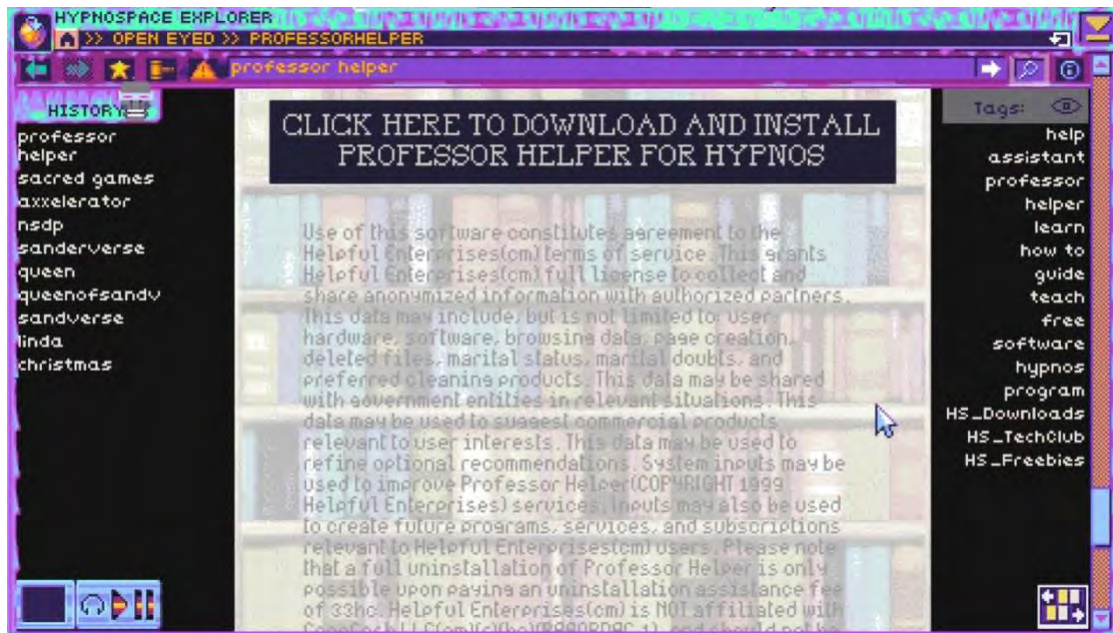


Figure 3.7: Professor Helper page in Hypnospace Outlaw (2019)

Another example is the game *Everyday* (2016) created by the author and colleagues in the Ludum Dare 37, which ran from December 9 to December 11, 2016, with the theme “One Room”. The game’s main character is an older woman progressively losing her vision, but still carrying quotidian tasks in her apartment to maintain her autonomy. Therefore, players have to become familiar with the game environment and rely heavily on the feedback from sounds emitted from the objects while the player screens progressively become black, impairing their visual sensory capacity in-game. This game experience was heavily inspired by observing how the author’s grandmother, who was losing her sight, relied heavily on the familiarity of her house and sound feedback to keep performing simple tasks. In fact, players who do not have sight, such as youtuber Ross Minor (2020), are particularly dependent on the sound UI of games such as *Animal Crossing: New Horizons* (2020) to be able to play it. Therefore, *Everyday* (2016) attempts to simulate that experience by providing sighted players with the chance and the challenge to interact with a world depending less on the visual UI.

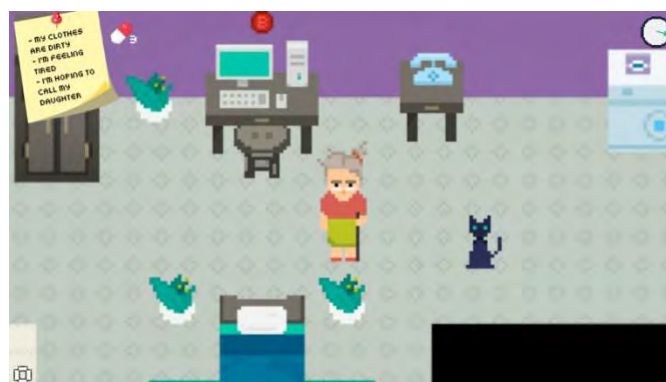


Figure 3.8: Everyday (2016) screenshot before the player screen turns completely black

### 3.1.5 Deliberate inefficiency

Another strategy identified is to utilize UI to introduce deliberate inefficiency or, in other words, reduce the speed at which players can get a task completed. This strategy can be seen in games that use UI to convey its natural antagonistic nature, such as *Device 6* (2013), which requires the player to keep rotating their device to read the novel, and *Her Story* (2015), which limits the number of videos shown to players as a result of searching for keywords.

In *Papers, Please* (2013), the player is a border-crossing immigration officer assigned to review the paperwork of each immigrant in a fictional world afflicted by political hostilities. The diegetic UI of the game brings the real-life logic and the game universe logic together and binds them into an immersive experience. However, it does so in a way to purposefully mimic the unproductive and frustrating real-life task of going through a set of papers and documents in a limited spaced area, making information hard to visualize and access simultaneously. This less than desirable experience serves the intent of immersing the player in the character role and possibly suggests a prospect to reflect on the impact and motives behind the bureaucracy imposed by institutions of power.



Figure 3.9: Papers, Please (2013)

The deliberate inefficiency strategy can be seen as similar to the unfriendliness proposed by Cardoso et al. (2019). To exemplify, the authors note that *Papers, Please* (2013) “unfriendliness is manifested through its user interface, designed purposefully so in order the player is thrust into the shoes of the character she plays, and the anguish of being in that particular situation” (Cardoso et al., 2019, p. 3).

### 3.1.6 Oppressive constraints

Constraints are a known design approach to force the desired behavior and prevent errors (Norman, 2013). They are among Norman's seven design principles, and they can function as physical, logical, semantic, or cultural curbs that guide actions and interpretations. They force the desired behavior by causing operations to happen in a proper sequence and can be used to positively reduce the memory load and keep the users safe. He introduces three types of forcing functions: Interlocks, lock-ins, and lockouts<sup>5</sup>.

*Depression Quest* (2013), an interactive fiction game about mental illness, uses constraints in the UI in an oppressive manner by making options crossed and unclickable to represent the character's mental state and communicate the fact that logical decisions may not be available to them. Thus, choices that are more beneficial to the players' character mental health are displayed in the interface, but made unavailable to them by the usage of lockouts. By preventing their selection, this particular forcing function keeps the player from better outcomes.

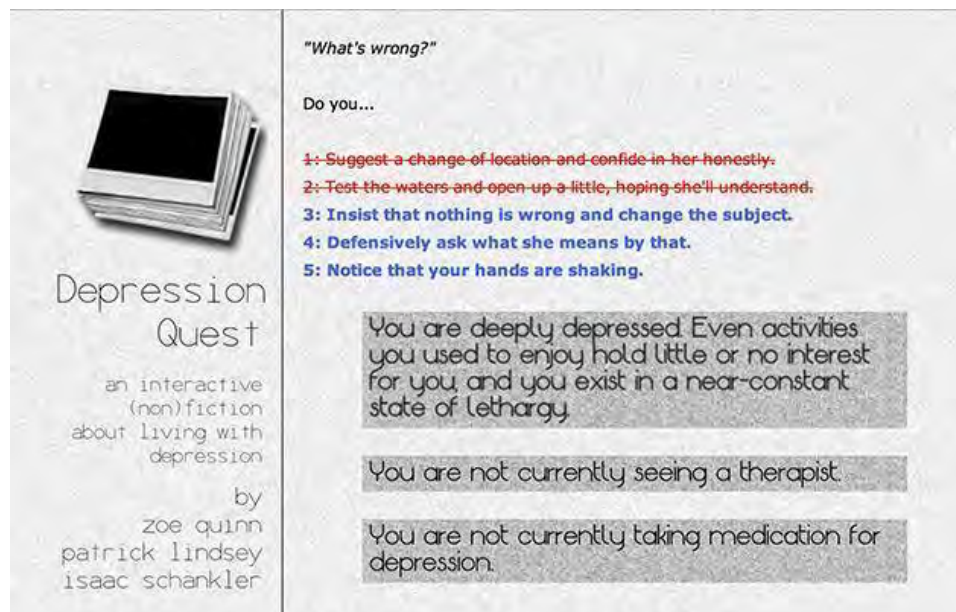


Figure 3.10: Depression Quest (2013)

Similarly, *Abluese* (2018), a short visual novel game about an abusive relationship told through social network interactions, also oppressively exploits UI constraints. Created by this author and colleagues in 2018 Woman Game Jam, the UI significantly limits users' choices until a critical moment, simulating the difficulty of getting out of a toxic relationship. This game's main interaction is made by confirmation dialogs, which are a common example of lock-ins. Confirmation pop-ups usually allow users to check if an irreversible or critical action or input is

<sup>5</sup> Interlocks force operations to take place in the correct order. Lock-ins are used to keep an operation running or to compel a user to stay in a specific physical or virtual space, preventing it from being terminated prematurely. Lockouts are used to prevent an event from occurring or to keep a user out of a physical or virtual space, usually for safety reasons.



both deliberate and correct before doing it and are generally used to avoid a type of error known as a slip, defined as an unintentional action (Lidwell et al., 2010). Thus, *Abluese* uses lock-ins in the form of confirmation pop-ups to force users into a specific behavior of abdicating various positive aspects of the character's life to appease their in-game partner. Additionally, this confirmation interaction is purposefully overused in the game, which may lead to a slip in the final moments of the game, as slips are caused by automatic, unconscious processes, and they typically occur as a result of a break of a pattern or a halt of a task (Lidwell et al., 2010). Thus, the lock-in used in the game also operates on a behavioral level. After being locked into performing the same type of action repeatedly, users may fail to recognize and reflect on the opportunity presented by the end of the game to escape the toxic relationship depicted when the interface finally offers an alternative.

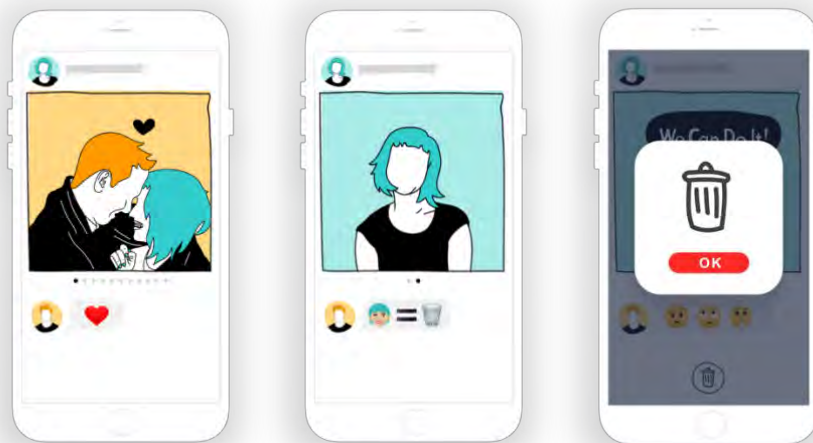


Figure 3.11: Abluese (2018)

Another example of oppressive constraint usage is the game *Before Your Eyes* (2021). In this game, the main way of interacting is through blinking in real life. This input is captured by the game and is used to navigate the memories of the main character, moving time forward an indeterminate amount of time in his life. However, considering Nielsen's (1994b) usability heuristics #3 of user control and freedom, it is essential to provide exits to foster a sense of freedom and confidence in users, as they often choose system functions by mistake. By using blinking, a natural human constraint since we are not capable of controlling this impulse indefinitely, the game removes some of the player's autonomy and control over the experience. This, in turn, enhances the game's expressive argument about life's uncontrollable qualities.



Figure 3.12: Before Your Eyes (2021)

As seen by these examples, the interface can be used to create oppressive forcing functions and limit users' actions while making them aware that the ones available may not be to the character's or player's benefit. These games use the approach of restricting users' choices to express hardship and diminish the sense of freedom in players.

### 3.2 Limitations and potential

It seems likely that accessibility is one of the possible limitations of employing intentional friction on game UI. Using such strategies, a designer may exclude players with neurological, cognitive, visual, auditory, or physical impairments. For example, the impairment of the senses strategy could exclude players who count on that sense as their primary way of interacting with technologies due to a permanent disability or a temporary condition.

Another limitation that should be considered is the negative experiences' impact on individuals. People who have a mental illness such as depression or anxiety disorders may find such experiences unsuitable and unaccommodating of their conditions. Norman (2013, p. 62) alerts to the phenomenon of learned helplessness where repeat failure at a task can result in severe difficulties with coping with life, being most frequently studied as a precursor to clinical depression. It is also suggested that the beneficial advantages of negative affect on individuals' cognition and behavior may apply only to mild and temporary negative moods (Forgas, 2017).

Additionally, dissent and friction may not be an appropriate strategy to address every design problem and component in the interface. In the context of Critical Games, friction must be intentional and serve an explicit design goal to be effective. Authors such as Grace (2014),

Brandalise (2016), and Flanagan (2009) exposed that the definition of the critic's goal or the subject to comment on is an essential step of the Critical Design process.

Finally, it is important to remember that the design and dynamics facets of the game deal with the Player-subject, the individual mental persona with its own set of ethics and abilities, rather than the player itself. Therefore, designers have only indirect control over the player experience and do not have complete dominion over the player's individual perception. Thus, the strategies of intentional friction can only provoke and suggest the envisioned experience for the player since games are an emergent and complex system.

Nonetheless, on the whole, we can reason that inserting intentional friction in the UI of games when appropriate could be a potential path to address the following:

- To build upon the game natural antagonism nature (Walk et al., 2017);
- To break the Flow (Soderman, 2021) and avoid domination via positive psychology (Han, 2021);
- To foster critical reflection and challenge dominant structures (Brandalise, 2016; Grace, 2014);
- To explore a broader range of human emotions (Norman, 2013) other than enjoyment (Forgas, 2017; Lawhead, 2019);
- To express and communicate empathy, disobedience, deception, uncertainty, uncontrollableness (Cardoso et al., 2019).

## Part II – Designing expressiveness using intentional friction

## 4. Preliminary activities

### 4.1 Context and objectives

This set of preliminary activities was one of the dissertation's first steps and helped shape the research's problem space. Accordingly, these activities were carried out even before the official beginning of the dissertation curricular unit and served as a groundwork to inform more mature later stages.

This chapter aims to clarify the activities carried out with the students of the Specialization Course in Interaction, Web, and Games Design, where seminars were realized, followed by practical exercises in workshops. Two seminars were conducted: the first took place on October 19, 2020, at the Faculty of Fine Arts of the University of Porto (FBAUP) under Professor Pedro Cardoso's supervision and had the *interface in the space-fiction of the game* as its theme. The second seminar took place on October 23, 2020, at the Faculty of Fine Arts of the University of Porto (FBAUP) under the supervision of Professor Pedro Cardoso and had as its theme the *intentional friction and expressiveness in the game interface*.

The objectives of the preliminary activities were as follows:

- Understand the differences in approach in creating interfaces that aim at expressiveness compared to interfaces that aim at usability;
- Test alternatives of activities that serve as a basis for creating intentional friction in digital game interfaces, aiming at a possible tool;
- Propose experiments with the interface in the space-fiction of the game and observe the implications of different approaches;
- Explore key concepts in depth to introduce and discuss them with participants.

### 4.2 Activity 1

#### 4.2.1 Procedures

The first seminar exposed how the UI can manifest itself in time and space-fiction of the game, referring to concepts such as diegetic, non-diegetic, meta, and spatial interfaces. We sought to reflect on the advantages and disadvantages of approaches in different contexts. After the expository part, the participants performed a practical exercise in previously formed groups. The material made available to them consisted of a document containing the theme, objective, and

methodology of the exercise, a brief overview, a description of the gameplay, a video, and images of the game to be worked on.

In this exercise, participants were invited to explore alternatives for representing the interface in the space-fiction relationship of the game *Overcooked* (2016). This game was selected for having relatively simple gameplay and, therefore, for being accessible for participants to understand the general idea in the timeframe available for the exercise. In addition, the game features interface elements of different types as per Fagerholt and Lorentzon's (2009) categorization<sup>6</sup>, allowing them to explore different approaches. The instructions for the exercise shared with the participants can be viewed in [Appendix A](#). Participants started the exercise in the classroom and were allowed to continue the exercise throughout the week.

#### **4.2.2 Results**

One of the guidelines provided orally to the groups was that, although the exercise proposed them to explore alternatives of interface representation in the space-fiction relationship of the game *Overcooked* (2016), the game should essentially remain the same. Although many groups chose the same interface elements to modify, the way they introduced these changes was particular to each group. Therefore, it was possible to observe different ways to display the same information in the game. One of the points raised during the discussions with some groups was to realize to what extent the suggested changes in the interface changed the original game to the point of transforming it into a completely different game since even small changes in the presentation of the interface in the fictional space of the game had a huge impact on the gameplay and experience.

It was possible to perceive from the results of the exercise that it was a challenge for the groups to introduce changes in the space-fiction of the game without necessarily introducing new mechanics in the game. An example is the change of restaurant order tickets. One of the groups suggested that meal requests could be incorporated into the game's fictional space – there would be a queue of customers asking for their meal. In this way, the group considered that the interface would no longer be a meta element and would become diegetic. The time available for the preparation of the recipe, in this case, would be displayed by the customer's expression rather than the timer and as time passed, the customer would show his displeasure. The group pointed out that, in terms of gameplay, this would imply that the player would have to go to the customers to receive the orders, and it would not always be easy to do so, due to players being busy or too far from the queue. Therefore, introducing this change in representation has a considerable impact on the game mechanics. Once the object exists in the game space, it is necessary to move to it to interact, creating one more stage in the player's flow.

Another interesting point discussed was how the potential changes would interfere with the game experience, making it less fluid, increasing the difficulty level, or decreasing the ease of

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<sup>6</sup> Diegetic, spatial, non-diegetic, and meta.

viewing the elements. An example is a proposal suggested by one of the groups regarding the timer in the game. At first, this group had considered incorporating the clock as a diegetic element of the game space, in the form of an electronic panel, in an attempt to simulate the experience we see in culinary competitions, in which participants are constantly looking at the clock positioned in the kitchen. However, after deliberating on the change in gameplay that this adaptation provides, the group concluded that the proposed modification would only create complications by removing a non-diegetic element of such familiarity to the public as the timer currently used. An alternative to the timer interface element suggested by another group was to insert time into the game space, with customers leaving the restaurant and time changing from day to night. This idea could also potentially make the time remaining in the level less clear and demand more attention from players.

Given the results of the exercises, it is possible to note that rethinking the relationship of interface elements with the game's fictional space can potentially be a way to add or remove friction in the player's experience. In addition, the participants also reflected on the definitions and interconnections between some aspects of the game, such as diegetic interface versus level design, since the fact that an object exists in the game's fictional space implies carefully thinking about its positioning and its impact on the players' experience.

## 4.3 Activity 2

### 4.3.1 Procedures

In the second seminar, we sought to explore how the interface can be a vehicle of expressiveness through the introduction of aesthetic friction (Cardoso et al., 2019). First, concepts such as *usability heuristics* (Nielsen, 1994b) and *Jakob's Law* (NNgroup, 2017) were briefly presented as a starting point to analyze cases of games that distanced themselves from these premises to expose feelings and meanings. Afterwards, participants were challenged to create aesthetic friction and potentially expressiveness in a game's interface.

The exercise was carried out in previously formed groups, and they had to choose only one game from a predefined list to work on. It was decided to create this list to allow the groups to have the flexibility of choice to carry out the work. The following games were part of the list: *The Voter Suppression Trail* (2016), *Two Interviewees* (2016), *The Republica Times* (2012), *We Become What We Behold* (2016), *Bad News* (2017), and *Dogness* (2018). These games were selected because they deal with topics of interest for the dissertation (reflections of a social and political character), and present social criticisms that look outside the games themselves towards the society and the culture in which they exist. In addition, these are short games (15 minutes or less), they are free of charge, and they could be played and experienced in the classroom if the participants so desired.

The material made available to the participants consisted of a document containing the exercise's theme, objective, and methodology, a brief overview of the games, a description of the gameplay, video, and images of the six aforementioned games. For this exercise, we experimented with an unconventional ideation technique called "the worst possible idea"<sup>7</sup>, adapted from Rikke Dam and Teo Siang (2020). The instructions for the exercise shared with the participants can be consulted in [Appendix B](#). The groups started the exercise in the classroom and, after approximately 30 minutes, presented the ideas verbally to the rest of the room for discussion.

### **4.3.2 Results**

The proposed ideation technique generated interesting ideas of friction in the games chosen by the groups. However, in this exercise, it was possible to observe that the groups had difficulties in separating and understanding which friction was related to the interface and which friction was related to mechanics and gameplay. This observed difficulty may be related to some factors. The first factor may be how the interface is closely linked to other aspects of the game, which is complex to delimit these limits. The second factor may be related to the seminar. The explanation of aesthetic friction in the context of the Graphical User Interface (GUI) may not have been clear enough since some participants could not think about the relationship between the friction proposed by them and the graphical interface.

Another difficulty observed was regarding creating expressiveness related to aesthetic friction. The time available to the participants may have been decisive in the success of the exercise since it was a relatively short time to go through all the available games and have significant ideas on how to intervene in the game expressively. It was inferred at the time that, to create aesthetic frictions of social-political nature, some deeper reflection and connection with the issue addressed in the game was needed (which was not possible within the available time). The primary obstacles were adapting the strategy to diverse game genres, defining critical design goals, and assessing the bounds between interface and mechanical aspects. However, although the groups did not spontaneously make the connection between expressiveness and the proposed frictions, the expressive potential of the ideas presented was discussed with the rest of the class during the presentations.

## **4.4 Conclusions of the preliminary activities**

These preliminary activities were very useful to inform improvements on the methodology and agenda of the workshops to be conducted in a more advanced stage of this dissertation and in addressing the difficulties participants faced during the activities. Although the class was involved

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<sup>7</sup> Worst Possible Idea is an ideation process in which team members actively seek the worst possible solutions during brainstorming sessions. The "inverted" selection method can spark their creativity, allowing them to investigate these ideas and question their assumptions.



and active, an opportunity was identified for the next workshop to open even more spaces for discussions and members' participation. This opportunity to open more space for discussion heavily influenced the preparation of the co-creation workshop done at a later stage in the project (Chapter 5).

Additionally, observing the comments raised by the groups during the practical exercises and seminars helped us determine the topics addressed in the literature review of this dissertation and better understand the problem space of this research – i.e. the content of Activity 2 was the beginning of the understanding that led to the strategies presented in Chapter 3.

# 5. Co-creation workshop

## 5.1 Context and objectives

After concluding the literature review, having a better understanding of the research problem space, and identifying the first set of strategies for intentional friction in the interface, we started to look at the dissertation's objective of developing a model for creating expressive video game interfaces using friction. We conducted another workshop to reach out to other designers as a way to identify further strategies and gather perspectives from different views and contexts. As an essential step towards achieving the general objective of this research, this workshop aimed to incite a group discussion about using design friction as a strategy for the UI in games, collect opinions and perspectives on the theme, and brainstorm ideas for design principles in a co-creation activity. The intended objective was to gather multiple perspectives of other professionals and students to help identify further friction strategies and inform how to implement and introduce these strategies.

## 5.2 Methodology

The workshop followed procedures referring to the elaboration of the activities, the invitation of relevant participants, the participants' authorization for recording, the content usage, and the content analysis.

Regarding methodology for the elaboration of activities, the workshop was divided into two separate stages. The first stage was planned as a focus group (Hanington & Martin, 2019, p. 277) to discuss the theme with participants and collect their perspectives. The second part was planned as a design workshop composed of a lightning demonstration of examples, an individual brainstorming session, and affinity diagramming (Hanington & Martin, 2019, p. 24).

To present the research problem to participants, we opted for an alternate problem framing using a *How Might We* (HMW) statement. The HMW method facilitates brainstorming and is

most commonly utilized as an alternative framing that can lead to more creative exploration of multiple solutions to go from insights to possible ideas (Hanington & Martin, 2019, p. 320).

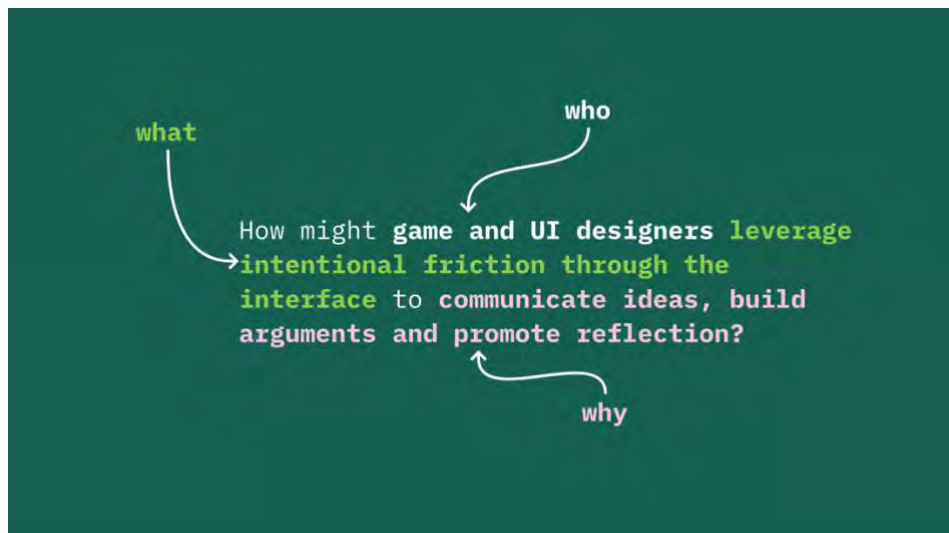


Figure 5.1: HMW statement indicated for workshop participants

### 5.2.1 Focus group

*The art of facilitating focus groups* from ACET (2011) was used as advice material for planning and developing the script of the focus group section of the activity. The elaborated script included: a) an introduction session where the purpose and context of the workshop were exposed; b) an ice-breaker activity between participants; c) core questions to prompt conversation; d) a space for sharing examples of design friction.

The core questions were:

- When we think of design frictions, what three words or phrases come to mind immediately?
- What do we understand as design frictions in the UI?
- Please share with us your feelings about the relevance of design frictions to UI design, both in general and in games.

After discussing what was understood as design friction in the UI, participants were presented with two different definitions of friction as a way to spark further dialogue.

The provided definitions were the following:

- Definition 1: “points of difficulty occurring during interaction with technology” (Cox et al., 2016, p. 2)
- Definition 2: “anything that prevents users from accomplishing a task” (Swallow, 2018)

### 5.2.2 *Design workshop*

The design workshop stage was planned as an opportunity to brainstorm ideas for design principles to insert intentional friction. Design principles may be thought of as pieces of guidance that might assist an organization, team, or person make decisions. Designers use design principles to embrace generally applicable laws, guidelines, biases, and design considerations at their discretion (Interaction Design Foundation, 2017). It is critical to employ design principles with caution since, depending on the project goals and restrictions, the principles may need to be adjusted to different circumstances. They are not prescriptive in this sense because they are intended to be generally applicable. As design principles help frame decision-making without being too scenario-specific, they can be suitable in a game design context, as designers may be able to adapt the strategy to multiple game genres. They are also subjective as one designer's interpretation of a principle could differ from another. To better familiarize participants with the concept, we explained what design principles were and presented a few examples of dos and don'ts. To introduce participants to a design principle example model, we used the one presented by Yablonski (2020, p. 124).

Participants were offered on a Miro board (Appendices C and D) a cheat sheet of design principles intended to remove friction from the interface. The purpose was to provide participants with some support for brainstorming ways to violate common design principles deliberately. The cheat sheet introduced Nielsen's 10 Usability Heuristics (1994a), Norman's seven fundamental design principles (2013), Federoff's Game Interface heuristics (2002), and Whitney Hess's (2010) guiding principles for UX designers.

The participants were asked to generate as many design principles to insert friction as possible in an individual brainstorming activity. Afterwards, all participants were asked to share their ideas in an affinity mapping exercise to trigger further discussion and understand how their ideas compare to others. Thus, participants worked together to create an affinity map of their own and other participants' ideas in each co-creation workshop session.

### 5.2.3 *Tools*

- Microsoft Teams<sup>8</sup> were used for remote communication by video and audio and recording the session.
- Miro<sup>9</sup> board was used for collaborating and interacting with the participants. The board used was previously set up with relevant information and workspaces.

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<sup>8</sup> Communication platform for video conferencing – <https://www.microsoft.com/microsoft-teams> (retrieved July, 2022).

<sup>9</sup> Visual collaboration whiteboarding platform – <https://miro.com> (retrieved July, 2022).

- Dovetail<sup>10</sup> was used for qualitative analysis, transcription, and documenting insights.

### 5.2.4 Workshop agenda

The session comprised the following activities: 01. Onboarding participants; 02. Problem landscape; 03. Lightning demonstration and sharing of examples; 04. Alignment and definition of design principles; 05. Ideation of design principles; 06. Discussion; and 07. Wrap-up.

Table 5:1: Co-creation workshop agenda

Activity	High level description	Duration
01. Onboarding	Brief introduction of Miro and participants with an ice-breaking activity and agenda overview.	~10 min
02. Problem landscape	Focus group activity: research problem landscape and project context.	~20 min
03. Lightning demonstration	Focus group activity: sharing of interesting examples of design frictions in the User Interface.	~15 min
04. Alignment and definition	Shared understanding of design principles, the purpose they serve, and the goals of the brainstorming exercise.	~10 min
05. Ideation	Individual brainstorming for as many design principles as possible in the timeframe.	~15 min
<i>Break</i>	—	~10 min
06. Discussion	Affinity diagramming to bring all the ideas together and identify themes that surface during the exercise.	~20 min
07. Wrap-up	Conclusion of the session and space for final comments.	~10 min
Total approximate duration		~110 min

<sup>10</sup> User research solution that assists in analyzing, synthesizing, storing, and sharing customer research – <https://dovetailapp.com> (retrieved July, 2022).

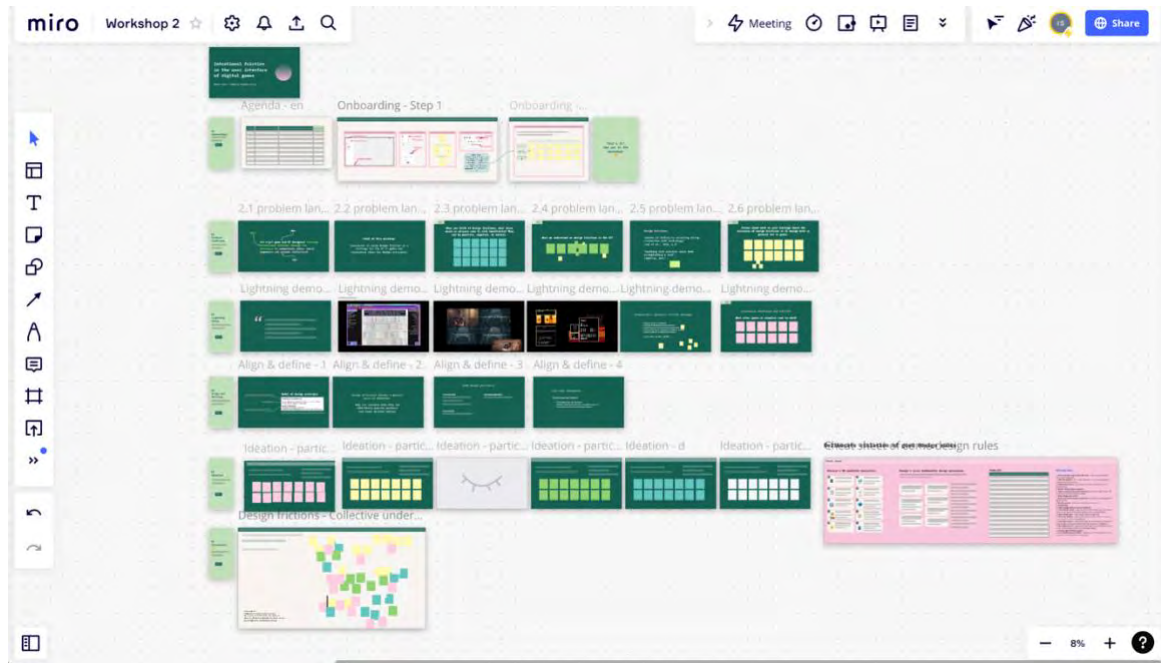


Figure 5.2: Screenshot of the Miro board created and used for the co-creation workshop ([Appendix D](#))

### 5.2.5 *Participants' pool*

After defining the workshop goal, we followed the recommendation of ACET (2011) to determine the participants' pool. It was considered what kind of participants could have insights on the theme and what important variables should be taken into account.

- **Who has insights:** UI Design and Game Design students and professionals.
- **Important variables:** Familiar with Game Design or familiar with common UI Design rules and principles, such as Nielsen's 10 usability heuristics.
- **Participant pool:** Maximum of 6 People per session – At least two Game Design students or professionals.<sup>11</sup>

We chose to conduct the workshops remotely as a safety measure as we were enduring at the moment the COVID-19 pandemic. This decision also gave us the advantage of reaching participants from different nationalities (Portuguese, Brazilian, Slovenian, American, and Russian) and cultural contexts. For this reason, the workshop materials, such as the consent form and Miro board, were all written in English. The workshop happened in two separate remote sessions, approximately 2 hours each, between March 29<sup>th</sup> and the 1<sup>st</sup> of April 2022. Three participants attended the first session, and four attended the second.

<sup>11</sup> Following the acceptance of the invitation by the participants, the consent form was sent with explicit information about the facilitator and researcher, project objectives and workshop objectives, tools and procedures, what their participation would involve, and how their data would be used.

Table 5.2: Participant's pool of the co-creation workshop

Participant	Ideation workshop session	Profile	Nationality	Occupation	Gender
Participant 1	Session 1	UI/UX designer	Portuguese	Lead product designer	Female
Participant 2	Session 1	Game designer	Brazilian	University of Copenhagen Master student	Male
Participant 3	Session 1	Game designer	Slovenian	University of Copenhagen Master student	Male
Participant 4	Session 2	Game designer	Brazilian	NYU Game Center Master student	Male
Participant 5	Session 2	UI/UX designer	American	NYU Game Center Master student	Female
Participant 6	Session 2	UX/UI designer	Portuguese	UX/UI designer	Female
Participant 7	Session 2	UI/UX designer	Russian	Senior UX/UI designer	Male

### 5.3 Analysis and results

After the workshop, a qualitative analysis of the sessions were made using Dovetail. The data collected passed through an automatic transcription of the audio using the software (available in [Appendices E and F](#)). That process guaranteed great agility in this step. However, the transcription still required manual review to eliminate many approximation errors.

Dovetail was also used for data analysis as the software guarantees greater control, organization, and quality in data processing and a straightforward interpretation of information than if not using any tool. A thematic analysis of the transcription was made with the tool assistance.

During this step, the main citations were highlighted and grouped into codes for joint analysis. The developed grouping units stayed within the researched domains, and the key groupings are shown in Table 5.3 with the number of citations in the whole of the workshops.

The grouping units were further divided into semantic categories to aid in discourse identification throughout the analysis, with the goal of covering subtleties in how the participants discussed the topics. An analytical interpretation of the findings was done after coding and intragroup analysis of each highlighted unit in order to uncover insights.

Table 5:3: Codes and tag grouping for the qualitative analysis of the co-creation workshop

Group	Codes	Highlight count	Character count
Attitudes	Ways to friction	47	15253
	Feelings with friction	25	6969
	Definition of friction	18	4768
	About design friction in the UI	15	5792
	Consequence of friction	15	5495
	Traditional UI vs. Game UI	11	5389
	Definitions of interface	6	1512
	Professional role	6	2103
	Bad UI	4	1566
	Good UI	3	587
Group	Codes	Highlight count	Character count
Motivations	Why friction	15	4908
	Why play games	5	1212
	Why make games	3	435
Group	Codes	Highlight count	Character count
Friction as a strategy	Positive – Towards friction	20	7342



	Negative – Towards friction	6	2524
Group	Codes	Highlight count	Character count
Friction as an experience	Positive – friction experience	15	5057
	Negative – friction as experience	15	4343
Group	Codes	Highlight count	Character count
Attribute dimensions	Interface	30	12007
	Context of everyday/real world	20	7120
	Game	19	6349
	Communication and messages	18	7403
	Emotion	17	5117
	Everyday friction	9	3363
	Deception	6	2348
	Learning	6	2190
	Trust	6	1796
	Accessibility	6	2502
	Expectations and bias	4	1502
	Overwhelming	4	878
	Errors	4	817
	Inefficiency	2	705
	Conventions	1	416

After using Dovetail to make the qualitative coding of the transcriptions, some insights were extracted from the discussions about the theme. In this section, we present key insights this way gathered during the two sessions.

### ***5.3.1 Friction can be a designer's venue for expression***

Participants discussed how friction may serve as a venue for designers to express ideas and for personal experimentation. For instance, Participant 4 spoke about how friction could make the player feel closer to the designer, as you could “see the hand of the designer behind it” or, in other words, a reminder that a real person made the game.

That discussion was followed by conversations about the relationship between art and design; as voiced by Participant 7, they are not the same and are not a simple link. Thus, this UI/UX designer participant argued that you often need context when contemplating contemporary art. In his perspective, when that context is lost on a museum visitor, for example, the artist can exempt himself from responsibility. He further argued that, when considering video games as art, one could incorporate friction in the form of difficulties with interactions, accessibility, and visuals to create unique art pieces, but that would negatively impact revenue. So, in his view, we should “fix” this type of conflict from a design perspective if we want to sell more games to customers.

This perspective contrasted with the views of other participants in that and another session. More than one game designer participant described how they identified themselves more as artists and expressed their desire to experiment with unconventional Game Design. It was also raised how breaking rules is observed in other types of arts to express emotions and perspectives, such as in movies and in books. For example, while discussing *Hypnospace Outlaw* (2019)<sup>12</sup>, it was argued by Participant 5 that it was visual arts trying to solve a problem. As pointed out by the participant, *Hypnospace Outlaw* (2019) was using low contrast, something typically regarded as bad design, to solve a particular problem on how to depict that the website in the game was deceptive to trick players into accepting the terms and conditions. So in the participant's opinion, one of the quickest ways to do it is to imagine that the person who made the website in the game was so sleazy that they tried to make the terms and conditions very hard to read. Thus, it was a “very successful frictional design” from their perspective.

Observing the participant's perspective on the long and ongoing art versus design discussion was interesting. Nonetheless, it is worth bringing up here in this insight analysis Chris Crawford's perspectives on the link between games, art, emotion, and design. He states that “the computer game is an art form because it presents its audience with fantasy experiences that stimulate emotion” (2011, location 43). In addition, a keynote from Raph Koster (2012) places the game quality of entertainment and art on a spectrum. He states that entertainment games lean to the

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<sup>12</sup> Discussed previously in subsection [3.1.4 Impairment of ability](#).

conservative side while art games lean toward the risky; entertainment games tend to reinforce frames while art games up-end frames; entertainment games are used for social norming while art games promote empathy for the other; entertainment games lean towards delightful while art games are hard fun; and finally, entertainment games leans to low cognitive load while art games lean to high cognitive load.

### ***5.3.2 Games are a safe environment for friction***

Another point raised by participants is that games offer a safe space to experiment, fail, and learn. One game designer participant described how he is in a state of mind where friction is acceptable and expected when he plays games. As he pointed out in an example, a “virus” you download in a game will never affect your real-life computer, making it easier to accept the consequences. Thus, tricking players or putting them into uncomfortable situations are not as detrimental to them as these concerns are temporary and often offer no real-life harm. It also allows players to experiment and put themselves in situations and risks that they would not take if the consequences were real.

This discussion and insight highlight safety as a fundamental element of games, as pointed out by Crawford (2011). Similar to the point expressed by participants in the workshop, Crawford claims that a game offers a means of delivering psychological experiences of conflict and danger without exposing players to their physical manifestations.

### ***5.3.3 Friction may create exclusion***

During the session, Participant 3 presented their own experiences using friction as a tool. He commented that purposefully introducing friction made their game more cumbersome to play. Therefore, he voiced that this can alienate part of the audience as we use friction as a tool. But from his point of view, it can be acceptable in some circumstances, as friction can be used to reflect on people who do not have things that are extremely accessible to them. However, other participants expressed that it might be interesting to reach a balance of friction in design with the game still being accessible to everyone.

Therefore, friction may alienate and exclude people as it can introduce accessibility and usability barriers, create frustration and consequently negatively impact business and commercial considerations, as it may not cater to a broad audience. However, it may also serve as a tool to reflect on people who experience accessibility barriers or other undesirable situations.

### ***5.3.4 Friction can have a close relationship to everyday life***

In the sessions, it was discussed various examples of friction experiences that come from everyday life and interactions with various media, technologies, and people.

When discussing friction instances, participants mentioned interacting with government services online, learning new complex software like Blender<sup>13</sup>, buying tickets on websites, or consuming particular movies and literature. Participant 4 also raised *friendly design* as an instance of friction, but subverting its usual meaning. To illustrate what he meant by *friendly design* he remarked that there is much more friction in friendship than there is in utility. Therefore, in this context, he referred to instances of friction UI that nag the user for attention as *friendly design*. This idea around personal relationships later triggered the following comment by Participant 5:

I think it's fun to reclaim the word friendly and it's interpersonal context instead of— and it's like — we're going to make, you know, friendly. And it's sort of a corporate Uxy, this sort of context where we're going to make this as easy to use as possible. We're gonna make it unobtrusive. That's not really what friends do. Friends kind of pester you, and play with you, and they're present. And you care about them, and you see them. And so, to make a UI that is actually attempting to be your friend is a fun way to think about it.

While talking about *Hypnospace Outlaw* (2019), one participant referred to how the game was commenting on this current day and age and playing with the notion that nobody ever reads terms and conditions. In his view, the game was very aware of what it was doing with its design choice and was doing it on purpose.

Thus, intentional friction in the interface could serve to explore a bit more mundane frustrations and struggles such as interpersonal relationships or even a sort of slice-of-life representation. While the news game movement looked into analyzing, debating, commenting, and editorializing major international news, friction in the interface can serve to explore more common-place frustration. Clearly, these real-life experiences could also help the ideation of in-game experiences.

### **5.3.5 *Game UI is more ambiguous than traditional<sup>14</sup> UI***

As presented in [Chapter 1](#), games are software systems (Galloway, 2006, p. 5) and, as systems, have parts that interact, are interconnected, or are dependent on one another to form a complex whole. Given game's systemic nature, it was observed in many instances that the line between design elements such as mechanics, interface, and the blueprint as proposed in the DDE framework by Walk et al. (2017) was blurry for participants. The ambiguity was more evident when referring to diegetic interfaces. Since diegetic interfaces have a closer connection to the space and story of the game than non-diegetic interfaces, the confusion was more evident when the UI was more associated with the narrative and the space of the game's world. This was also observed in the preliminary activities in 2020 ([Chapter 4](#)), where participants demonstrated some

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<sup>13</sup> An open-source computer program, developed by the Blender Foundation, for modeling, animating, texturing, compositing, rendering, and video editing.

<sup>14</sup> Traditional as in traditional non-game digital products and more work-oriented systems.

puzzlement about the relationship between a diegetic interface and level design. This insight highlights another fundamental element of games, as pointed out by Crawford (2011): because games are systems, their collection of parts often interact in complex and intricate ways.

One example of the perception of this intricate relationship between parts could be seen while participants were discussing the game *Hellblade: Senua's Sacrifice* (2017)<sup>15</sup>. Participant 6 offered the following view when asked if the way this game represented to its players the permadeath threat was an example of UI or not:

I think it's kind of debatable in a way, but in a way, maybe it's not. Because yeah. It's a message that is telling, if you fail this amount of times, you need to like start over, and you're going to start be aware of her arm. So I dunno if it really is UI in itself, probably it is designed, but it's not specifically UI, but I don't know. It's a good question.

Participant 6 later continue to refer that, although she was unsure, she thought that the permadeath threat is information that is given to the players, but not necessarily UI. Then, following this discussion, Participant 4 gave the following opinion.

I have a thought on that. Because you have the rot growing on your character, right? So you have a diegetic progress bar happening there. Not progress bar, anti-progress bar, Death bar or whatever, but it's kind of a fake loading bar, right? Like it's a— it serves a similar purpose of any fake loading environment in a negative way. Like, oh yes, whatever, just showing you progress. But you think it's going up and by making it diegetic and making it harder to parse, it makes it scarier, scary forever.

As Participant 4 points out, the character arm could be described as a diegetic UI representation of a progress bar. However, it is interesting to note that the *Hellblade: Senua's Sacrifice* (2017) example discussed in the session deals with the interconnection of many different design elements such as world rule set, permadeath mechanics, diegetic interface report system, narrative, character design, and others. As such, it is an example that highlights the interconnection of design components in the complex whole and brings to mind the ambiguity of game UI.

### ***5.3.6 UI designers less familiar with Game Design may have difficulty grasping the concept of intentional friction***

Building friction on purpose in the UI may be very unfamiliar to UI designers less familiar with Game Design, to the point where it is challenging to think of it as a potential strategy at first. This quote from Participant 1 illustrates this insight:

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<sup>15</sup> Presented previously in subsection [3.1.2 Faulty feedback](#).

Design to mess around with the emotions of the user is something, at least for me, is challenging because all my work is guided by not creating frustration and not creating misleading to the users. And this is the other way around: How to think on solutions for provoke these emotions.

However, it is possible that UI designers professionals with more involvement in Game Design are more comfortable with the notion of subverting good UI principles. For example, although Participant 6 works with traditional UI Design on a professional basis, she had previous experience in making heuristic analyses of games. She offered the following perspective:

What I was saying was like, make a distinguish between like have a design friction that is, has a purpose and a design friction that is just like a mistake or something that we made out of mistakes. So just be aware of them and use them. Like we use like other kinds of like patterns or heuristics for creates everything very clean. I also use them with, like, if we are aware of them, we can use it as an opportunity to teach something or to create something new.

### ***5.3.7 Friction can be used to put the interface as the dominant actor and autonomous from the needs of the user***

An interesting point that arose from the discussions was the power relationship between the user and the UI. One participant pointed out that friction in the UI may be used to subvert the power structure, shifting it from the user to the technology. While discussing what types of messages intentional friction could communicate, Participant 3 mentioned instances that challenge dominating power structures. He further explained that:

Because there's always this power structure of us, as the user of the technology, being the dominant actor in it. Whereas, that's first of all, just the perceived notion when you are the consumer of the device. And is something that it's not the only type of interactions that we even have with technology right now.

To exemplify the different power dynamics between technology and users, Participant 3 mentioned cases of companies that were using tools to take screenshots automatically of their remote workers or devices and Oss shutting off to update without user input.

In another instance, it was mentioned that the power dynamics shift could be due to the UI being more concerned about the internal logic of the world it inhabits than helping the user navigate it. As such, while discussing the concept of unfriendly interfaces, Participant 2 expressed that, in this context, the interface may not necessarily be trying to be aggressive, but actually “minding its own business” instead of fulfilling the user's desires. Participant 3 later commented that diegetic representations came to mind when considering UI that is not there to serve the user's needs.

### 5.3.8 *Insights on the definition and vocabulary of friction in the UI*

The discussion on the definitions of friction (as in subsection *5.2.1 Focus group*) sparked many interesting conversations. Some participants felt that definition 2 was very goal-oriented and, thus, too narrow. Others felt that definition 1 was too broad in the context of UI, as the term technology can encapsulate problems outside of the UI realm.

When giving their own definitions, Participant 2 used the word “abrasiveness”. The word usage is quite interesting as friction *can erode and cause surface wear on a real-life object*. In game UI context, on the other hand, this erosion may serve as a metaphor for the *erosion of trust or even users’ patience and willingness to keep interacting with a system*.

Immediately after the workshop, in a personal conversation with Participant 4, he pointed out the relationship between the physics concept of friction and its game and UI counterpart. This conversation led to a more in-depth reflection on the word choice of the term *friction*. In physics, friction is a force that causes resistance for a moving object, possibly slowing the object down or making it necessary to use more kinetic energy to reach the desired point. In the interface and game context, friction may also slow down a user, make it challenging to reach a goal as easily, or make people need to employ more effort. Interestingly, Participant 4 also mentioned that the lack of friction might make it harder to achieve a goal, as the object may slide past the objective. He illustrated this by using, as an example, platform games. In games such as *Super Mario Bros.* (1985), the amount of resistance for the player’s movement must be carefully balanced. If there is a complete lack of resistance, players may feel an absence of control and precision, making them slide past a narrow platform, for example.

In the UX/UI context, the type of error called slip also implies a lack of friction or resistance, as in sliding or gliding involuntarily. Interestingly, during the workshop, there were mentions of situations with grave consequences where friction and resistance are desirable to prevent slips and mistakes. For example, in the words of Participant 2, “shooting nuclear weapons must be complicated. Or at least, I hope it’s complicated”.

Thus, while analyzing this discussion, we contemplated that it may be possible to map these real-life characteristics of friction with usability aspects:

- Friction creates resistance that demands more effort and energy, impacting efficiency.
- Friction impacts the ability to reach a goal by creating too much resistance or removing it completely, impacting efficacy.
- Friction may erode, wear and deteriorate a person’s joy, comfort, or happiness, impacting satisfaction.

## 5.4 Synthesis and considerations

The co-creation workshops were able to fulfill their objectives and provide valuable insights and outputs to the tool development. Additionally, many of the collected insights and ideas helped formulate strategy descriptions for the tool.

One helpful insight that informed strategies later compiled in the tool was that deliberate friction in the interface might be used to examine mundane daily frustrations, problems, and interpersonal interactions. The playful suggestion by one of the participants to reclaim the term “friendly design” to mean social struggles were later incorporated into the tool.

The insight into the power dynamic between technology and its users sheds light on a fresh ground to use friction as a strategy to communicate ideas and build arguments. This insight was also incorporated into the tool.

UI Designers participants who were less familiar with Game Design suggested some initial resistance towards intentional friction. This insight reinforces the tool’s relevance in assisting UI designers from more traditional backgrounds in apprehending and considering intentional friction strategies.

The insights on friction definitions helped determine the scope of the tool. In particular, it helped us settle that completely removing contrary forces to the user when these forces were actually necessary to retain usability is also a proper friction strategy. We also highlighted the interconnection of different design components in the complex whole that forms a game. Although the primary focus of this research is on UI elements, it is possible to regard a certain level of ambiguity due to its complex relationship with other design elements.

Finally, the insight around possible exclusion created by friction was helpful in outlining one of the limitations of using such strategies.



## 6. Card deck tool development

In each co-creation workshop session, participants were asked to make an affinity map of their and other participants' ideas after the individual brainstorming ([Appendices C and D](#)). This approach was a good way to collect final thoughts and understand how ideas converged. After the two co-creation workshop sessions, all the generated design principles ideas were collected on a separate board ([Appendix G](#)) and grouped again by affinity and their relationship with the previously identified strategies.

After analyzing the principles generated during the brainstorming, we pondered on how to best structure the strategies collected for practical usage. We first considered creating a set of posters or even a website to facilitate awareness, adoption, and circulation of the strategies. However, due to the number of different strategies identified, after more deliberation, building a card tool to compile the information was deemed a more suitable approach for practical usage. A card tool provides valuable advantages as it can help start design discussion, enable knowledge transfer, clarify concepts, structure design discussions to guide the process, facilitate shared understanding and communication, and provide a playful way to get people involved (Tahir & Wang, 2020).

To build the tool, it was essential to keep in mind the insights and strategies collected during the workshop and the information gathered during the state-of-the-art review. The strategies, important insights, and knowledge were collected and organized in a spreadsheet to inform the cards' content. It was also critical to consider how the tool would be used in a practical context. During this step, Brandalise's (2016) Infiltration-opening process heavily inspired the structure of the card deck and tool usage activities. Based on the Infiltration-opening process, we establish that the first steps to using the tool should be composed of defining the context and issue to be explored and defining the intention behind designing friction in the interface.

The tool took shape as a five-step process that includes three different card decks. Closely related to one of the objectives of this project, the tool created aims to be a playful ideation tool to help designers explore meaningful, intentional friction in the interface of games.

### 6.1 Tool structure and utilization flow

The five steps composing the tool utilization flow were established as seen in Table 6.1 and in the Figure 6.1.

Table 6.1: Steps involved in the tool usage

<b>Step 1</b>	Define the larger picture, context, challenge, or issue to be explored.
<b>Step 2</b>	Define the intention and reason to use friction as a strategy.
<b>Step 3</b>	Define the intended emotion or message to suggest through friction.
<b>Step 4</b>	Define the friction strategy to be used as an ideation trigger.
<b>Step 5</b>	Brainstorm ways of solving the brief with the suggestions on the cards.

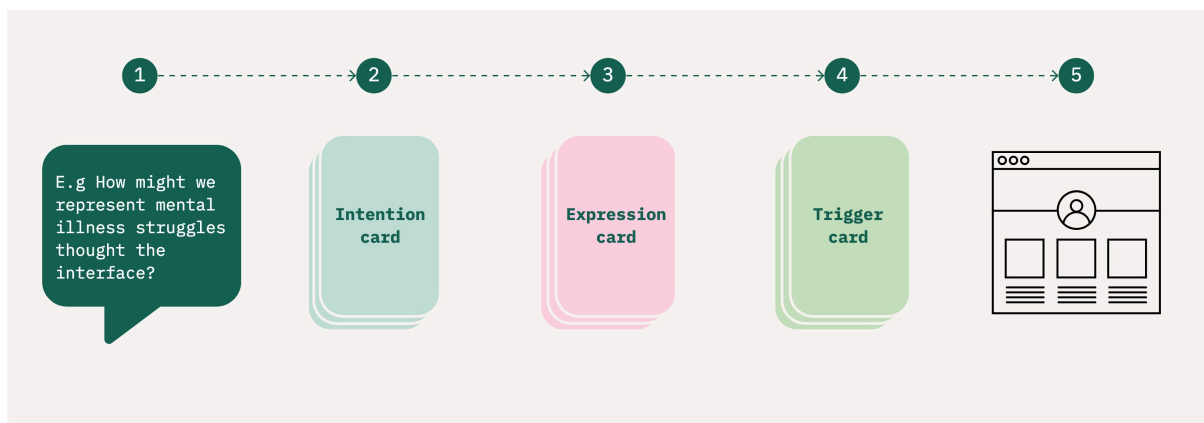


Figure 6.1: Illustration of the five steps for using the tool and each card deck involved

As illustrated by Figure 6.1, steps 2, 3, and 4 include using specific card decks.

### 6.1.1 Step 1: Define the larger picture, context, challenge, or issue to be explored

The first step of the process of using the tool is to define what is the design challenge, context, or issue to be explored. To produce thoughtful criticism, it is required an issue to comment on. This stage is an important step to align participants around what is the main focus of the ideation and its scope. To frame the design challenge, we recommend defining a *How Might We* statement (Hanington & Martin, 2019, p. 320) that phases the problem as a question to put the participant in an inspiring and thought-provoking mindset.

To define the statement, each participant first needs to individually brainstorm potential design challenges and phrase them as questions that begin with “How might we...”. Afterwards, participants should share their statements with each other and vote for the ones they feel are the most appropriate in terms of scope and context. The statement’s scope must not be too broad; otherwise, it will be challenging to determine where to begin. The statement should also not be overly narrow since this may result in solutions that do not have the desired impact.

Alternatively, the *How Might We* statement can be agreed upon and pre-defined prior to the tool usage if participants have time constraints for collaboration.

### ***6.1.2 Step 2: Define the intention and reason to use friction as a strategy***

Step 2 is about establishing why friction may be a suitable approach to the defined design challenge. As such, it regards the motive behind intentionally using friction strategies. This step involves the Intention card deck, which is a compilation of several identified situations where friction might be a suitable design approach to a problem.

With the design challenge statement defined in Step 1 in mind, participants are encouraged to read each Intention card individually, briefly discuss the ones that stood out to them and vote for one card they feel is the most relevant for the challenge. The card with the most votes is selected.

### ***6.1.3 Step 3: Define the intended emotion or message to suggest through friction***

Next, in Step 3, participants are asked to consider the expressive component of their future solution. This step involves the Expression card deck, which is a compilation of several identified emotions, experiences, and messages that the designer could potentially express and suggest through friction. This step is aimed to align participants around the intended experience they envision for players.

At this stage, participants once again should read each Expression card individually, briefly discuss the ones that stood out to them and vote for one card they feel is the most relevant for the challenge. The card with the most votes is selected.

### ***6.1.4 Step 4: Define the friction strategy to be used as an ideation trigger***

In Step 4, participants are introduced to several friction strategies in the Trigger card deck. The Trigger card deck is a compilation of several strategies and principles to intentionally design friction in the interface. This deck intends to trigger ideas and assist decision-making in the next step without being overly scenario-specific.

At this point, participants should read each Trigger card individually, briefly discuss the ones that stood out to them, then vote on one card that they believe is most relevant to the task at hand, considering all the previous definitions. Finally, the card with the most votes is selected. As this is the most content-heavy deck and the one with the most number of cards, participants should be given more time to go through it and discuss it than at previous stages.

### 6.1.5 Step 5: Brainstorm ways of solving the brief with the suggestions on the cards

Finally, in Step 5, participants are encouraged to collectively brainstorm as many ideas as possible while striving to adhere to previous definitions. This means, upholding the design challenge statement, the intention to use friction, the proposed expression, and the trigger prompt as much as possible while thinking about possible solutions. As part of a collaborative brainstorming session, participants are invited to document ideas in text format with post-its. Pre-made wireframing components can help with concept visualization and speed up sketching at this stage.

## 6.2 Card deck content

The content of each card deck was organized on a spreadsheet (Table 6.2, Table 6.3, and Table 6.4). Both trigger and intention cards contain a description to help with the card comprehension. The cards on each deck were also given an identifying number. Many of the titles and texts describing the cards originated and were adapted from the co-creation workshops. In some instances, we opted to keep the playful descriptions and examples offered by participants in the workshop, as they could make the tool more engaging. While compiling the trigger card deck content, we mapped common design principles to remove friction to each card in an effort to help keep track of its underlying premise. One of the main points of reference to assist with this mapping was the *Universal principles of design* by Lidwell et al. (2010).

Table 6.2: Content table of Intention card deck

Number	Intention	Observation
1	<b>Create empathy between the player and a situation</b>	Use the interface to develop empathy or provoke reflection and understanding through experience.
2	<b>Make the UI a tool of self-expression for the designer</b>	The interface can be a self-expression tool where the designer can communicate their own worldview and struggles with players or use it for aesthetic purposes.
3	<b>Subvert the power dynamic between the user and the technology</b>	Create situations when users are not truly in control, and the interface is not actually there to serve them.
4	<b>Challenge dominating structures and bias</b>	The interface can challenge game and society conventions, player expectations, and the plethora of entities and connections that make up digital games.
5	<b>Explore human emotions other than enjoyment</b>	Negative emotions are a powerful and valid way to foster action and reflection.

<b>6</b>	<b>Build upon the game natural antagonistic nature</b>	Understanding and interacting with a frictional interface can be a formal challenge in the game.
<b>7</b>	<b>Make a point, critique or capture real life/everyday struggles</b>	Get inspired by all the friction real life already has to reflect critically on the triviality of everyday life.
<b>8</b>	<b>Teach something to players</b>	Committing errors and failing is part of learning.
<b>9</b>	<b>Reinforce the game narrative</b>	Challenges, difficulty, and tension are driving forces in narrative. A frictional interface can serve as a metaphor, allowing the player to feel tension as an in-game character would.

Table 6:3: Content table of Expression card deck

<b>Number</b>	<b>Expression</b>
<b>1</b>	<b>disobedience</b>
<b>2</b>	<b>oppression</b>
<b>3</b>	<b>deception</b>
<b>4</b>	<b>betrayal</b>
<b>5</b>	<b>uncertainty</b>
<b>6</b>	<b>uncontrollableness</b>
<b>7</b>	<b>unforgiveness</b>
<b>8</b>	<b>interpersonal hardships</b>
<b>9</b>	<b>overwhelmingness</b>
<b>10</b>	<b>vulnerability</b>
<b>11</b>	<b>powerlessness</b>
<b>12</b>	<b>apathy</b>
<b>13</b>	<b>annoyance</b>
<b>14</b>	<b>shame</b>
<b>15</b>	<b>regret</b>
<b>16</b>	<b>inscrutability</b>
<b>17</b>	<b>hostility</b>
<b>18</b>	<b>fatigue</b>
<b>19</b>	<b>sluggishness</b>
<b>20</b>	<b>slyness</b>
<b>21</b>	<b>isolation</b>
<b>22</b>	<b>perplexity</b>

23	boredom
24	sadness

Table 6:4: Content table of Trigger card deck

Number	Title	Card Text
1	<b>Explore diegetic interfaces</b>	Make everyone aware of your interface, even the characters in the game. The information may become hidden or difficult to parse, increasing the cognitive load of some tasks or making actions take longer.
2	<b>Use deliberate inefficiency</b>	If users want to move a file to the trash, have they close their garbage bag, replace it with a new one, and throw it out in the dumpster. I hope they know when the garbage collectors are coming.
3	<b>Do a golden detour</b>	People tend to choose the easy way out. Give a generally unfavorable outcome on the path of least resistance. Allow the player to take some roads less traveled by adding a minimally functional UI.
4	<b>Slow the player down</b>	Give them time to think: If it can be one click, make it take two clicks. Use long delays or display too many options.
5	<b>Drop random inputs</b>	Give the interface power over the user. Not all buttons want to work all the time; it's hard work being pressed. If the button wants to be nice, it can tell you that it is not feeling like doing it now.
6	<b>Lie or lie about lying</b>	Use the interface to display completely untrue information. Who knows? Eventually, they may start using their critical thinking and skepticism.
7	<b>Make content not understandable</b>	Sometimes, it is tiresome to explain everything. Remain loyal to the material of your design language even at the cost of user comprehension. Exploit readability: Use jargon and unfamiliar terms.
8	<b>Use mismatched visual mimicry</b>	Not everything is what it seems. When a design copies the visual appearance of a known object, it indicates the way it will work or be utilized (due to its familiar look). Exploit this assumption.
9	<b>Use faulty feedback</b>	Give useless information like it is feedback or fake errors as a part of the experience. Make people wonder what is part of the show and what is not.
10	<b>Create perception or ability impairment</b>	Put the players in other people's shoes. Make players experience accessibility barriers firsthand to get some perspective. Consider making the interface less perceptible, operable, simple, and forgiven.

<b>11</b>	<b>Exploit Signal-to-Noise Ratio</b>	Manipulate the proportion of important to irrelevant information. Consider diluting useful information with useless information. Clutter the UI with distractions.
<b>12</b>	<b>Give too much feedback</b>	A lot, really, like, an uncomfortable amount, I'm not kidding. Think about visual, auditorial, and haptic feedback. Every interaction could have a fun sound, making that mute button useful.
<b>13</b>	<b>Stop trying to make the UI invisible</b>	Stop trying to hide it. If it's in there, I bet it's important. If it's important, put it in the middle of the screen. Please don't be shy; make it enormous.
<b>14</b>	<b>Give too much control</b>	Do not constrain players to do anything – and don't warn them about the consequences of doing so. So let players do things very easily, even if they are not sure what they are doing.
<b>15</b>	<b>Create a bad first impression</b>	Make players judge you by the cover. Foster a negative attitude and emotional reaction from the get-go.
<b>16</b>	<b>Bait players</b>	Build trust in the system by fostering internal consistency. After the user trusts the system, doublecross them.
<b>17</b>	<b>Make errors unrecoverable</b>	Don't let the user take it back. Don't provide any way for players to reverse their actions, any safety nets, confirmation, warnings, or help.
<b>18</b>	<b>Use minimalistic design</b>	That is it! Simplify interfaces to the point of abstraction.
<b>19</b>	<b>Create aporias</b>	Intentional use of gaps, lacks, and omission in information delivery leaves room for interpretation and experimentation. Let them wander a bit.
<b>20</b>	<b>Design for slips</b>	Skateboarding is only fun because you may slip at any moment. Therefore, design the interface for users to commit actions they did not intend to do.
<b>21</b>	<b>Give lazy feedback</b>	Delay feedback, so the player needs to wait to understand the result of their actions. Make it difficult for them to course-correct their mistakes immediately.
<b>22</b>	<b>Exploit memory shortcomings</b>	Make users recall information from memory as much as possible. Maybe interrupt users while they are in the middle of it. Is the cognitive load too high? It doesn't matter; Make them do it faster.
<b>23</b>	<b>Reclaim “friendly” design</b>	There is a lot more friction in friendship than there is in utility. So make the interface mimic human relationships and behaviors, even the annoying ones.
<b>24</b>	<b>Provoke the user with oppressive constraints</b>	Tease the user with options they can't use or are missing, drawing their focus away from their task or play and onto the interface. Where is that mute button?

25	<b>Use a mismatched mental model</b>	If a thing is expected to work some way, break it. Make them have to relearn it and remind the user things only work a certain way because some human beings decided that one day.
26	<b>Require precision</b>	Make the players thread the needle by designing the interface to demand players to be precise, accurate, or fast.
27	<b>Consider the world outside of the game</b>	Make the real-world part of the game through the interface. Get inspired by how unpleasant the real world is to create moments of humor, discomfort, or insight.
28	<b>Use confuse mapping</b>	Map the controls to be unlike the player's mental map. Make it difficult for players to understand the layout of the controls and the devices being controlled.
29	<b>Keep users in the dark</b>	What they don't know won't hurt them. Refrain from giving players critical information on their performance and status of the system.

### 6.3 Card deck layout

After compiling the content, a layout base was made using the design tool Figma<sup>16</sup>. Each deck has attributed a color to help with quick identification. In addition, a visual element was used in the background of the intention and expression cards to help with their distinction. All decks and their cards can be found in [Appendix H](#).

The basic card layout structure comprises the card number, title, and type (Expression, Intention, or Trigger). The intention and trigger cards also contain descriptions to help with the card's understandability. The Intention card, additionally, has the underlying design principle premise it is related to on its bottom.

The typeface family used for titles is *Syne*, available for free at the open-source Google Fonts<sup>17</sup> library. This typeface is an exploration of unusual weight and style associations. One particular characteristic is that the typeface becomes wider as it becomes bolder, requiring radical visual design choices. Given its experimental and subversive nature, this typeface seemed appropriate to visually represent the card deck titles and the tool style.

For the body text of the cards, the typeface family used was *DM Sans*, which has a geometric sans-serif style with low contrast, designed for usage at smaller text sizes. This typeface seemed an appropriate stylistic choice to use together with *Syne* and also to maintain the legibility of the cards text descriptions.

<sup>16</sup> Figma is a vector graphic editor and design project prototyping tool – <https://www.figma.com> (retrieved July, 2022).

<sup>17</sup> Google Fonts is an open-source font library – <https://fonts.google.com/> (retrieved July, 2022).





Figure 6.2: Screenshot displaying an example of the layout from each card deck

# 7. Card deck tool appraisal

## 7.1 Objectives

In this section, we present the appraisal of the card deck tool. This process involves comparing an artifact to its intended purpose and expected performance. Thus, we intended to assess if the card deck tool was able to assist designers in exploring meaningful, deliberate friction in gaming interfaces. It is crucial to note that the appraisal performed within this project's scope was mostly exploratory in nature, as this work is not intended to uncover and analyze all possible friction design strategies. That being said, observing the tool's usefulness and understandability was meaningful for this initial appraisal. Therefore, a workshop was set up as an opportunity to observe the practical usage of the card deck and assess it against its intended purpose. The main objective of this appraisal was:

- Collect qualitative feedback on the card deck tool usage.
- Appraise the tool in a practical context.

Additionally, the general purpose of this stage was to gather feedback to inform future tool improvements and iterations.

## 7.2 Methodology

### 7.2.1 *appraisal workshop*

The appraisal workshop was set up to start with an activity that served two purposes: 1) gets participants familiarized with Miro; and 2) also serves as an icebreaker.

Participants were then introduced to the tool. This presentation explained the steps that compose the tool usage and its three card decks. The facilitator described each stage and presented the deck as a playful ideation tool to explore conflict through the UI.

As the focus of the ideation stage was meant to be on the interface, it was reasoned that it would be helpful to propose an existing game as a starting point so that the basic rules and mechanics of the game were already established. The *Monopoly* (1935) was chosen for that purpose. Since *Monopoly* is a very well-known game, participants had already played it and were somewhat familiar with the basic rules. There is also a social-political aspect that encapsulates the origins of *Monopoly* and its precursor *The Landlord's Game*. Both games' themes emphasize

a cultural rhetoric at action (Salen & Zimmerman, 2003, p. 520). This aspect makes this game suitable for exploring different expressions. To help participants during the workshop, a fundamental list of the game's rules, elements, actions, board, and cards was made available in Miro workspace.

The challenge was predefined for participants to keep the workshop more concise and focused on card deck usage. Thus, for stage 1, the following design challenge was presented to participants: How might we remix the *Monopoly* game to investigate the real state/house system in terms of equity, inclusion, and transparency?

In the context of the presented challenge, participants were free to reimagine how the physical board game would be represented in terms of the interface in a digital game scenario.

For choosing the most appropriate card in steps 2, 3, and 4, participants were asked to read the cards, briefly discuss the ones they found interesting, and, afterwards, vote on the card that they believed was the most suitable in that step. The voting activity was made using the voting feature available in Miro.

To help with the ideation process, a library of common wireframe components was set up on the board so participants could readily utilize them, if necessary.

Two additional instructions were provided to the participants during the ideation part, as it was an activity with a limited timeframe. The first one was a reminder that no artistic skills were necessary. They were told that they did not need much more than text and boxes to express even the most complex ideas. The second point was that they did not need to figure out every detail of how every part of the game would work in the session. Thus, using the tool, they were encouraged to focus on a small part of the game and on how it could be remixed to investigate the challenge.

At the end of the session, participants were asked to answer a brief survey that was meant to measure their perception of satisfaction, fun, understandability, and usefulness of the card deck tool. The complete survey is shown in [Appendix I](#). This was set up as an agreement scale, inspired by other card tool validations such as in the research by Tahir and Wang (2020). As such, we used the same aspects (satisfaction, fun, understandability, and usefulness) and most of the key concept questions used in their work. However, given the differences between the two tools, questions related to specific card decks and activities were adapted in our survey to reflect our tool context and characteristics. Nevertheless, we opted to keep all aspects of the aforementioned reference survey as they were deemed relevant. Fun was kept as an aspect as it could potentially reflect the design choices of maintaining playful card descriptions and the choice of opting for a card deck format in itself.

### **7.2.2 Tools**

- Microsoft Teams was used for remote communication by video and audio and recording the session.

- Miro board was used for collaborating and interacting with the participants. The board used was previously set up with relevant information and workspaces.
- Microsoft Forms was used for the survey.
- Dovetail was used for qualitative analysis, transcription, and documenting insights.

### 7.2.3 Workshop agenda

The workshop agenda was informed by the structure for tool usage steps defined previously in subsection [6.1 Tool structure and utilization flow](#). Therefore, all five steps were contemplated.

Table 7:1: Tool appraisal workshop agenda

Activity	High level description	Duration
01. Onboarding	Brief introduction of Miro and participants with an ice-breaking activity and agenda overview.	~10 min
02. Tool introduction	Brief introduction of the tool, the steps, and how to use it.	~15 min
03. Step 1 – Understand the challenge	Understanding the theme and challenge proposal.	~10 min
04. Step 2 – Define intention to use friction	Overview of the Intention deck and definition of intention	~10 min
05. Step 3 – Define the intended expression	Overview of the Expression deck and definition of the intended expression	~15 min
06. Step 4 – Explore trigger cards	Overview of the Trigger deck to identify potential strategies.	~20 min
<i>Break</i>	—	~10 min
06. Step 5 – Ideation	Brainstorm ways of solving the brief with the suggestions on the cards.	~40 min
07. Discussion and wrap-up	Showcase solutions and discussion	~20 min
08. Follow-up survey	Survey to measure tool usefulness, clarity, and other factors.	~5 min
Total approximate duration		~155 min

### 7.2.4 Participants pool

For the appraisal session, we gathered a new sample of participants with no previous familiarity with the tool. Therefore, all participants in the appraisal group are distinct from the ones who participated in the co-creation workshop sessions. Nevertheless, the recruited participant has a similar profile to the ones in the co-creation workshop, being either UI Design or Game Design students and professionals.

An individual meeting was set up before the workshop with each one of the participants. This meeting aimed to introduce the facilitator and familiarize participants with the research theme before the tool appraisal session.

Since all participants recruited for this workshop were native Portuguese speakers, it seemed reasonable for the session to be in Portuguese. However, all participants were screened to ensure they were capable of understanding and comfortable working with the card deck tool and other workshop materials that were in English.

The workshop happened in one remote session, with a duration of approximately 2 hours and 20 minutes, on June 6<sup>th</sup>, 2022. Four participants attended the session.

Table 7:2: Tool appraisal workshop participants

Participant	appraisal workshop session	Profile	Nationality	Occupation	Gender
Participant 8	Session 1	UI/UX designer	Portuguese	Student at the specialization course in Interaction, Web and Games Design at FBAUP	Female
Participant 9	Session 1	Video game digital artist and teacher	Portuguese	FBAUP Ph.D. Design student	Female
Participant 10	Session 1	UI/UX designer	Portuguese	Student at the specialization course in Interaction, Web and Games Design at FBAUP	Female
Participant 11	Session 1	UI/UX designer	Portuguese	Student at the specialization	Male

				course in Interaction, Web and Games Design at FBAUP	
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### 7.3 Analysis and results of the appraisal workshop

Similarly to the procedure used in the co-creation workshop, Dovetail was used to help with the qualitative analysis of the session. The recorded data were subjected to an automated transcription of the audio utilizing the software (available in [Appendix J](#)). This process ensured a considerable level of agility in this stage, but several approximation inaccuracies in the transcribing needed manual correction.

The key citations were highlighted and organized into codes for combined analysis during this stage. The proposed grouping units are kept within the assessed areas, and the relevant groupings are displayed in Table 7.3 along with the number of citations in the entire workshop. The grouping units were subdivided into codes. After coding and intragroup analysis of each highlighted unit, an analytical interpretation of the data was performed to identify insights.

Table 7.3: Codes and tag grouping for the qualitative analysis of the appraisal workshop

Group	Codes	Highlight count	Character count
Tool impressions	Using the tool	50	10099
	Usefulness	44	9759
	Feelings with the tool	36	7272
	Difficulty	18	4306
	Doubts and misunderstandings	5	847
Group	Codes	Highlight count	Character count
Game aspects	UI vs other elements of game	19	3590
	UI representation	20	5842
	Game Design	8	2061
	Mechanics	8	1674

Group	Codes	Highlight count	Character count
Cards decks	Trigger card	18	3745
	Expression card	7	1739
	Intention card	7	1043

Following the qualitative coding of the transcriptions with Dovetail, several insights and feedback were derived from the card deck usage. In this part, we provide critical findings collected from the session.

### 7.3.1 Feedback on card selection and voting process

Participants were asked to discuss the cards that stood out in Deck 3 before voting. Given that Deck 3 has a larger number of cards than the others, the workshop facilitator made an impromptu suggestion of using dot-voting. Dot-voting consists of marking with a dot the cards that they found interesting, so as not to lose track of the ones that were picking up their attention and ease the final voting later on.

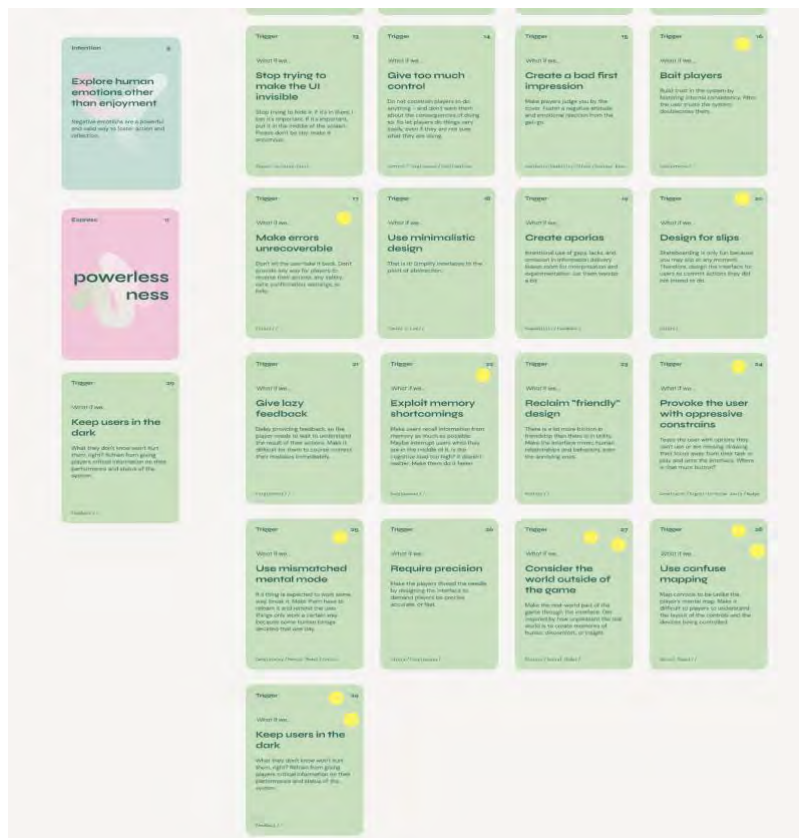


Figure 7.1: Screenshot of the Miro board available at [Appendix K](#) with the yellow dots used in the dot-voting

Participants later verbalized that the dot-voting method worked well to simplify the voting process of Deck 3. They explained that, in an in-person workshop, it was easier to just physically separate and discard the cards they were not interested in voting and discussing. However, for the remote session, they perceived value on the dot-voting process.

Nevertheless, participants also mentioned that they experienced some decision fatigue around voting for the card in Deck 3 as there were a lot of options. They mentioned that because they found that many trigger cards could be suitable, it was difficult to decide on Deck 3. They felt as though they potentially missed some cards that were legitimate and could give good results and combine new possibilities. Thus, participants later suggested the possibility of choosing multiple cards in Deck 3 or randomizing the choice instead of voting. In the words of Participant 9, at the end of the session: “I really liked these cards, I think they are very complete. I wish I could use more, I wanted to combine”.<sup>18</sup> More than one participant voiced this opinion, as they believed this could potentially lead to interesting combinations and other types of challenges. Participant 9 also suggested that it might be interesting to observe the usage of the tool in a scenario with random card selection and multiple trigger card selections in future appraisal sessions.

Yet, they also verbalized how, in the end, they felt it was good to have gone through all cards in Deck 3, as it opened their minds and made them consider other issues and not be as limited.

### ***7.3.2 Feedback on card content and layout***

Participants gave overall good feedback about the content on the cards. The text in Deck 3 was regarded as helpful in understanding what the card was about and its explanation. It was mentioned that, for someone without experience and from the participants perspective, having the text made all the difference in comprehending the card prompt. They also mentioned how they felt the card set was complete. The facilitator also observed that the cards’ content was able to trigger interesting discussions among the participants.

Regarding the layout, it was mentioned by participants that the numbering was really useful for referencing specific cards while discussing, and therefore, the card number font size could be increased to improve its legibility. Likewise, it was suggested that the trigger card text font size could also be increased. Regarding the underlying universal design principle at the bottom of the trigger card, Participant 8 commented that she did not understand what they were, and their purpose, and thus did not use it in her favor. That was because, although this information was present on the cards, it was not explained by the facilitator to the participants, as it was deemed as complementary information. However, this comment made us realize that more attention should be devoted to this information in future sessions or, alternatively removed completely from the card so as not to cause confusion.

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<sup>18</sup> Original transcription in Portuguese: “Eu gostei muito destas cartas, acho que estão muito completas. Eu queria era poder usar mais, eu queria combinar”.



In terms of the tool and challenge introduction, participants suggested it would be a good addition to include in the Miro board more examples of friction in the interface so designers who are unfamiliar with the concepts of intentional friction are more aware of the possibilities.

### ***7.3.3 Feedback on the proposed design challenge and ideation outcome***

Participants verbalized how they felt the challenge theme was up-to-date and relevant, as it affected them all. However, before the ideation stage, Participant 9 mentioned that, although she thought the design challenge was exciting, she was feeling anxious of being tasked to find a solution for it. She mentioned that she was afraid of choosing a card that was too difficult to carry out the ideation with.

After the discussions in each stage, the cards voted by participants were the following:

- **Intention deck:** Card 5 – Explore human emotions other than enjoyment.
- **Expression deck:** Card 11 – Powerlessness.
- **Trigger deck:** Card 29 – Keep users in the dark.

As a result of a participant's suggestion, the facilitator kept moving the cards and other important information to the workspace being used at the moment in Miro. Having the problem statement, challenge, and all the cards chosen in the previous step at hand and visible at all times to participants made a positive difference in their perspective as, in points of difficulties, they were able to step back, review them and clarify.

During the ideation stage, we could observe some points where Participant 9 was worried about completely breaking the game or making it unplayable if they went too far with the friction ideas. We also observed that, at moments, the ideas were leaning towards a more mechanic and rule aspect rather than the interface. However, after the learnings from previous workshops, this observation was somewhat expected given the systemic and intricate nature of the elements of a game. Nevertheless, in the end, and without interference from the facilitator, the group was able to arrive at ideas that were able to fulfill the design challenge posed and be expressive using the UI as the venue. The ideas were captured, and post-its and rough sketches were produced to visualize some of them. The output of this session can be found in [Appendix K](#).

A compelling idea worth highlighting was around participants' discussion over a house rental decision, contract, and the aftermatch experience. In the conversation, they verbalized that, when looking at the house rental pricing in a listing, we only have access to the rent price. However, the house condition could lead to unexpected expenses with heating and other factors that are not made entirely transparent by the tenant, the ad, or the contract. Participants then suggested that, after renting or buying a property in the game, after a few rounds, an unexpected pop-up would appear to require some extra payment from the renter related to these unforeseen expenses. However, although this pop-up would use the usual structure of displaying "ok" and "cancel" options, the "cancel" option would only make another pop-up window appear. Thus, the idea

would be to have an option that was “I can’t pay now”, and when the player clicks, it will trigger another pop-up saying, “but you really have to pay”. The idea was to make it seem that there is a possibility of escaping the debt, but another message appears to inform players they still have to pay. Thus, users are kept in the dark by the interface refraining from giving players critical information about future expenses, and the non-helpful “cancel” button expresses the powerlessness of this type of situation.

Another idea generated revolved around the lack of financial literacy of real-life people. The concept gave participants the idea to not display the amount of money users had at the *Monopoly* bank, thus keeping users in the dark, as prompted by the trigger card. That particular idea would potentially increase the cognitive load of knowing the amount available at players accounts,



Figure 7.2: Sketch produced by the participants in the workshop

interfering with their decision-making process for acquiring new property and keeping up with other in-game expenses. This idea is exemplified in Figure 7.2 in a sketch made at the workshop by one of the participants. A pop-up would prompt players for paying rent. However, since players (and real-life people) can not simply choose to not pay rent, the buttons of the pop-up would only display “OK” and “Pay” options, expressing the powerlessness of the situation and offering no real way out. Players would be informed of the amount available in their account only when their bank account balance is not enough to pay the expense.

At the end of the session, Participant 9 expressed that she found the tool useful and helped combine unexpected outcomes. Participant 9 also expressed interest in experimenting and using the tool in other contexts such as the classes she teaches. Other participants expressed that the ideas and conclusions that arose during the ideation stage worked very well with the chosen cards and verbalized how they liked the ideas that came out of it. In the words of Participant 11:

I confess that I like practically everything that is here. These ideas I think could make a really great game. Some more than others, but I think they would all have a good weight in a game.<sup>19</sup>

<sup>19</sup> Original transcription in Portuguese: “Eu confesso que eu gosto de tudo que está aqui praticamente. Estas ideias eu acho que dava mesmo grande jogo. Umas mais que outras, mas acho que todas teriam um bom peso num jogo.”

Overall, it was observed that, in comparison with the preliminary exercise activity made in 2020, the card deck tool was able to get much better results in getting participants to think about and ideate expressive interfaces.

Another positive feedback received from participants was that the tool helped with the collaborative nature of the activity. They noticed that even though they were in a remote session and many did not know each other prior to the workshop, but they felt the tool was good for working well together. Finally, Participant 10 mentioned that the tool helped surpass the “fear of the white page”.

### 7.3.4 Survey results

After the workshop, all participants were asked to answer an anonymous survey on their perception of satisfaction, fun, understandability, and usefulness of the card deck tool. In almost all aspects, participants tended to evaluate the tool positively or very positively.

In regards to the perception of fun, the expression card (Deck 2) had the most positive review (75 % strongly agree).



Figure 7.3: Self-reported perception of fun for the tool and each individual deck

In regards to participants’ satisfaction, all participants strongly agree that they were satisfied with the time given for each activity and the sequence the cards were used. However, while 75% of participants agreed that they were satisfied with the visual design of the cards and only 25%

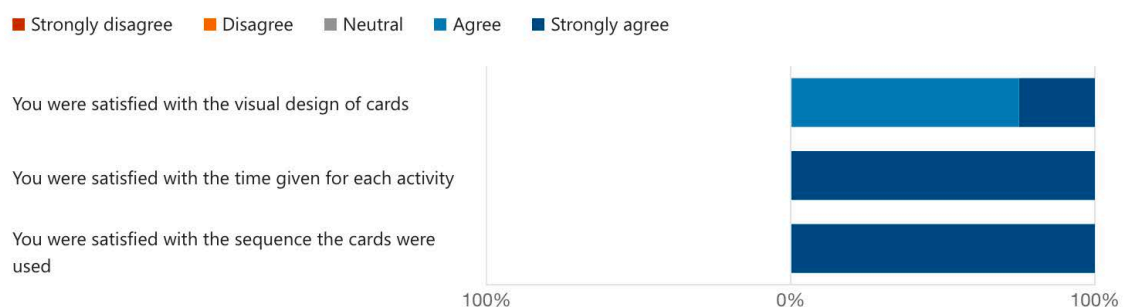


Figure 7.4: Self-reported perception of satisfaction using the tool

strongly agreed. It is possible this could be attributed to the feedback received from the participants about the typeface size for card numbers and text being rather small.

In regards to the tool and cards understandability, all participants strongly agreed that the activity related to card decks 1 and 2 were easy to understand. The trigger cards (Deck 3), however, saw a 50% split between the agree and strongly agree evaluation. It could be possible that since Deck 3 is the one with the most cards and text, it is the one that demands the most cognitive effort in the tool.

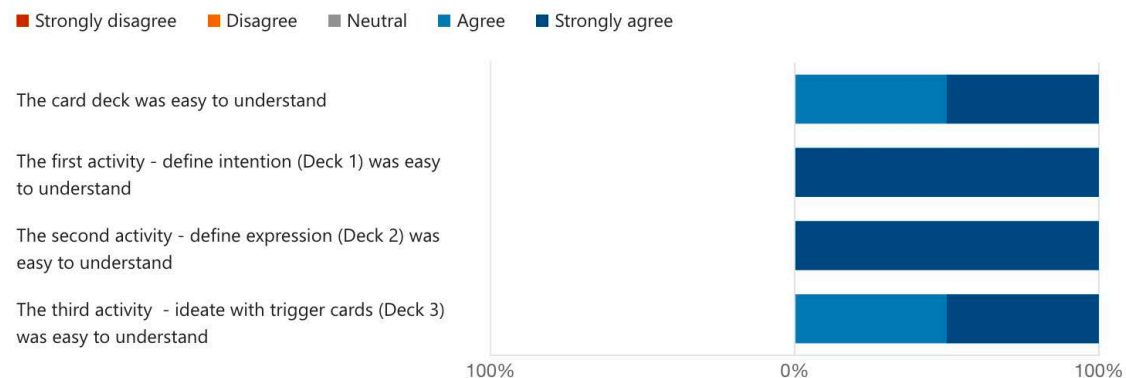


Figure 7.5: Self-reported perception of tool understandability

In terms of the card's usefulness, 75% of participants strongly agree that the information on the cards was useful. Participants were also split into agreeing or strongly agreeing that the tool helped them consider strategies they would not have considered without it. Although 75% of participants strongly agree that the expression (Deck 2) and the trigger cards (Deck 3) were useful, the intention cards (Deck 1) were the only ones that received a neutral assessment (25 %), and the one who saw the weakest assessment in the usefulness of the 3 decks. Nonetheless, the overall evaluation was still positive for the intention cards (Deck 1).

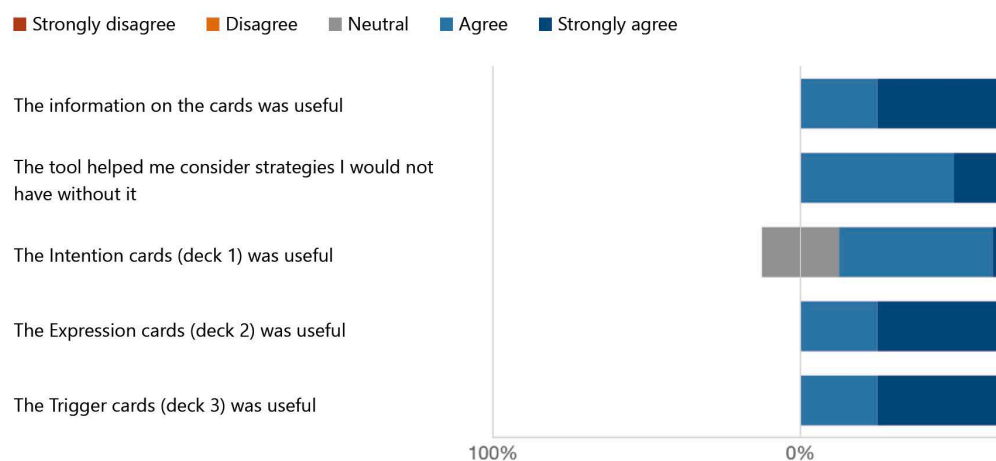


Figure 7.6: Self-reported perception of the tool's usefulness

# Conclusion

## Final considerations

In this dissertation, we examined the user-friendly and enjoyment paradigms; criticism, expressiveness, and emotion in digital games; and finally antagonism and purposeful friction in digital games. Furthermore, we discussed potential ways for using deliberate friction in digital games to produce meaningful experiences and inspire reflection.

The strategies highlighted in the state-of-the-art point to more complex approaches than simply reframing the principles to build a friendly design in reverse. For example, the inverse of providing feedback to users would be to not offer any kind of feedback. The identified faulty feedback strategy, on the other hand, proposes other tactics, such as providing deceptive feedback or overwhelming players to create the conditions for them to get in touch with the game's message. Thus, some of the suggested strategies indicate that there is nuance in the way we look at the depth of knowledge provided by HCI to leverage it with the particular objective of creating difficulties for players by the usage of intention friction.

One potential shortcoming of these strategies is that designers only have indirect influence over the player experience and no total control over the user's individual perception (Walk et al., 2017). Since games are emergent and intricate systems, intentional friction strategies can only provoke and suggest the desired experience for the player.

Furthermore, it appears that accessibility is one of the potential drawbacks of using intentional friction on the UI. A designer who resorts to such strategies may unwillingly exclude participants with neurological, cognitive, visual, auditory, or physical disabilities. For example, the impairment of ability strategy may exclude players who rely on a particular sense as their major means of engaging with technology due to a permanent or temporary disability.

Another restriction to consider is the effect of unpleasant experiences on individuals. People who suffer from mental illnesses such as depression or anxiety disorders may find such experiences unsuitable given their conditions. Norman draws attention to the concept of learned helplessness, which occurs when a task is repeatedly failed, resulting in serious difficulty coping with life, and is most commonly researched as an antecedent to clinical depression (2013, p. 62). Forgas (2017) also argues that the positive effects of negative affect on cognition and behavior may only apply to mild and temporary negative emotions. Thus, the author points out that the positive consequences of negative affects (such as reducing stereotyping and biases, improving detection of deception and others) can not be extrapolated to more persistent and powerful negative states like depression.

Nevertheless, we may reason that, when appropriate, adopting intentional friction strategies in game UI could be a suitable approach to addressing the following: to build on the game's natural antagonism nature (Walk et al., 2017); to break the Flow (Soderman, 2021) and avoid domination through positive psychology (Han, 2021); to foster critical reflection and challenge dominant structures (Grace, 2014); to explore a broader range of human emotions (Norman, 2013) other than fun and enjoyment (Forgas, 2017; Frasca, 2007; Lawhead, 2019; Wilson & Sicart, 2010; Cardoso et al., 2019).

In addition to the literature review, the insights provided by participants in the co-creation workshops were very helpful in getting an even more in-depth understanding of the research problem space and get others' perspectives on the limitations and potentials of using intentional friction strategies.

One meaningful insight is that, given the game's systemic structure, there is a level of ambiguity between design aspects such as mechanics, interface, and story, especially regarding diegetic interfaces very incorporated in the game world. Additionally, creating points of difficulty on purpose in the UI could be an unexpected approach for designers coming from more traditional backgrounds, making it challenging to consider friction as a strategy at a first. Nevertheless, this insight could suggest that the tool developed in this research could be particularly useful for such UI designers who want to also operate in the game industry.

Another interesting insight lies in the various instances of friction experiences that come from ordinary life and interactions with various people, media, and technology. These real-life experiences might clearly aid in the conception of in-game experiences and could be used to examine everyday frustrations and problems, such as interpersonal relationships.

Finally, an interesting insight is that a lack of "good friction" or resistance that prevents slips or mistakes can be a valid way to explore the intentional creation of points of difficulty for the player. Thus, using intentional friction strategies encompasses not only adding friction but also completely removing it to induce errors. In this sense, UI designers need to be aware of the impact friction may have on players and employ it in favor of a specific design objective.

Besides these insights, the co-creation workshop was a crucial step in the development of the card deck tool. Using a card deck as the tool format has several advantages, including the ability to facilitate knowledge transfer, clarify concepts, frame design discussions to steer the work, facilitate shared understanding and communication, and provide an enjoyable approach to getting people involved (Tahir & Wang, 2020).

After creating the first iteration of the card deck and conducting a promising first appraisal session, we were able to gather valuable information and suggestions for improvement. As mentioned, the card deck tool yielded much better results in comparison to the first preliminary practical exercise carried out in 2020. Participants were able to, with the aid of the tool, create expressive and frictional interface ideas. In particular, it was very encouraging to observe that expressiveness was a key component of the participants' discussion and ideation process.

## **Limitations of the study**

This research was limited to be primarily centered on the subject of game UI Design. However, the study looked into processes and concepts, and developed a tool that might be used in areas other than UI Design in game development. As such, this supposition should be investigated further. Additionally, while we were successful in addressing the research goals and objectives, the tool content and its relationship with game systemic complexity warrant future exploration.

The practical workshops and procedures used in the investigation have certain limitations. The pandemic caused by COVID-19 imposed constraints on the testing and workshop procedures. Although we run workshops that met the research objectives and provided enough information to reach some conclusions, it is important to remember that subsequent testing may provide different findings. This is due to the outcomes of this study being confined to our procedures and sample. Carrying out testing with different procedures and samples may yield different results that are significant for the ongoing development of the card deck tool and the discovery of new friction strategies.

It is also worth mentioning that the created tool has yet to be used in a true running gaming production, which may undoubtedly lead to other discoveries. Finally, it is expected that, with a bigger sample, new strategies and conclusions will emerge through participant interaction and feedback.

## **Future work**

Some of the suggestions provided by participants in the appraisal session are already incorporated in the current iteration of the tool, such as the typeface size adjustment. Other suggestions will be incorporated in future appraisal workshops, such as the random selection of the Deck 3 cards to address the decision fatigue felt by some participants.

Another natural next step would be to appraise the tool in a real and ongoing game project. It will be beneficial to observe if the tool is still able to provide value in a real project where constraints such as system impact, feasibility, and effort might play an important part in the outcome. This appraisal scenario would also provide a valuable chance to better assess the stage 1 tool usage process of defining the design challenge and issue to be explored. A good design challenge choice and framing might be imperative to the successful use of the tool. Thus, validating this stage in-depth is an important next step.

Additionally, in the near future, the card decks and the tool are meant to be available both for the Miro and Figma community. It is our hope that, by doing so, the tool may be helpful to those who wish to experiment with alternative ways of creating game UIs. The survey will be available with the tool and will remain open for continuing gathering feedback on the tool's understandability, fun, satisfaction, and usefulness. This would also help us increase the quantitative research samples to improve the confidence in the results.



We also hope that, by making the tool available to the community, other designers may build upon it, remix it, add their improvements or even consider collecting further strategies. We see great value in opening this tool to the design community since participants' ideas and discussions from the co-creation workshop were crucial to the tool development.

Without a doubt, the strategies proposed in this dissertation and in the card deck tool are not intended to serve as a definite guide. Nonetheless, they are, above all, a collection of options that inspires designers to think creatively about friction and the discipline of UI Design in general. The ambition of this project was never to discover all possible friction design strategies at once. In fact, the investigation remains ongoing and the more answers that emerge from various perspectives and settings, the more diverse and comprehensive our knowledge of friction as a strategy will become.



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# Appendix A

## Preliminary activity 1 instructions

### Temática

Interface no Espaço-Ficção do Jogo

### Objetivo

Explorar alternativas de representação da interface na relação espaço-ficção do jogo.

### Metodologia

O exercício deverá ser realizado mediante os grupos já formados.

1. Consulte o documento, o vídeo e as imagens que descrevem o jogo e discuta como a interface atual se relaciona com a narrativa e o espaço no mundo do jogo.
2. Leia sobre os recursos e a mecânica principal e, pensando em formas alternativas de representar a interface na narrativa e no espaço do mundo do jogo, decida que recursos devem ser exibidos no ecrã, de que forma, e onde.
3. Planeje no papel ou no software de sua preferência (como o Figma, Photoshop ou Adobe XD) a aparência geral da representação alternativa da interface do jogo conforme aparecerá na tela. Pode usar imagens e assets da Internet para representar elementos.
4. Discuta quais consequências as mudanças propostas trariam para o jogo e como estas poderiam afetar o *gameplay*.

### Overview do jogo

*Overcooked* (2016) é um jogo de ação isométrico. Em uma experiência cooperativa local, os jogadores controlam vários chefs em cozinhas repletas de vários obstáculos para preparar refeições rapidamente para pedidos específicos dentro de um limite de tempo. Seu objetivo é preparar refeições, o que exige seguir receitas e entregar os ingredientes corretos em locais adequados da cozinha.

### Gameplay do jogo

O jogo ocorre a partir de uma perspectiva vista de cima em um espaço 3D. Cada jogador move o seu personagem, identificado pela cor da sua roupa (vermelho, verde, amarelo ou

azul) com o *joystick* para as proximidades dos objetos que deseja interagir e carrega o botão de ação.

Durante uma rodada, os jogadores recebem uma pedido que deve ser concluída em um curto espaço de tempo. Os chefs trabalham juntos para completar aquela refeição a tempo. Algumas das ações disponíveis no jogo consistem em apanhar os ingredientes necessários para a receita, cortá-los na tábua de corte, colocá-los no tacho na quantidade descrita na receita, servir em um prato depois de cozido e, por fim, entregar o pedido. As ações de cortar e cozinhar não são realizadas imediatamente e levam um alguns segundos para serem concluídas.

Os jogadores precisam concluir o máximo de pedidos o possível dentro de um tempo curto pré-determinado. Quanto mais pedidos corretos entregues, mais dinheiro os jogadores acumulam. Pedidos entregues de forma incorreta não ganham moedas. O objetivo é coletar o máximo de moedas possível dentro do limite de tempo. Os jogadores são classificados em um sistema de 3 estrelas com base em quantas moedas eles receberam.

## Material de referência







# Appendix B

## Preliminary activity 2 instructions

### Temática

Fricção Intencional e Expressão na Interface

### Objetivo

Explorar o método de ideação do pensamento-reverso como forma de criar fricção intencional e, potencialmente, expressividade.

### Metodologia

O exercício deverá ser realizado mediante os grupos já formados.

1. Escolha um jogo dentre as opções disponíveis que pareça mais promissor para experimentar com fricção intencional.
  2. Numa sessão de *brainstorming* coletivo, sugira ideias ruins, terríveis e até estúpidas para a interface do jogo. Gere o máximo de ideias ruins possível.
  3. Discuta e investigue com o grupo quais atributos fazem as piores ideias serem tão ruins.
  4. Após gerar diversas alternativas ruins, o grupo deve se desafiar a transformar essas ideias horríveis em boas ideias. Para isso, podemos considerar os opostos das ideias ou podemos procurar aspectos dentro das ideias terríveis que podem inspirar uma boa ideia. O grupo pode ainda considerar simplesmente remover o pior atributo e substituí-lo por outro. Misture e combine diferentes ideias ruins e veja o que sai.
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## **Jogo 1 - The Voter Suppression Trail**

### **Overview do jogo**

O New York Times lançou o *The Voter Suppression Trail* (2016). O mini jogo politicamente carregado que faz com que os jogadores lutem contra longas filas e "observadores" intimidantes para finalmente votar. Descreve certos obstáculos que alguns eleitores enfrentam durante as eleições nos EUA.

No jogo, você pode votar como um programador branco da Califórnia, uma enfermeira latina do Texas ou um vendedor negro de Wisconsin. Viagens de ônibus pela cidade, crianças doentes, chefes furiosos, chuva congelante e mau funcionamento do sistema eleitoral ameaçam sua capacidade de votar. Em uma sequência, quando você finalmente entra na seção eleitoral, os "observadores" eleitorais tentam intimidá-lo, perseguindo-o com insultos. Se você não puder evitá-los, seu voto morre.

### **Gameplay do jogo**

O jogo começa apresentando os 3 tipos de personagens disponíveis: um programador branco da Califórnia, uma enfermeira latina do Texas ou um vendedor negro de Wisconsin. O personagem escolhido influencia diretamente a experiência de votação ao longo da história do jogo. Antes do jogo começar, o jogador deve digitar o nome do seu personagem. Caso o jogador tenha escolhido a enfermeira ou o vendedor, o personagem deve esperar em uma longa fila.

Enquanto espera, várias situações surgirão e o jogador deve decidir se deve permanecer na fila ou não. Caso permaneça, o contador na parte inferior da tela mostrando o seu nível de frustração e minutos na fila é atualizado. Se o seu personagem abandonar a fila, o jogador perde. Chegando até o interior do prédio, o jogador deve ultrapassar um minigame onde precisa desviar dos "observadores" que tentam intimidá-lo. Após essa etapa, o jogador chega finalmente a cabine de votação mas percebe que não possui o documento de identificação necessário. Ele deve então escolher ir buscar o documento, desistir de votar ou lançar um voto provisório. Caso escolha desistir de votar ou lançar um voto provisório, o jogador perde. Se o jogador optar por buscar o documento, ele deve esperar mais alguns minutos na fila mas eventualmente consegue lançar o seu voto.

### **Materiais de referência**

- <https://www.nytimes.com/interactive/2016/11/01/opinion/voting-suppression-videogame.html>
- <https://www.youtube.com/watch?v=HiCrC7-sxIg>

## **Jogo 2 – Two Interviewees**

### **Overview do jogo**

Duas pessoas estão desempregadas. Eles vão ser entrevistados e, se conseguirem causar uma boa impressão, vão conseguir o emprego.

As perguntas são as mesmas, as respostas são as mesmas, mas os entrevistados não são os mesmos: um é Martin, um homem, o outro é Irene, uma mulher. O objetivo do jogo é provocar um debate sobre discriminação de gênero no mercado de trabalho.

Este é um mini jogo narrativo criado originalmente em italiano pelo desenvolvedor indie Mauro Vanetti em um dia durante o curso de Design de jogos narrativos realizado pela We Are Muesli em Bolonha em janeiro de 2016.

### **Gameplay do jogo**

Neste jogo as ações e as respostas escolhidas pelo jogador são aplicadas a ambos os personagens (Martin e Irene). O jogador precisa responder perguntas acerca da pretensão salarial, estado civil e sobre a personalidade dos personagens. Entretanto, o entrevistador reage às respostas de forma diferente, fazendo anotações positivas ou negativas de acordo com o gênero do personagem. Dependendo das respostas do jogador, é possível fazer com que o personagem Martin consiga a vaga. Entretanto, independente das respostas que o jogador escolha, é impossível conseguir com que a personagem Irene consiga o emprego. Ao final de cada partida, o jogador é apresentado com uma estatística sobre gênero e mercado de trabalho.

### **Materiais de referência**

- <https://gamejolt.com/games/two-interviewees/127095>
- <https://www.youtube.com/watch?v=EwOG0MTSmLg>

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## **Jogo 3 - The Republia Times**

### **Overview do jogo**

The *Republia Times* (2012) é um precursor de Papers, Please, criado em Flash para a Ludum Dare 23. Ele ocorre em um universo semelhante ao de Papers, Please ou no mesmo universo, mas vários anos depois ou antes dos eventos retratado no jogo. Ambos os jogos contêm vários temas semelhantes.

### Gameplay

O jogador assume o papel de editor de notícias do The Republia Times, um jornal importante na nação autoritária fictícia da Republia. O jogador determina quais histórias são incluídas na edição de cada dia do Times, e quanto destaque cada história recebe. O jogador tem que equilibrar a publicação de histórias pró-governo para convencer um público cético a apoiar o governo opressor, enquanto também publica histórias de fofocas populares para aumentar o número de leitores. O jogador deve escolher cuidadosamente quais histórias publicar, já que o governo mantém a família do editor como refém.

A jogabilidade consiste em arrastar diferentes histórias do lado esquerdo da tela para o modelo de jornal à direita. Novas histórias aparecem conforme o relógio faz a contagem regressiva para a hora da imprensa. O Ministério da Mídia incumbe o Editor-Chefe de expandir o número de leitores e aumentar a lealdade, enquanto os rebeldes pedem ao Editor-Chefe que publique histórias prejudiciais enquanto aumenta o número de leitores.

O desafio do jogo deriva de tentar deduzir que efeito as diferentes notícias terão (tanto no leitor quanto na lealdade da Republia) e de tirar o máximo proveito das notícias apresentadas em um determinado dia.

### Materiais de referência

- <https://dukope.com/trt/play.html>
  - <https://www.youtube.com/watch?v=abnvHqeKOME>
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## Jogo 4 - We Become What We Behold

### Overview do jogo

*We Become What We Behold* (2016) é um jogo de 5 minutos que analisa como a mídia amplia pequenas diferenças em proporções grosseiras. É um jogo apartidário sobre política, examinando o horror da natureza viral da divisão e do tribalismo.

### Gameplay

O jogador deve capturar “notícias”, controlando o que os círculos e quadrados veem em uma tela e influenciando como eles pensam e agem. Para isso, ele precisa enquadrar as interações entre os personagens no momento em que elas ocorrem. É um jogo de desconstrução, que começa pacificamente, com você tirando fotos de coisas, como um homem de chapéu, mas que rapidamente se transforma em uma bagunça sangrenta, com hashtags clickbait e Flame Wars. Trata-se, basicamente, de uma sátira do ciclo internet / mídia moderna.

### **Materiais de referência**

- <https://ncase.itch.io/wbwwwb>
  - <https://www.youtube.com/watch?v=krafldtfTio>
- 

## **Jogo 5 - Dogness**

### **Overview do jogo**

*Dogness* (2018) é um jogo onde tens que criar um parque canino mais “perfeito” e homogêneo. O cão perfeito é randomizado todas as vezes, e é bastante desafiador criar uma população que se aproxime do ideal. Envolve controlar a imigração, expulsar os cães “impróprios” e criar seletivamente os animais para preservar ou alcançar as características desejadas. *Dogness* foi feito para ser uma submissão ao #resistJam, uma competição amigável que convoca jogos que “resistam ao autoritarismo opressor”.

### **Gameplay**

O objetivo do jogo é criar um parque canino com uma população que tenha características que mais se aproxime do "perfeito". As características são determinadas por quatro “genes” (tamanho, constituição, altura e cor). A prole tende a se parecer com a média dos pais, com alguma aleatoriedade adicional. O motor genético é extremamente simplificado para a jogabilidade: não há genes dominantes ou recessivos e o sexo dos pais não importa, qualquer um pode acasalar com qualquer um. No entanto, os filhotes podem ficar atrofiados se forem forçados a acasalar com parentes próximos. No final de cada sessão de 6 minutos, você é avaliado com base na média da *Dogness* de sua população. Um *Dogness* de 70% ou mais é uma boa pontuação.

### **Materiais de referência**

- <https://molleindustria.itch.io/dogness>
  - <https://www.youtube.com/watch?v=gj4s0LZa1sE&t=307s>
- 

## **Jogo 6 - Bad News**

### **Overview**

O jogo *Bad News* (2017) confere resistência contra desinformação online, colocando os jogadores na posição das pessoas que a criaram e, como tal, obtém insights sobre as várias táticas e métodos usados por propagadores de notícias falsas para espalhar sua mensagem.

## **Gameplay**

O jogo funciona de forma simples e direta: os jogadores veem um pequeno texto ou imagem (como um meme ou título de artigo) e pode reagir a eles de várias maneiras. Existem duas maneiras em que sua pontuação é medida: 'seguidores' e 'credibilidade'. Escolher uma opção que esteja de acordo com o um produtor "real" de desinformação escolheria, obterá mais seguidores e credibilidade. Se, no entanto, os jogadores mentirem muito descaradamente para seus seguidores, escolherem uma opção que é abertamente ridícula ou agir muito de acordo com as melhores práticas jornalísticas, o jogo tira seguidores ou diminui sua credibilidade. O objetivo do jogo é reunir o maior número de seguidores possível sem perder muita credibilidade. Como é impossível cobrir todos os aspectos da desinformação em grandes detalhes, o jogo optou por cobrir os aspectos mais comuns. O jogo quebra esses aspectos em 6 emblemas: personificação, emoção, polarização, conspiração, descrédito, e trolling.

## **Materiais de referência**

- <https://www.getbadnews.com/#next>
- <https://www.youtube.com/watch?v=Snf3MleVBd0>



## **Appendix C**

# **Co-creation workshop – Session 1**

## **Miro board**

The following pages contain the PDF exported from the Miro board used during session 1 of the co-creation workshop, detailed in [Chapter 5](#). [Appendix E](#) includes the session 1 transcript.



# 01

## Onboarding 🙌

Brief introduction  
of the participants  
and agenda



**10 min**

Time (WET)	Activity	Description	Duration
18h30	01.Onboarding	Brief introduction of the participants and agenda	10 min
18h40	02.Problem landscape	Problem landscape and project context	20 min
19h00	03.Lightning demo	Sharing of interesting examples of design frictions in the User Interface	15 min
19h15	04.Align & define	Shared understanding of design principles, the purpose they serve, and the goals of the exercise	10 min
19h25	05.Ideation	Individual brainstorm as many design principles as you can	15 min
19h40	<i>Break</i>	----	10 min
19h45	06.Discussion	Bring all those ideas together and identify themes that surface during the exercise	20 min
19h55	07.Wrap up	----	10 min

# 02

## Problem

## landscape

Overview of the  
problem landscape  
and project



**20 min**

what

who

How might game and UI designers leverage intentional friction through the interface to communicate ideas, build arguments and promote reflection?

why



## ✨ **Goal of this workshop**

Discussion of using design friction as a  
strategy for the UI in games and  
brainstorm ideas for design principles



**When you think of design frictions, what three words or phrases come to mind immediately? They can be positive, negative, or neutral.**

Abrasiveness

Different  
interactions  
between  
devices

UI is less UI  
but a part  
of the  
world

Not all interface  
are well thought  
in the  
information  
arquitecture

UI is not  
there to  
serve you

Lack of  
coherence  
of  
interactions

Space control  
panel -  
Friction full  
design

Unfriendly  
- NOT  
SLAVE UI

Neutral -  
because dont  
see conection  
about devices

Complex  
manuvers to  
create a  
simple thing



## What we understand as design frictions in the UI?

complex  
UI  
hierarchy

anything  
that stops  
"flow"

Overwhelming

unbearable  
complicated

## Design frictions

"points of difficulty occurring during interaction with technology"  
(Cox et al., 2016, p.2)

Too broad -  
Technologies

Internet  
example

"anything that prevents users from accomplishing a task"  
(Swallow, 2021)

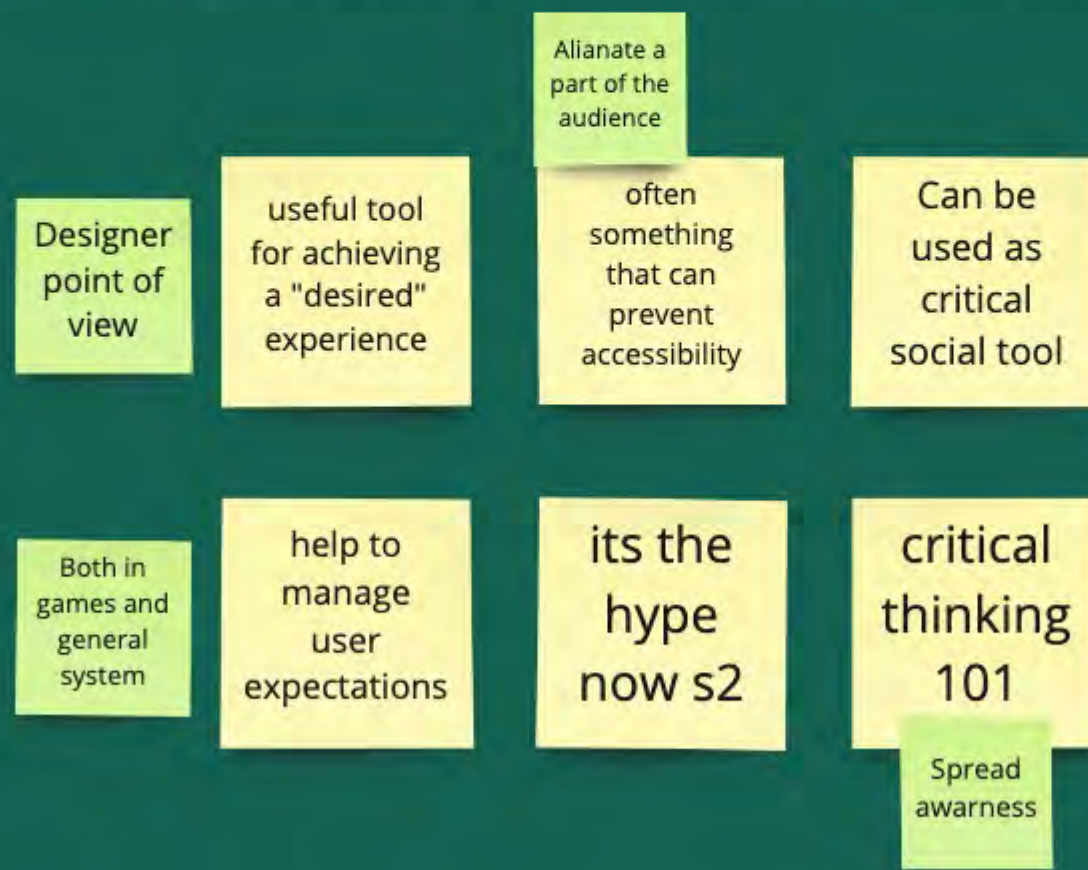
Encompass  
thing more  
with the things  
we talked  
about

Too goal  
oriented





**Please share with us your feelings about the relevance of design frictions to UI design both in general and in games.**



# 03

## Lightning demo

Sharing of interesting  
examples of design  
frictions in the User  
Interface for inspiration



**15 min**



“

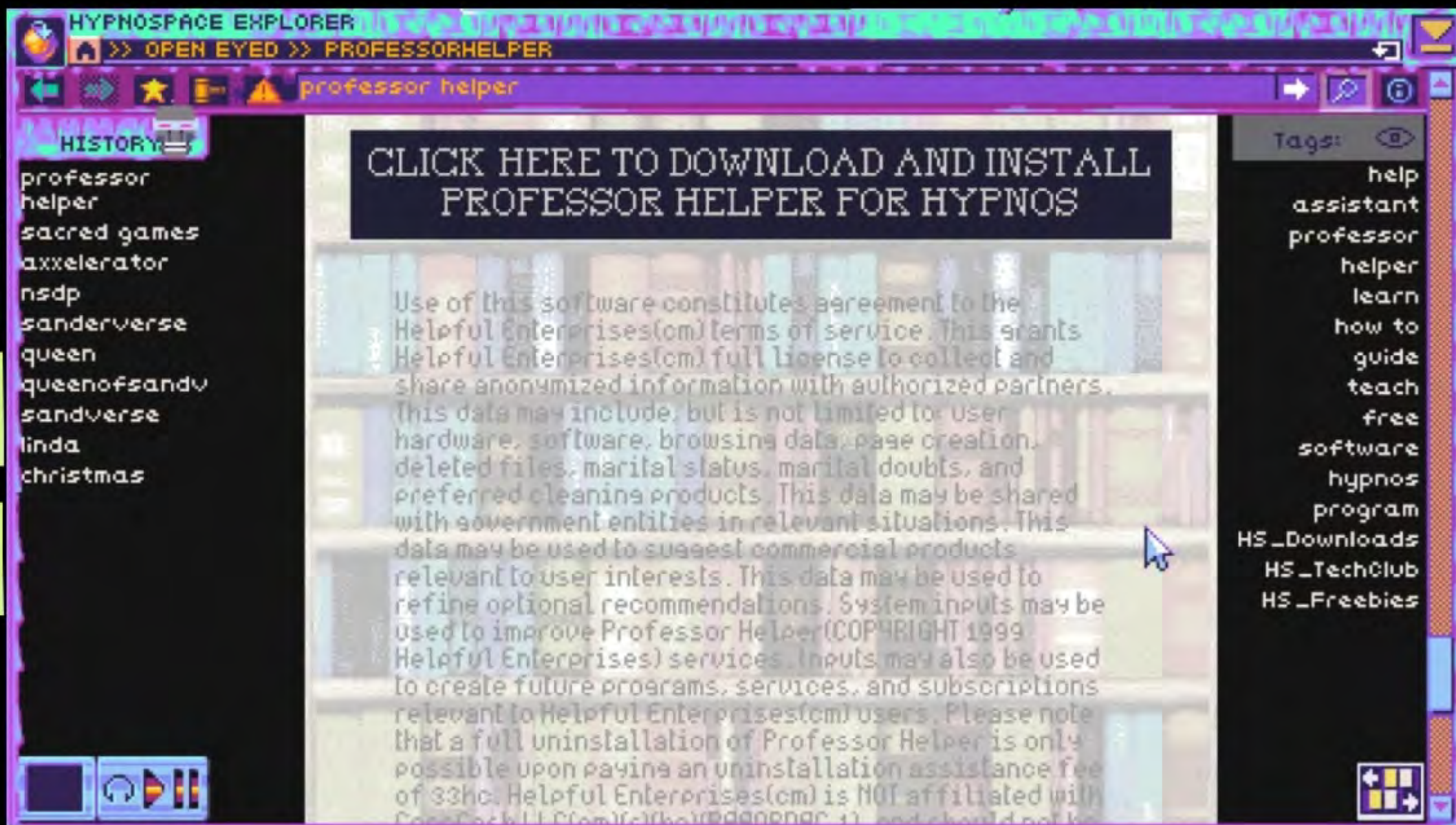
Human computer interaction (HCI) and design theory generally assume that the user is always after a positive, enjoyable, and satisfactory experience.

This may be true for designing tools that have a specific practical goal. However, the rhetorical spectrum of play is far vaster than simply fun and enjoyment. (Frasca, 2007, p.139)

No body knows the terms of conditions

Videos you  
tube - Not  
ment to be  
read

Unreadable

Medication  
read



Story  
component

Communication



THE DARK ROT WILL GROW EACH TIME YOU FAIL



IF THE ROT REACHES SENUA'S HEAD,  
HER QUEST IS OVER



AND ALL PROGRESS WILL BE LOST





- \* It's an acronym.
- \* It stands for "execution points."
- \* A way of quantifying the pain you have inflicted on others.
- \* When you kill someone, your EXP increases.

Confused  
interface

Similar  
space on  
hypnospace  
outlaw

A screenshot from a game showing a character's stats and item information. The background is a pixelated scene of a room with yellow walls, a checkered floor, and a doorway in the center. Overlaid on the scene are several text boxes.

ITEM  
STAT  
CELL

Wenxi  
LV 1  
HP 20/20  
G 659

"Wenxi"  
LV 1  
HP 20 / 20  
AT 0 (2) EXP: 0  
DF 0 (5) NEXT: 10  
WEAPON: Torn Notebook  
ARMOR: Cloudy Glasses  
GOLD: 659

# Communicate / generate critical messages

- Create empathy
- Challenge dominating structures and bias
- Explore human emotions other than enjoyment
- Express disobedience, oppression, deception, uncertainty, uncontrollableness, unforgiveness, betrayal
- uncanny, noise, unbiguous, overwhelming,

User of  
technology  
- Power  
structure

Device is in  
control

People who are  
negative affected  
by the technology

Overwhelming,  
I can use this  
to a lot of  
things

Uncertainty  
creates  
curiosity





## Expressive interfaces

**What other games or examples come to mind?**

Zoom

War  
devices

Car  
keys

Photoshop  
and  
blender

Tenet

Desktop  
Goose

Government  
digital  
transformation  
(recent)

take a  
picture of  
driver  
license

anything  
from  
nathalie  
lawhead

Sátántangó  
(7 hour  
hungarian  
movie)

Pain  
Station

Desert  
Bus

Brazilian  
Burocracy

Unbided  
mystery  
book

The Sound  
and the  
Fury



# 04

## Align and define

Shared understanding of design principles, the purpose they serve, and the goals of the exercise



**10 min**

# Model of design principle

**Design principle**  
(general points of direction)

**Observation**

**Rules**  
(direct instructions)

## Clarity over abundance of choice

According to Hick's law, we know that the time it takes to make a decision increases with the number and complexity of choices available.

To achieve this goal, we must:

- Limit choices to no more than 3 items at a time.
- Provide brief explanations when useful that are clear and no more than 80 characters.

An example design principle, observation, and rules (Yablonski, 2020, p.124)

Design principles express a general point of direction.

They are valuable when they can effectively provide guidance and frame decision making



# Good design principles...

## are memorable

- ✓ "Good design is as little design as possible"
- ✗ "Design with an intention to conserve effort and produce as little material output as is necessary to accomplish your goals"

## aren't truisms.

- ✓ "Don't solve every edge case"
- ✗ "Make users happy"

## are broadly applicable.

- ✓ "Solicit and respect user feedback"
- ✗ "Use an 8 pixel grid"

## Even Over statements

### **(Choice A) even over (Choice B)**

- "Accessibility even over aesthetics"
- "Platform conventions even over cross-platform consistency"
- "User preference even over business preference"

# 05

## Ideation

Individual brainstorm as  
many design principles as  
you can



**15 min**



## Nielsen's 10 usability heuristics

- 01 Visibility of system status**  
Every part of the system status should be visible to the user.
- 02 Match between system & real world**  
The system should speak the user's language, with words, phrases, and concepts familiar to the user rather than system-oriented terms.
- 03 User control & freedom**  
Every user should be able to undo their last action and to leave the current state without losing any data.
- 04 Consistency & standards**  
Every time you use a word or icon, it should mean the same thing. Make sure icons and symbols are used consistently without being too similar to each other.
- 05 Error prevention**  
Prevent errors before they happen. If an error does occur, provide a clear and easy way to recover from it.
- 06 Recognition rather than recall**  
Minimize the user's memory load by making objects, actions, and options visible. Don't make the user remember information from one part of the interface to another.
- 07 Flexibility and efficiency of use**  
Accelerators may speed up the work of the expert user. Make shortcuts visible to the user and make them easy to learn.
- 08 Aesthetic & minimalist design**  
Design simple and direct, and eliminate unnecessary steps. Every step and action should be clearly visible and easy to learn.
- 09 Error recovery**  
Provide a way to undo or redo an action. Provide clear and easy ways to recover from errors.
- 10 Help & documentation**  
It should be easy to get help and documentation. Any time the user needs help, it should be easy to find and use.

## Norman's seven fundamental design principles

A HUMAN-USEFUL DESIGN MUST BE HUMAN-USEFUL AS A HUMAN-USEFUL DESIGN IS A HUMAN-USEFUL DESIGN

Human-Useful Design is a design that is useful to the user, and is a design that is useful to the user, and is a design that is useful to the user.

### Feedback

"Give the user a way to know that the system is working on their request". Feedback is a way to let the user know that the system is working on their request.

### Affordance

Affordance is the relationship between the properties of an object and the capabilities of the agent to perform an action with it.

### Mappings

Mapping is the relationship between the layout of the controls and the actions they perform.

### Discoverability

Discoverability is the ability to find out what actions are possible and where and how to perform them.

### Constraints

Constraints help restrict the kind of interactions that can take place.

### Conceptual models

Conceptual models are mental representations of the system's internal state and the actions that can be performed on it.

### Signifiers

Signifiers are elements of the interface that indicate the actions that can be performed on the system.

## Federoff

Game interface heuristic
Controls should be customizable and default to industry standard settings
Controls should be intuitive and mapped in a natural way
Minimize control options
The interface should be as non-intrusive as possible
For PC games, consider hiding the main computer interface during game play
A player should always be able to identify their score/status in the game
Follow the trends set by the gaming community to shorten the learning curve
Interfaces should be consistent in control, color, typography, and dialog design
Minimize the menu layers of an interface
Use sound to provide meaningful feedback
Do not expect the user to read a manual
Provide means for error prevention and recovery through the use of warning messages
Players should be able to save games in different states
Art should speak to its function

## Whitney Hess

- Don't interrupt or give users obstacles** - make obvious pathways which offer an easy ride.
- Offer few options** - don't hinder users with nice-to-haves; give them needed alternatives instead.
- Reduce distractions** - let users perform tasks consecutively, not simultaneously.
- Cluster related objects together**.
- Have an easy-to-scan visual hierarchy** that reflects users' needs, with commonly used items handily available.
- Make things easy to find**.
- Show users where they've come from** and where they're headed with signposts/cues.
- Provide context** - show how everything interconnects.
- Avoid jargon**.
- Make designs efficient and streamlined**.
- Use defaults wisely** - when you offer predetermined, well-considered options, you help minimize users' decisions and increase efficiency.
- Don't delay users** - ensure quick interface responses.
- Focus on emotion** - pleasure of use is as vital as ease of use; arouse users' passion to increase engagement.
- Use "less is more"** - make everything count in the design. If functional and aesthetic elements don't add to the user experience, forget them.
- Be consistent** with navigational mechanisms, organisational structure, etc., to make a stable, reliable and predictable design.
- Create a good first impression**.
- Be trustworthy and credible** - identify yourself through your design to assure users and eliminate uncertainty.



## Participant Work Area

**Brainstorm design principle and rules to create intentional friction in the interface of games**

For this stage, quantity is more important than quality.  
So try to generate as much ideas as you can 😊

**How might game and UI designers leverage intentional friction through the interface to communicate ideas, build arguments and promote reflection?**

# 06

## Discussion



Bring all those ideas together and identify themes that surface during the exercise



**20 min**

Grouping ideias together according to their affinity (similarity)

How might game and UI designers leverage intentional friction to communicate ideias, build arguments and promote reflection?

What types of things could be communicated or represented by this?



- Create empathy
- Challenge dominating structures and bias
- Explore human emotions other than enjoyment
- Express disobedience, oppression, deception, uncertainty, uncontrollableness, unforgiveness, betrayal

## **Appendix D**

# **Co-creation workshop – Session 2**

## **Miro board**

The following pages contain the PDF exported from the Miro board used during session 2 of the co-creation workshop, detailed in [Chapter 5](#). [Appendix F](#) includes the session 2 transcript.

# 01

## Onboarding 🙌

Brief introduction  
of the participants  
and agenda



**10 min**

Time (WET)	Activity	Description	Duration
16h00	01.Onboarding	Brief introduction of the participants and agenda	10 min
16h10	02.Problem landscape	Problem landscape and project context	20 min
16h30	03.Lightning demo	Sharing of interesting examples of design frictions in the User Interface	15 min
16h45	04.Align & define	Shared understanding of design principles, the purpose they serve, and the goals of the exercise	10 min
16h55	05.Ideation	Individual brainstorm as many design principles as you can	15 min
17h10	<i>Break</i>	----	10 min
17h20	06.Discussion	Bring all those ideas together and identify themes that surface during the exercise	20 min
17h40	07.Wrap up	----	10 min



# 02

## Problem landscape

Overview of the  
problem landscape  
and project



**20 min**

what

who

How might game and UI designers leverage intentional friction through the interface to communicate ideas, build arguments and promote reflection?

why

## ✨ Goal of this workshop

Discussion of using design friction as a  
strategy for the UI in games and  
brainstorm ideas for design principles



When you think of design frictions, what three words or phrases come to mind immediately? They can be positive, negative, or neutral.

cognitive  
overload

slowness

annoying

overcome  
errors

new  
experience  
- difficult or  
non-ordinary

inscrutable

actually  
friendly

frustation

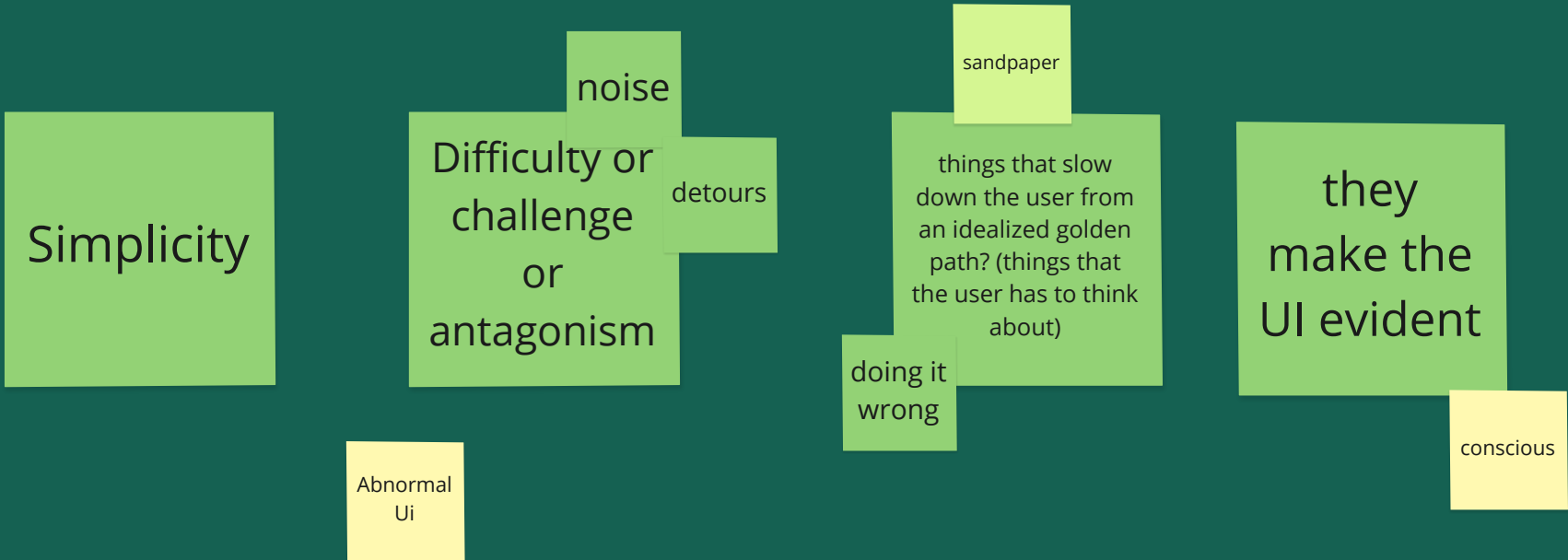
weird  
UI

heavy  
cognitive  
load

noticeable

give up  
on what  
are doing

# What we understand as design frictions in the UI?



## Design frictions

"points of difficulty occurring during interaction with technology"  
(Cox et al., 2016, p.2)

"anything that prevents users from accomplishing a task"  
(Swallow, 2021)

maybe not too much about UI, but like games can usually be about creating arbitrary friction for solving an otherwise easy task





Please share with us your feelings about the relevance of design frictions to UI design both in general and in games.

new ways for  
interaction  
through  
gamification

in the context  
web 3.0 we  
can explore  
the metaverse

posing  
challenges to  
players creates  
good tension

I think they might  
be good  
opportunities if  
we (designers) are  
aware of them

it opens a  
space of  
possibility  
for games

it might  
make the  
design more  
"friendly"

learning &  
investigating &  
experimenting are  
fun & expressive  
activities

might bring  
conscious  
thought of  
general UI in  
the world

reclaim  
friendliness

Closer, see  
the  
designer  
behind it

ease to use  
vs  
friendly

# 03

## Lightning demo

Sharing of interesting  
examples of design  
frictions in the User  
Interface for inspiration

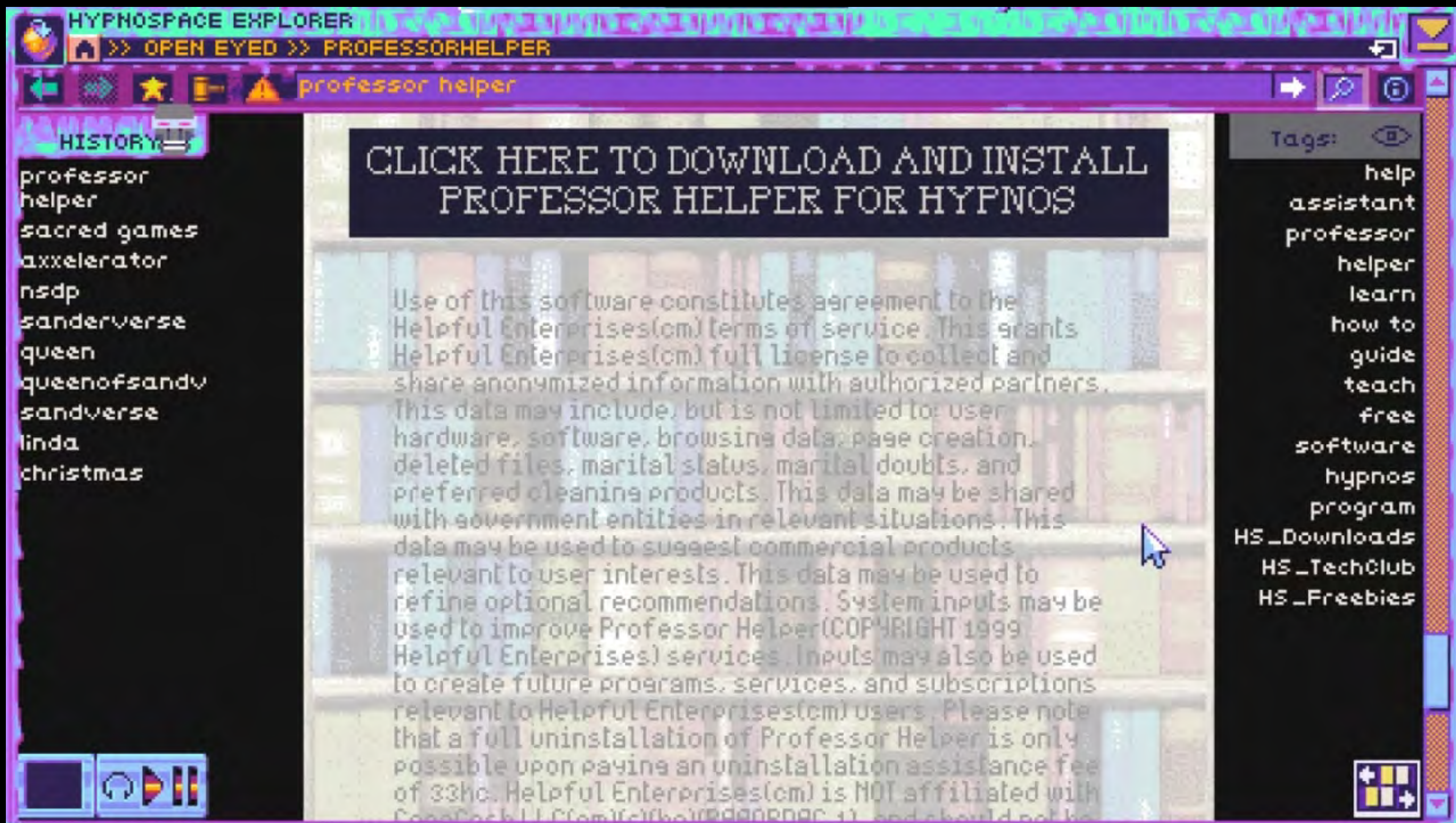


**15 min**

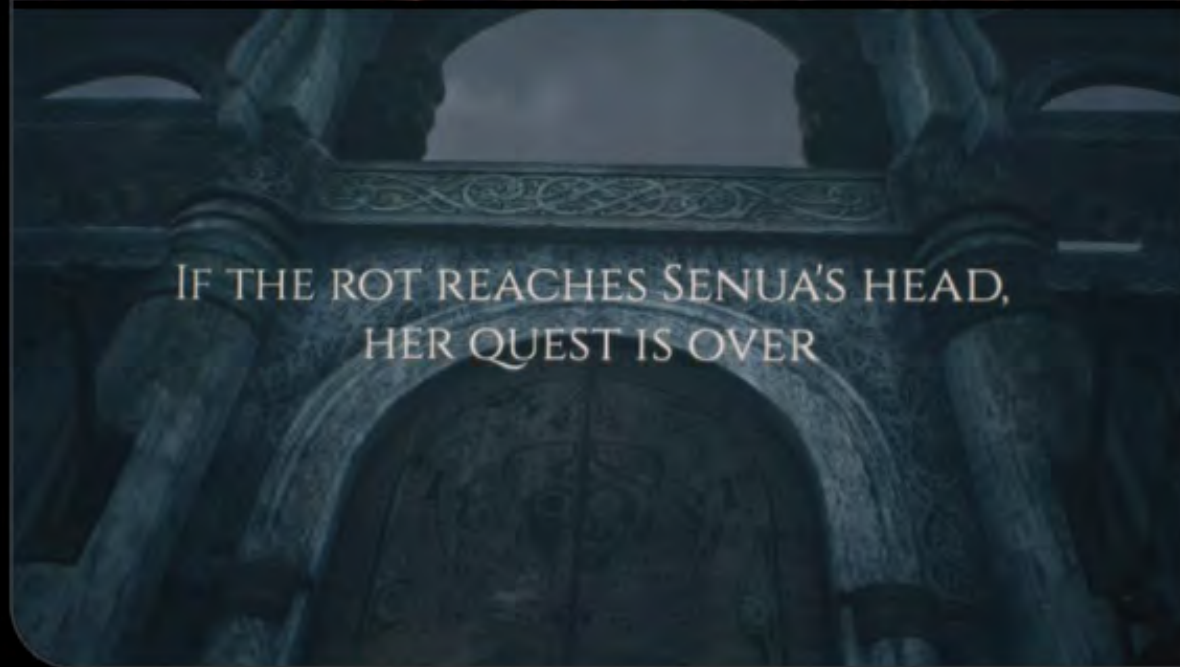
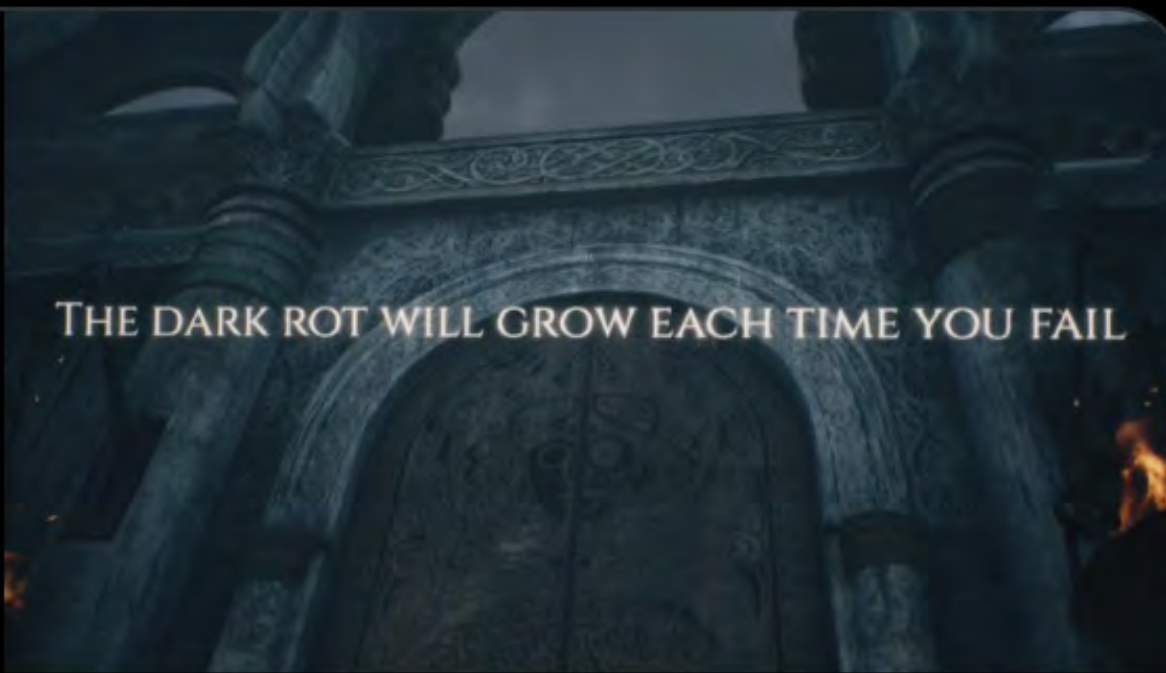
“

Human computer interaction (HCI) and design theory generally assume that the user is always after a positive, enjoyable, and satisfactory experience.

This may be true for designing tools that have a specific practical goal. However, the rhetorical spectrum of play is far vaster than simply fun and enjoyment. (Frasca, 2007, p.139)









- \* It's an acronym.
- \* It stands for "execution points."
- \* A way of quantifying the pain you have inflicted on others.
- \* When you kill someone, your EXP increases.

ITEM  
STAT  
CELL

Wenxi  
LV 1  
HP 20/20  
AT 0 (2) EXP: 0  
DF 0 (5) NEXT: 10  
WEAPON: Torn Notebook  
ARMOR: Cloudy Glasses  
GOLD: 659



# Communicate / generate critical messages

- Create empathy / friendliness
- Challenge dominating structures and bias
- Explore human emotions other than enjoyment
- Express disobedience, oppression, deception, uncertainty, uncontrollableness, unforgiveness, betrayal
- uncanny, noise, unbiguous, overwhelming,

Not only  
positive

Transparency?  
make it  
evident

Immersion?

Create  
challenge or  
difficulty (as a  
formal feature  
of a game)

Agressive

Subversive

Obtrusive



## Expressive interfaces and friction

What other games or examples come to mind?

pretty much  
anything by  
nathalie  
lawhead

inmost

Gertrude  
Stein or  
James Joyce

her  
story

cruelty  
squad

house of  
leaves

text parser  
games  
(Zork, etc.)

Dark Souls  
item  
descriptions

# 04

## Align and define

Shared understanding of design principles, the purpose they serve, and the goals of the exercise



**10 min**

# Model of design principle

**Design principle**  
(general points of direction)

**Observation**

**Rules**  
(direct instructions)

## Clarity over abundance of choice

According to Hick's law, we know that the time it takes to make a decision increases with the number and complexity of choices available.

To achieve this goal, we must:

- Limit choices to no more than 3 items at a time.
- Provide brief explanations when useful that are clear and no more than 80 characters.

An example design principle, observation, and rules (Yablonski, 2020, p.124)

Design principles express a general  
point of direction.

They are valuable when they can  
effectively provide guidance  
and frame decision making

# Good design principles...

## **are memorable**

- ✓ “Good design is as little design as possible”
- ✗ “Design with an intention to conserve effort and produce as little material output as is necessary to accomplish your goals”

## **aren't truisms.**

- ✓ “Don't solve every edge case”
- ✗ “Make users happy”

## **are broadly applicable.**

- ✓ “Solicit and respect user feedback”
- ✗ “Use an 8 pixel grid”



# Even Over statements

## **(Choice A) even over (Choice B)**

- "Accessibility even over aesthetics"
- "Platform conventions even over cross-platform consistency"
- "User preference even over business preference"

# 05

## Ideation

Individual brainstorm as  
many design principles as  
you can



**15 min**

Nielsen’s 10 usability heuristics

01



**Visibility of system Status**

Keep users informed of system status with constant feedback.

02



**Match between system & real world**

The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms.

03



**User control & freedom**

Users often choose system functions by mistake and will need a clearly marked "emergency exit". Ensure users can easily undo/redo actions.

04



**Consistency & standards**

Users should not have to wonder whether different words, situations, or actions mean the same thing. Maintain consistent standards so users know what to do next without having to learn new toolsets.

05



**Error prevention**

Prevent errors if possible; wherever you can't do this, warn users before they commit to actions.

06



**Recognition rather than recall**

Minimize the user's memory load by making objects, actions, and options visible. Don't make users remember information – keep options, etc. visible.

07



**Flexibility and efficiency of use**

Accelerators may often speed up the interaction for the expert user. Make systems flexible so novices and experts can choose to do more or less on them.

08



**Aesthetic & minimalist Design**

Design with aesthetics and minimalism in mind – don't clutter with unnecessary items. Every extra unit of information competes with the relevant units of information and diminishes their relative visibility.

09



**Error recovery**

Error messages should be expressed in plain language, precisely indicate the problem, and constructively suggest a solution. Provide plain-language error messages to pinpoint problems and likely solutions.

10



**Help & documentation**

It may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Norman’s seven fundamental design principles

A designer can apply each principle as a special strategy to communicate with the user:

Misleading signifiers and affordances, sometimes purposeful in games where one of the challenges is to figure out what is real and what is not.

**Feedback**

"some way of letting you know that the system is working on your request". Feedback must be immediate, informative, planned (in an unobtrusive manner), and prioritised.

**Affordance**

A affordance is the relationship between the properties of an object and the capabilities of the agent to determine just how the object could possibly be used.

**Conceptual models**

Everyone forms stories (conceptual models) to explain what they have observed. An explanation, usually highly simplified, of how something works. These are conceptual models formed through experience, training, and instruction. Guide us to help achieve our goals and understand the world.

**Signifiers**

Signifiers signal things, in particular what actions are possible and how they should be done. They must be perceivable, else they fail to function. Some signifiers are labels, signs, and drawings placed in the world, such as "push", "pull", "exit".

**Mappings**

Means the correspondence between the layout of the controls and the devices being controlled.

**Discoverability**

Is it possible to even figure out what actions are possible and where and how to perform them?

**Constraints**

Provide physical, logical, semantic, and cultural constraints that guides actions and ease interpretations

Federoff

Game interface heuristics
Controls should be customizable and default to industry standard settings
Controls should be intuitive and mapped in a natural way
Minimize control options
The interface should be as non-intrusive as possible
For PC games, consider hiding the main computer interface during game play
A player should always be able to identify their score/status in the game
Follow the trends set by the gaming community to shorten the learning curve
Interfaces should be consistent in control, color, typography, and dialog design
Minimize the menu layers of an interface
Use sound to provide meaningful feedback
Do not expect the user to read a manual
Provide means for error prevention and recovery through the use of warning messages
Players should be able to save games in different states
Art should speak to its function

Whitney Hess

1. **Don't interrupt or give users obstacles** – make obvious pathways which offer an easy ride.
2. **Offer few options** – don't hinder users with nice-to-haves; give them needed alternatives instead.
3. **Reduce distractions** – let users perform tasks consecutively, not simultaneously.
4. **Cluster related objects together.**
5. **Have an easy-to-scan visual hierarchy** that reflects users’ needs, with commonly used items handily available.
6. **Make things easy to find.**
7. **Show users where they've come from** and where they're headed with signposts/cues.
8. **Provide context** – show how everything interconnects.
9. **Avoid jargon.**
10. **Make designs efficient and streamlined.**
11. **Use defaults wisely** – when you offer predetermined, well-considered options, you help minimize users’ decisions and increase efficiency.
12. **Don't delay users** – ensure quick interface responses.
13. **Focus on emotion** – pleasure of use is as vital as ease of use; arouse users’ passion to increase engagement.
14. **Use “less is more”** – make everything count in the design. If functional and aesthetic elements don't add to the user experience, forget them.
15. **Be consistent** with navigational mechanisms, organisational structure, etc., to make a stable, reliable and predictable design.
16. **Create a good first impression.**
17. **Be trustworthy and credible** – identify yourself through your design to assure users and eliminate uncertainty.

## Participant Work Area

**Brainstorm design principle and rules to create intentional friction in the interface of games**

For this stage, quantity is more important than quality.  
So try to generate as much ideas as you can 😊

**How might game and UI designers leverage intentional friction through the interface to communicate ideas, build arguments and promote reflection?**

# 06

## Discussion



Bring all those ideas together and identify themes that surface during the exercise



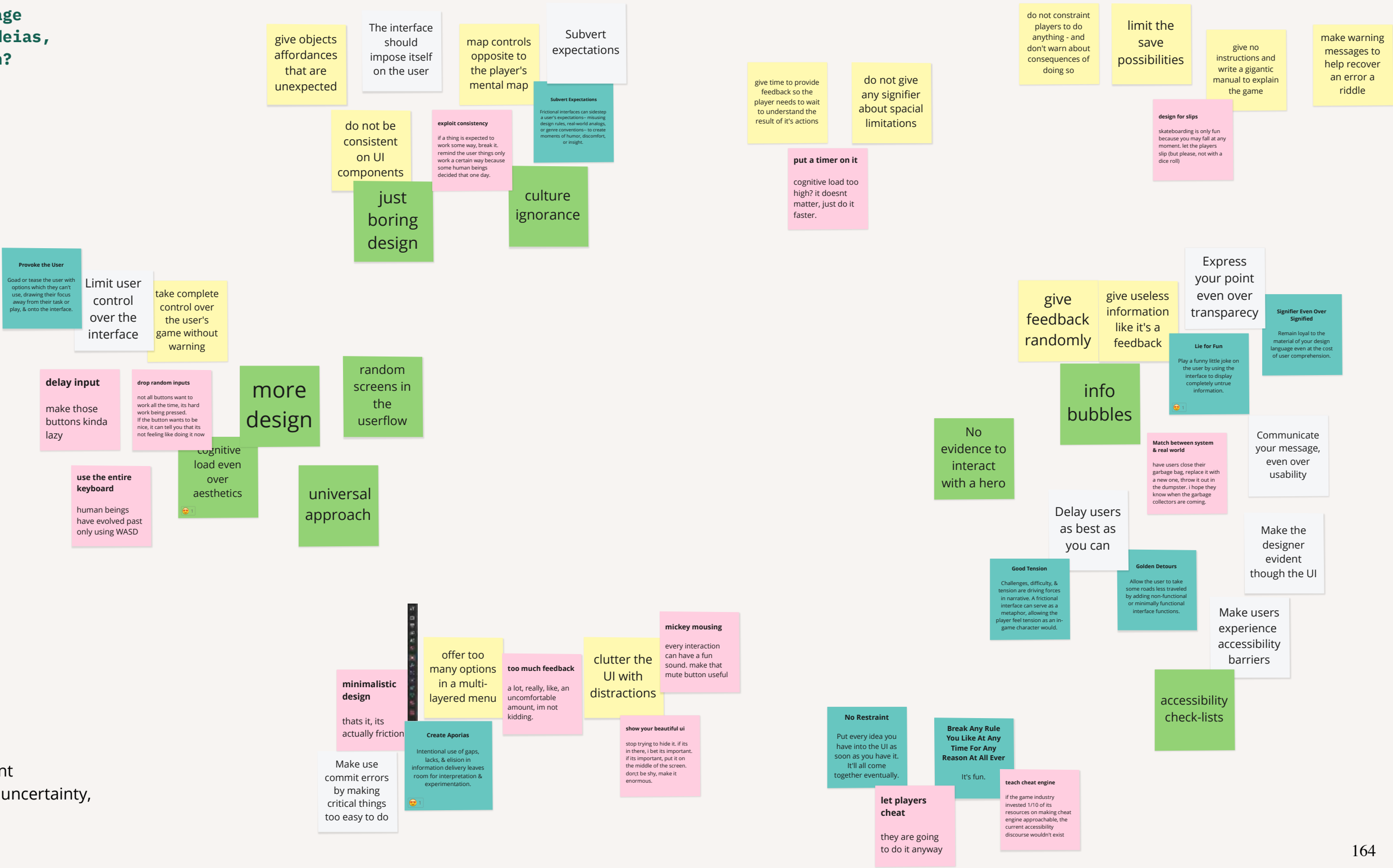
**20 min**

Grouping ideias together according to their affinity (similarity)

How might game and UI designers leverage intentional friction to communicate ideias, build arguments and promote reflection?

What types of things could be communicated or represented by this?

- Create empathy
- Challenge dominating structures and bias
- Explore human emotions other than enjoyment
- Express disobedience, oppression, deception, uncertainty, uncontrollableness, unforgiveness, betrayal





# Appendix E

## Co-creation workshop – Session 1

### transcript

March 29<sup>th</sup>, 2022

#### Isabella

Ready now. Great. So if you, if you're following me, I will jump out into this welcome to Miro tutorial, if you don't mind, but if you have any questions that I can answer and help you out, you let me know. Okay? But it's basically really simple. To make a post-it, I think you just have to double click somewhere. And to get to know each-other and start to use Miro a little bit I want you guys to put here your name, what is your favorite game, and what's one lesson that you learned from it. If you don't mind.

#### Participant 3

These are advanced Miro techniques, copy pasting or...[laughing] Isabella, are will not come along? What's your favorite game?

#### Isabella

Oh yeah. I have to, I have to participate. Right. Okay. Great call Participant 3. Let me think about it. That's a good question. I think it's—

#### Isabella

Hmm.

#### Isabella

Actually. Yes, Her Story. Oh, Great. So maybe we'll go around. So Participant 2, can you talk a bit about you, your favorite game and one thing that you learned from it?

#### Participant 2

Sure. I'm Participant 2, Game [inaudible], game designer wannabe. My favorite game right now in this moment its Oikospiel, which is a dog opera, which is a game made by David Kanaga. And it's pretty much my whole like, tools of creation was on that game, which is like just using pre-made assets, pre-made scripts and everything. Just pretty much playing with like a collage and assemblage in— as a game materials and also using lots of references from all the places as you

can. And also presented that in a very chaotic way. But also like if you look, there's kind of like some messages

**Isabella**

I never played Oikospiel.

**Participant 2**

You should. You know me for a long time, you should have played it by now.

**Isabella**

I am ashamed of saying that I didn't play, play Oikospiel and I don't even know how to say Oikospiel.

**Participant 2**

Oikospiel

**Isabella**

Okay. So Participant 1?

**Participant 1**

Yeah. So I'm Participant 1 and I'm a product designer. One of my favorite games is Minecraft. That makes me a lot of company in the pandemic. And what I learned from this game is there is a blank space where you create, you can create experiences and stories and you can be able to whatever you imagine with all the tutorials on every thing. And I like to go searching for new ways to, to build it.

**Isabella**

Great. Thanks Participant 1. Participant 3?

**Participant 3**

Hi. Yeah, I'm on mute. Yeah. Okay. I'm Participant 3. I'd rather consider myself something alongside the lines of an artist. And I'm a game designer because I started to hate like conventional games. My favorite games it Sound Shapes. It's a extremely simple platforming game where each and every element on the screen, depending on where it's placed, create some sort of a beat or play some sort of a note, it looks like split up it loose, kinda like this. And then as you, as you touch things, and as you interact with things on the screen, you start like generating a song as you're playing the level. And depending on what the pickups you pick up, the level becomes different or like the song in the level of becomes different. It also has the sexiest UI design that I have ever seen when it comes to the main menu. Like this is beautiful. Yes. And some people use it to actually make music. Cause it has like a level editor. And because it's related to things I really

want make it sound making sounds. Some people decided, yeah, let's make music because it's a, it's a really nice experience. I would highly recommend it.

#### **Isabella**

Great. I would definitely check it out and I am Isabella, I am doing this concluding this dissertation in my masters in games design, interactive technologies. My favorite game is Her Story. One of my favorite games. But I really like the detective stories and et cetera. And it was the first time that I could like experience the type of, of, you know, investigation thing that I wanted in a game, because it's just that the game is happening in your mind. Right? You don't necessarily see progress in the game itself. It's just the things that you learn from the game. So one thing that I learn about in the game is paying attention to details and making connections and et cetera, without actually seeing these clearly the in, in the game itself, like in the interface, I thought it was really cool the way they did it. They actually have like this thing that shows which videos you, you watched and et cetera, but it's kind of irrelevant to my opinion, but I really, yeah, I really liked the, this experience. It was the first detective game that I enjoy.

#### **Isabella**

Okay. So maybe moving on, thanks so much for, for everybody contributions here. So talking about the problem landscape. I'll probably put a timer so we don't lose track of time.

#### **Isabella**

So what I'm doing, right? A brief review of my project and et cetera. So the problem that I'm trying to solve is understanding how game and UI designers, ourselves right? can leverage intentional friction through the interface or use intentional friction in the interface, to communicate ideas, build arguments and promote reflections. So here we have like the, who, what and why of the, of the project, right? So what I'm trying to achieve, and the goal of this workshop is discussing using these design frictions or unfriendly UI, as a strategy for the user interface in games. And later on, we try to brain storm some ideas, for example, principles to using this. So for five minutes, I wanted to have a brief discussion with you about: when you think of design friction, what three words or phrases come to mind immediately. And they can be positive, negative or neutral. So maybe starting with Participant 2?

#### **Participant 2**

What comes to my mind when I think about design friction?

#### **Isabella**

Yes.

#### **Participant 2**

Okay. I would say like some sort of like abrasiveness or like—

**Participant 2**

[inaudible] in a way, like, like the UI is not there to serve you in a way it's also an element that is having its own wheel when it's not that easy to map, I would say that's and what's counts as me. So it's not like— it's not that friendly. It's, it's unfriendly, but it is not unnecessary trying to be aggressive. It's just like minding your own business. I always think, like, I dunno, when do you try to press someone's belly button, like out of nowhere, that person would probably like be very upset and the reactions that the person can have, it's like endless and that's pretty much how it worked in a way, like someone would say, oh, Hey, what's up. Or like, even like punch you sometimes, or just like push your, just run away. So it's kinda, it's kind of more fun than just like pressing a button, and you have a slave UI, that says “yes sir, do that again”.

**Isabella**

Okay. So I'll take really some really rough annotations . Okay. And do you, and you Participant 1, when you think about design fictions as a UI designer, what words or phrases come to mind for you?

**Participant 1**

So I'm thinking not just in the game area, but in all the platforms that we have now available, like streaming gaming and everything. And what it, what bothers me a lot is the interactions, the different interactions between devices. There are some platforms that are not very coherent, the lack of coherency of the, of the interactions, because I'm, I'm, for example, one of them is Netflix. And I also use a PlayStation, but not so much, but, and this is something that happens. I didn't try the, the, for example, the PlayStation store on the computer and on the, on this little region and are different. So this is the main problem that I think that creates these design frictions, that we are not seeing the big picture of interaction throughout devices.

**Isabella**

[inaudible] but why do you think about design fictions itself? Like, do you think they're good, bad, neutral in terms of, of, in, in, in the, in the user interface? Like as a whole.

**Participant 1**

I think in my perspective, there are very neutral, just because I don't see a lot of connection between the different devices we use to, to, to use them.

**Isabella**

And, and, and you Participant 3, what do you think about this thing?

**Participant 3**

I think what the Participant 2 said about the UI, not being there to serve you, giving me a bit the think. So like big friction in UI, maybe when UI is less UI, but more a part of the world. Right?

So that it's like very diegetic that the UI feels alive. So like diegetic, this part of the world, that's something that would come to my mind. And then the [inaudible] one like very friction, friction full, like design user experience, interface, design, whatever you want to call it to me is like anything that has a ton of different buttons. Like if you, if you imagine like the spaceship control panel like that, that's what in my mind would be like a friction full design. And I know for example, that like, when it comes to like train operations, like for operating like train tracks, sometimes they intentionally have like UI or buttons that are designed in ways where you have to do like 10 different combinations, not because it's efficient, but because it's like a way to ensure that you are sure in what you're doing. So maybe like complex, complex maneuvers to create a single— to do a simple thing, I suppose.

### **Isabella**

To create a simple thing. This is interesting as well, because like, I don't know if you guys read Dom Norman, the design of everyday things. He mentioned about a way of, of removing errors is creating like this Swiss cheese thing. Right? So if you put like lots of layers to bar the users, so they have to like commit a lot of errors to make a critical thing. So I, I remember about this when you mentioned like the space ship panel control or a training, right. Because they have like this, all these steps to,

### **Participant 1**

I think, I think that most of the UI interfaces are not well worked when we are on the phase of information architecture. And we are more concerned about the graphics and the biggest interactions and animations that we will have on the, on the UI instead of what is the hierarchy, of, of the system or platform or wherever we are not concerning about the information architecture this.

### **Isabella**

Okay. So maybe moving on here, I wanted to try to make an exercise of what we understand is design fictions in the user interface. So what do you— if you had to sum it up, what do you say is your understanding of the frictions in user interface?

### **Participant 3**

Should we just throw words out there or just write them on the stickies?

### **Isabella**

Yes. Yes. I think that's a good way to—

### **Isabella**

"Anything that stops flow". Okay.

**Participant 3**

Yeah. I think that's the main thing. Like whether that's intentional or not, but like anything that just like stops you and makes you have to think about the user interface

**Participant 2**

Is unbearable and complicated.

**Participant 3**

Buying, buying tickets for a play on Ryan Myers website.

**Participant 2**

That's a great example. I really like shooting nuclear weapons must be complicated. Or at least I hope it's complicated.

**Isabella**

I liked that to use the word unbearable Participant 2. It's like really extreme.

**Participant 2**

Yes. But let me, like, I don't know when you're talking about friction, like you need to like either sight or like scream internally a bit like uhhh, like this, this, like, this is like definition. Sometimes just by looking at it. Like, sometimes it needs to be to just like Participant 3 said, like looking at it. There's so many buttons. They're like, fuck this shit. No, no, I'm not going through.

**Participant 3**

That's my relationship with blender or whatever. I try learning it. It's like, I opened it and then I'm like—

**Isabella**

Blender, yes. Or Photoshop. I remember the first time I opened Photoshop, I looked at that and I said, oh my God, where to start.

**Participant 3**

Yeah. It feels, it feels like you're, you're given a spaceship and you need to flight to Mars. It's like, no, I don't trust myself with this.

**Participant 2**

I think I was like, if it's hard to explain, probably it's also like very shit. Like today, I was trying to explain to a friend what kind of problem I was having. And I was so deep in like, Unity hell that I couldn't like, it took me like 10 minutes, like laid out all the basics. And then I, I,

**Participant 3**

I didn't disconnect.



**Isabella**

Okay. I think he's having trouble with his internet. Right. He stopped talking. Hello, Participant 2?

**Participant 3**

He's leaving.

**Isabella**

Okay. Maybe, maybe he's having trouble with the internet. We should. Yes. I put here overwhelming too. I think it's that? Yeah. Like reaction when we, when you open the blender or Photoshop for the first time. Yeah. Okay, good. Let's see if Participant 2 come back there. Other stuff that I wanted to show you is some, some of definitions that I found when I was trying to define design frictions. Participant 2 is back. Let me accept him. Hi.

**Participant 2**

Well, my wi-fi just died.

**Isabella**

Yeah. No problems. Welcome back. So I was saying that I, I found some, when I was trying to define design frictions, I found out two definitions that I wanted to share with you and get your opinions on this. So the first definition that I found out was like “points of difficulties occurring during interaction with technology”. And the other one was “anything that prevents users from accomplishing a task”. What are your thoughts on these definitions? Do you think they encapsulate the stuff that we put in here?

**Participant 2**

I think like the second, I don't know. The second one makes more, more straight at the point. I know the first one's kind of too broad, like tech directions, technology kind of like big words.

**Isabella**

Is this first one here. You think it's too broad.

**Participant 2**

Yeah. Like, because of the task can be like, you can have like smaller tasks and that's inside side tasks, but technology can be like pretty much everything.

**Isabella**

And, and, and you guys, Participant 3 and Participant 1, what do you think about it?

**Participant 1**

Yeah, I think the second one reflects more, or what we have been talking about regarding the, the accomplishment of the tasks and the things that makes the user stop to flow and everything. So.

**Participant 3**

My gut feeling said to me, but I like the first one more. And now I'm trying to justify in my head why. And like, I think you guys brought up like great points for why the second one—

**Participant 1**

The problem is technology, the technology, as Participant 2 said is too broad because something where the internet can be wrong and then you have your experience completely ruined, but it's not a fault of the UI interface is something that happens behind and regarding the prevents users from accomplish that task is something that relates directly to the UI.

**Isabella**

Yeah, it makes sense.

**Participant 3**

I just don't like the goal oriented nature of the second one, because—

**Participant 3**

Especially if we are talking about games and trying to use a design friction as a way of communicating something, right. We don't need to have like the, I guess you could say that the task is trying to get the player to be introspective of their actions. Right. But it feels very, like, it feels very goal-oriented and it feels like something that we would say on a stand up meeting while designing a mobile app. Right. It's not wrong, but like, like it, it feels out of place maybe for the, for the broader topic that we have here. But I do agree that it fits more with, with the things that we talked about. Right. Like probably at us, but like internet, for example, and not being a part of the process here, but it still can cause issues.

**Participant 2**

Yeah. That's is actually a good point because that's kind of make me think about like, how do we make a toy that has like a bad UI or something like that, because there's no goal in toys and stuff like that. And that was a good point. Like, you can make games, that's kind of pointless. And then how do generates friction If there's no point? That's kind of fun to think about it, you can make an deadly toy that kills people. That's totally like—

**Participant 3**

Yeah.

**Participant 2**

But if it follows his cuts his head, something like that.

**Isabella**

Yeah. Yeah. I think from my point of view, I liked, I liked the first definition more too, because I think it's, it's, I, I agree with Participant 3 on being less goal oriented, but I do understand the fact that it's maybe too, too broad, right? Like when we are talking about technology in a broad sense, it's not really specific maybe because the definition is about design friction as a whole. But as, as Participant 1 said for— I, I really liked the example of the internet because it's something that is not faulty by design, I think. Right. And when we're talking about intentional friction, it's something that is by, by design. I don't know.

**Participant 1**

Where my, my boyfriend plays a lot of league of legends. And when the internet goes out is the whole world goes in hell and everything is a problem. So this is the major example that I can remember regarding frictions that are not related with the UI, but with technology.

**Isabella**

Yeah. Yeah. I think because it is design friction as a whole, maybe I would have to try to narrow it down and making it more narrow, but also like, like about tasks— because I do feel also like this is to goal oriented this second one. Great. So maybe moving on, I want us to share your feelings about the relevance of design frictions on the user interface, both in general and in games. What are your feelings on the relevance of using design frictions in the UI?

**Participant 3**

What'd I say relevance. Like if it's important to the game or?

**Isabella**

And in a, in a design process right of incorporating this. I think we going to have some diversion views on this, but I think this is part of the richness of the conversation that I wanted.

**Participant 2**

I don't know. I have the feeling that it's school myself, but I think its own brand, oh, I were supposed to write? Ok.

**Isabella**

“Is the hype now” [laughing]

**Participant 3**

There is three people on this call doing a thesis on it. So maybe.

**Participant 2**

[inaudible] like, literally.

**Isabella**

Just to give you a context, Participant 1, we find out that we're all making different master dissertations on the same thing that is using design frictions and et cetera. So yeah. It's it's hype. Yeah. Okay. So time's up. Maybe we can start. No, no, no, no. Yeah. Go, go ahead. Yeah. And put everything to post-its but let's maybe discuss a little bit to this. So useful tool for achieving a desired experience. So desired for the designer, right?

**Participant 3**

Like I think we were talking about this last time, but I think the example from animal crossing, like we're in animal crossing where you cannot make multiple items at the same time. I think that would be like a prime point of this where it's like, no, you have to take the game slowly. It is not just about like making as many items as possible. Whether the user player listens to that design like, call up, I guess, or not that's up to them, right. Then I can still make the game about making as many items as possible. But the game is purposefully built in a way to try to prevent it, to do that.

**Isabella**

I will put in here a note about the designer point of view, if that's okay, you agree with that. Right? Or, And “help manage users expectations”. Can you—

**Participant 1**

I think as designers, thinking about the design frictions that we like having the feature will help us to manage the expectations when the user is using whatever we are designing, this applies to games and applies to all the systems that we might be able to deliver it to the final users. I guess.

**Isabella**

Mostly in games. I'll put here like both in games and general systems. “Often something that can prevent a accessibility.”

**Participant 3**

So I'm just putting this out there because me and Matias has started testing the game that we're working on for as a part of our thesis. And we found that— we're, we were intentionally designing friction in it Right? So that it's sometimes not, not harder as in difficulty, but it's cumbersome to play at times. And that made it, for example, that in some areas players would not be able to play because they couldn't hear things as well because we designed the environment to be noisy. Right. And I feel like it's like as, as we use this as a tool, it also means that we're going to alienate. I mean, a part of the audience

**Isabella**

Guys, please excuse my terrible English. Right. Something's wrong but then I will correct them later on. "Can be used as a critical social tool and critical thinking 101". This is like relevance of the, of the thing, right?

### **Participant 2**

Yeah. Like just, just as you can, alienate, you can also like spread awareness of many things. And because of that, it can use that as like a, a sharp tool like, like for me, like you, you can make points about— [its inaccessible. Yes. That's the point. And you know, if you think about it a bit, you can do more research about that. Like you can do, for example, like a game that it's hard on your like CPU and then only like good PCs will like run that shit and say that it's about like inequality and how computers are very expensive or something like that. It's going to be using like many ways to like draw attention to social questions, I think.

### **Isabella**

Yeah. Great. So moving on to the next part, I have read this, this quote from Gonzalo Frasca. It's a well-known game designer that worked on critical games and use gaming— He, he tried to, to yeah, create a games that were more on these critical side of things. And he has this quote that I really like that it's "human computer interaction and design theory generally assume that the user is always after a positive, enjoyable and satisfactory experience. And this may be true for designing tools that have a specific practical goal. However, the rhetorical spectrum of play is far vaster than simply fun and enjoyment." So he's, he's talking about the fact that— for example, he gives a really great example of haunted houses, right? In architecture. So, not every building is made to accommodate people well, right? So we have buildings that have— they're accessible when are really functional, but we'll also has haunted houses that their sole purpose is like to make people scared and have a bad experience.

### **Isabella**

So at the same time, we also, as UI designers can think about this space, right, this rhetorical spectrum of play. So I brought to you three examples of what I think is intentional friction. And I, I think, especially Participant 3 and Participant 2, because we were talking, we've talked before about this. I think you might be familiar with this examples, but I wanted to discuss a little bit so it's really clear what I think about when I say like using intentional friction as a way to communicate message and express something. Right? So this first example is from Hypnospace Outlaw. I think you guys played? Participant 2 has played right? Did you played Participant 3?

### **Participant 3**

No, I haven't, but you're like, I remembered it a week ago or something like that. Cause somebody mentioned, I was like, "I heard this somewhere". I know I remembered that where I heard it was when we were talking—

**Isabella**

And have you played this game Participant 1?

**Participant 1**

No.

**Isabella**

It's a really interesting game. It's a detective game that you had to go through an internet Explorer that is like the nineties internet. So everything's kind of broken in the interface. It's like that's feel of the nineties of internet. Is a simulation game. And there is a software that you can download to understand this Hypnospace Explorer. That's what they call it. And it's kind of like adware and malware. Is kind of a virus actually that the company made that you can download and et cetera. So you have this terms and conditions here that is totally terrible to see and read because it has this very low contrast. And if you pay attention, it says that you have to pay to uninstall the program and does data may include, but is not limited to users, hardware, software browsing data, and also marital status and marital doubts. So they'll have access to [inaudible] et cetera. And I think it's really interesting that they make this low contrast stuff to communicate this. So what do you think, in your opinions are the— what is being communicated by this interface? This choice of interface?

**Participant 3**

I think like a part of this is clearly trying to paint like some sort of a dystopia, right? Or like commentary on current day and age, as you want to look at it that way, but it's, it's like, it's like playing with this idea with this notion that nobody ever reads terms of conditions.

**Participant 1**

Exactly, exactly.

**Participant 3**

It's very much aware of what it's doing and it's doing that purposefully. And I think because like literally nobody reads terms of conditions. This is like in the nose and very clear in the screenshot that you're showing here. Right.

**Participant 1**

Yeah.

**Isabella**

And do you think this choice of like using low contrast and et cetera? You think like it enhances this message or— .



**Participant 3**

Yeah. It definitely, it reminds me a bit of, I feel like this is maybe a trope in like video essays on YouTube, but sometimes you will have like very fast scrolling text, right. That is not meant to be read. But then if you pause at the right moment, you can read it. And then next is like, it might do something like, why are you pausing this video or something like that. Right. It has the same energy to me as that where it's like, it's, it's clearly like you can read it and let, if you read it, you will kind of be like reward that for that. But it's like, it's playing with this idea that like, we're not going to read it anyway. It's trying to make itself like as unreadable as possible

**Participant 1**

Maybe.

**Participant 1**

I'm remembering something that is not a UI, but for sometimes on the radio, when you have the ads for medication, you have a lady that reads the specifications in terms of conditions of the, of the medication very quickly. That's very annoying. It's on purpose also.

**Participant 3**

In Slovenia, we have like this, this almost jingle that they have to like play whenever they're selling medication on TV or on the radio. And it goes like [inaudible] and it's literally just like, like a super-fast, like maximum speed, like call your doctor before you buy this.

**Isabella**

Cool. Great. Yeah, I think it's, it's a really interesting example, like making unfriendly UI to communicate something. And it's interesting to think about also in the, audio space of this, like really speeding up it's also to be made unintelligible. I think this because of a specific reason, but maybe this could be used in, in a playful context, in a game to also communicate something. Another example that I, I I'm brought was the Hellblade. I think Participant 2 also played this one. Participant 2 played everything. And Participant 3, did you played Hellblade?

**Participant 3**

No, I haven't.

**Isabella**

Participant 1?

**Participant 1**

No.

**Isabella**

Okay. So this one is, is that a hack and slash type of thing? Apologies for the spoilers, because I am like giving a bit of spoiler here, but it's about schizophrenia. So the character has a schizophrenia and is having hallucinations and et cetera. And when we started the game, when you first to die in the first conflict, her hand starts to like having this rot. Can you see in her hand like have this rot that grow in your hand? And then this message appear in the interface, saying “the dark rot will grow each time you fail, if the rot reaches Senuas head, her quest is over and all progress will be lost”. Pretty intense right? So when you think about it, what do you expect that will happen if you die until her thing in her hand reaches her head?

### **Participant 1**

So if you proceed on the game, if this happened, you will lost all your quests and all your achievements during this process. And you will, you need to start everything from the beginning.

### **Isabella**

Yes. So that's what I thought too. And I played this really afraid of losing all my progress in all the time that I spent in this game, but this is actually a lie. The game is lying to you. Nothing will happen. You can like die a lot of times, and this rot would never reach her head because it's, it's aim to communicate to this, you know, schizophrenia fear of death. So the game is actually trying to instill this anxiety on you, because this is part of the experience of the game. So I played this with really high levels of anxiety thinking that If I died again, I will like lost all my progress, but the game is actually lying to you. So this is faulty feedback. It's actually giving a feedback that is not correct, but with the intension of communicating this— expressing actually, this feeling that people with schizophrenia feel so any, any thoughts about this? I think it's, it's a really interesting use of like a interface that is also trying to create this friction and et cetera. Participant 2 didn't you knew when you were playing?

### **Participant 2**

No, no, actually I only came to know that's when you told me, because I was like, fucking try hard this game as hell. It was like being so fucking careful. Fortunately I'm in died like two times, I guess. I was scared.

### **Isabella**

I was scared too. Yeah. And, and yeah, I think to this, this under interface space, right? Do you, do you guys agree? This is part of the interface? Or you seeing this more as a mechanic?

### **Participant 3**

It's like, obviously I haven't played the game, but it feels more like parts of like a cinematic sort of things to me. Right? Like it feels like the dark souls “you died” sort of screen or something about that. So I'm not even sure if I would like— it's clearly not like a gameplay mechanic, but I'm questioning whether it's like an interface or whether it's not an interface. I don't know. Like,

it, it doesn't really matter, but it's like, it's not an interface in the same way that like a health bar is obviously right. Cause it looks like it's, it's clearly drawing your attention to this. Right? Like it blacks out everything else. And this was the only thing that you see.

**Participant 2**

I would say it is because of two reasons, like you have like the, the, this, like you have like a saying like, “Hey, you going to die” and you have the cinematic for, for that thing also. And you literally have like your character has like a rot that's keeps like growing. And so this day, I don't know if like, when I died it's really me or I was just like hallucinating and that's, that's, that's pretty good. Cause I was looking into the hand like "is this thing growing? It's like time passing?" but I think there's also is also in the hands by the amazing like audio of the game was by itself. I don't know how I would feel like definitely the fact that it's to have a knowledge of like going crazy or back of your head is like—

**Participant 3**

I'm buying site Hyperspace outlaw as we're talking, by the way. It looks amazing.

**Isabella**

It is really interesting. I really, I really liked this game. Do you, do you think it's the interface component, Participant 1? What do you think? No?

**Participant 1**

I would say some more like the story that the people that made the game want to, to pass to the users and maybe with the goal to, okay, you need to be, to be immersed in the experience of the game and you should spend a lot of time here because you need to be careful indirectly of course, because it's something that you said that didn't happen. That is you lost all your, your progress. So maybe the goal is to be an immersive experience while playing the game, I guess.

**Isabella**

So you think it's more a story component rather than a UI component?

**Participant 1**

Yeah, communication.

**Isabella**

[inaudible] right. Good. And the last example is Undertale. Participant 3, did you play Undertale?

**Participant 3**

Yes, I did.

**Isabella**

Okay. Participant 1, did it play Undertale?

**Isabella**

Nope.

**Isabella**

This one is really, really interesting game, also. I will give a few spoilers, sorry, but in the game, like, you know, RPGs, when do we have like exp and you think it's like experience points, right? So you play the game, trying to accumulate experience points and et cetera. And then in the end of the game, after you killed every, everybody in the game to collect experience points you understand it actually stands for execution points and the character says that it's a way of quantifying the pain you inflicted in others. So after you played all the game and you were thinking you were like, winning, no, you're not because in the end like it, the game kind of shames you. I, I, I felt ashamed of killing.

**Participant 2**

And you should. [laughing]

**Isabella**

I thought I was doing the right thing. I was, I was winning and then in the end to the game says, okay, it's execution points. You were executing people who could be your friends. So would you say this is a interface example? Do you consider like these use of the interface to communicate an idea and using friction? What are your thoughts on is?

**Participant 1**

I didn't play the game, but I already saw a few people playing games with these kinds of interface. And for me it's very annoying because I'm dyslexic. And sometimes I don't understand the storytelling of the games. So for me, it's very annoying to have these kinds of interfaces, very confusing, to know what are the steps that I need to, to go forward.

**Participant 3**

I think it's less of a comment on the interface and the execution of this, but I think it's very similar in how, how it creates friction and the same style that Hypnospace Outlaw does, right? It's like it's playing with some preconceived, like we— a conception that we already have from before. In the screenshot from Hypnospace Outlaw it's like, yes we already know about terms of conditions. And it's very much playing with this idea with in here, it's already playing with the idea that we all know what the XP is until at one point it's like, aha, no, actually that wasn't the case. Right? So it's a lot, we'd like the existing knowledge or like the common knowledge that we have of something.

**Isabella**

Okay. So moving on a bit faster. So the things that I, I mapped here of the games that I saw that, in my opinion, use the interface to communicate stuff, I found out that they could be used to create

empathy and challenging dominating structures and bias like this bias that we're talking about of the experience points and other, other stuff, right? Exploring your emotions than enjoyment, such as the anxiety that I experienced experienced playing Hellblade when I thought I was going to die at any moment and also express disobedience, oppression, deception, uncertainty, uncontrollably, and forgiveness, betrayal. So I think these are the things that I see where we can use friction to express this not positive feelings and et cetera. Can you guys think of anything else are other games that comes to mind or other things that we maybe could communicate besides this?

**Participant 2**

I think like you pretty much summed up that right. Maybe adding like, yeah, I don't know, uncanniness, which is something that I am at least researching also like uncanniness and the generation of noise and noise in the sense of like message and not being completely delivered.

**Isabella**

Nice. Also maybe, I mean—

**Participant 2**

There's a huge debate, baby.

**Participant 3**

I don't know if this is useful, but like now that you mentioned uncanniness and noise, like a thing that popped into my head is, I mean, David Lynch's movies and the— twin peaks where it's like, all of it is kind of like, if you try to look at it, like from every lens of like a film or a series it's fucking horrible and it like gives you like, no, like no closure to the story, but still like, I keep watching it and I keep being controlled by it. And I keep being like interested in it. Right. And it's like, yes, give me more ambiguous endings. Like then the act that you forgot about.

**Participant 1**

Yeah. The uncertainty sometimes creates curiosity of understanding more and more because in the case of the movies, we see the movie 3, 4, 5 times, and we see a new detail every time we see the movie. So these, I think it happens also on, on games—

**Isabella**

I'll say it creates curiosity. Interesting. Good. And also we were talking about later on like the overwhelming factor of like, I mean blender and et cetera. I think overwhelming is, I don't know if this is a word, but you know, like maybe also to express this feeling overwhelming. Maybe it's a thing?

**Participant 3**

Yeah. I also think like the whole overwhelming, this feeling has like this like positive and negative side to it. Like it's more than just like, oh shit, I'm afraid. It's also like, oh shit, you can use this

for a lot of things. Right? Like that's, that's, that's the vibe that I get with blender when I, it it's like, oh shit, I'm never learning this, but also at the same time, oh shit somebody probably got to make like a movie inside of this. Somebody else got to use it to like 3d model a chair that they're going to like make out of plexiglass or whatever. Somebody's going to use it to make a PlayStation one style model. Right. Like it feels at the same time overwhelming, but like very, I don't want to say positive, but like the overwhelmingness has like some, some curiosity behind it as well. Like Participant 1 said before, maybe with uncertainty.

### **Participant 1**

Yeah. I challenges us because we see a lot of things that we don't know. And we think that we're not able to understand and work with, but at the same time creates curiosity, deep down the knowledge on the, on those —

### **Participant 3**

Another thing that I feel like maybe can be added to this list is— you do have like challenging dominating structures. Yeah. Just like in general power structures, I guess. Right. Cause it's like, there's always this power structure of like us as the user of the technology of being the dominant actor in it. Right. Whereas that's like, that is first of all, just the perceived notion when you are the consumer of the device and like is something that it's not the only type of interactions that we even have with technology right now. Right. Like I feel like maybe trying to open a car with a key and like the key is not working. Right. That's when the car kind of becomes dominant where it's like, oh no, I need to walk up to the car and actually put the, push the key into the car to open it or something along those lines.

### **Participant 3**

Right. Where it's like the, the device is in control now. And we also, I think it's like, it can force us to reflect more on the fact that a lot of these devices that we create, especially when— this is like the pressing territory, but like when you start moving towards things that are related with war, there's always going to be somebody on the other side who will be negatively impacted by these devices. And we will have the device be, you know, dominant position or maybe even like in the arrow of a remote work on zoom. Now I know that like some companies were using like tools that took like screenshots automatically all their workers. Right. Like that is like a different power dynamic with the device or windows shutting off to update randomly. Right. That's what control of your computer.

### **Isabella**

Okay. Really interesting. Good. So there's any other games or, or other examples that comes to mind besides this? I know that we talk about a few things here, like cars and a war devices and these zoom calls and et cetera, that I think it's like really interesting examples outside of games in general as well. There anything else that you guys can think of in examples of games and outside

games too? I would put here to discuss. "Anything from Natalie Lawhead" Good. Sátántangó, I don't know how to say this, has seven hours?

**Participant 3**

Yeah. It's a, it's a seven hour movie and it's like, it's like—

**Isabella**

It's in my IMDB list and I never watched it, but I never knew it has seven hours.

**Participant 3**

It's seven hours and you do not want to watch it because it's a pain in the ass to watch it. That it's, it's not about like the movie so much as a like about the experience of watching the movie. Right. And it tries to up —

**Participant 2**

ah, of course is from Béla Tarr. Okay. I can— that makes sense.

**Isabella**

"Painstation". Tentants? I don't know tenants. What is it?

**Participant 1**

It's a movie.

**Isabella**

Okay.

**Participant 1**

I, I, at least I already see two times and I understood different things of the movie. So I know that if I'm going to see the third, I feel completely different. So if you didn't see it, I recommend

**Isabella**

Good. "Brazilian bureaucracy" Yeah. Portugal bureaucracy is not that far away. Oh, the "desktop goose game".

**Participant 1**

Yeah.

**Participant 2**

I actually, I actually just think about like one classic example that has kind that there is this book called the Samba theory, which is like— so the author like wrote the book and then he's like grouping all parts and then he got all the parts, like in a completely chaotic way, but there is a way to actually read the book.



**Participant 3**

Isn't that—

**Participant 2**

Actually cuts your book. Or just as that—

**Participant 3**

Is this a criminal story or something like that? Like, are we thinking of the same thing?

**Participant 2**

I don't think, I, I don't know. It's like a South America, not South America, south America, like some things, some famous story. And it's like, yeah, bad UI. Like it's so bad to read.

**Participant 3**

'cause I, I, maybe this is the same thing. Maybe it's not the same thing, but I remember reading recently about like a novel from like the eighties that is a criminal, like a crime detective story. And it's like, when you buy it, when you get it, you get it in pages that are not bound together and are shuffled. And the whole idea was that like, you have to solve the case of how the fuck to read this book. [laughing]

**Isabella**

That's really interesting. I'll put here unbided the mystery book. Participant 1. Yeah. I put also the tentative of government and digital transformation. That is one of the outcomes of the pandemic that you go through the apps and all the things that they did. And you see, okay, now I'm going to have everything integrated. Now you are not, it's just a place holder just for you to be happy that you have everything on your phone, but nothing connects with anything.

**Isabella**

I have. I have so much a trouble with Brazilian government right now, because now they have like this digital transformation to face you and I have liked to use face recognition and lots of stuff. And [laughing] Participant 2 know what I'm talking about. It's a pain. I don't know why they're doing these. I literally have to maybe go to Brazil to resolve this stuff. It's terrible. Because of the digital transformation.

**Participant 2**

There is like a great example was like, when I, when I went back to Brazil, I was trying to get my driver's license because I forgot here in Denmark. And I went back thinking, well, now I have an app, I just need this. It's going to be so easy. And then first thing it says, like, take a photo of your like driver's license. And I'm like, well, what's the point of this then? [laughing]

**Participant 3**

I think I found an example. I don't think this is the book I was talking about, but it has the same concept where it's like a hundred pages and you literally shuffle them in different ways to figure out like, who's the, was the killer in the book. Yeah. Cabin. No, sorry. Cain's Jawbone. I sent it in the teams chat.

### **Isabella**

Good. So moving on. So what I wanted to do is try to come up with design principles because Participant 1 knows, right? Since she's, she works with interfaces, et cetera. In design we usually have a lot of design principles that are based on psychology and behavioral science and sociology and et cetera, ergonomics. And they are like widely applicable laws that guides the design to remove friction, right? To make things as smooth as possible user-friendly and et cetera. And they're mainly based on accumulating knowledge and experience and et cetera. So the exercise I wanted to try to do is try to think about if we wanted to insert this type of frictions to communicate stuff right, as the examples that we've come, come through, what are the design principles that we could use.

### **Isabella**

So I just want to show— briefly explain what design principles are so you're aligned. So here have an example, like of a model of a design principle, and this is clarity over abundance of choice. So this is a design principle that could remove the friction of blender and photoshop we were talking, right? But if we wanted to use this to communicate something, then what did this design principle would be? So the principles are general points of directions. They're not specific, they're not trying to solve a specific goal, right? Because to, to solve specific goals, then we have these rules, they are direct instructions. So we're not thinking about rules. We're thinking about like general points of directions that could be applicable to a lots of different things, right? So it's really general and they are valuable when they can effectively provide guidance and frame decision-making.

### **Isabella**

So when a person would be creating a game and they wanted to insert friction to communicate something, then this design principle could help them make this decision and where— how to achieve this. And there are some rules for good design principles. Here I brought design principles to remove friction. So we will be trying to brainstorm design friendship principles to insert friction, right. But I think this rules for, for creating good design principles may be helpful for us to understand what makes a good design or not. So the first thing is that they are memorable. They're not like super long. So here, the good example is like a “good design is a little design as possible”, right? So this is short and easy to memorize. And the bad example is “design with an intention to conserve effort and produce as little material output as necessary to accomplish your goals.”

**Isabella**

So this is your long and too difficult to, to understand and memorize. Good design principles are broadly applicable, as I mentioned before. So for example, good design principle is “solicit and respect user feedback”. So it's simple and broadly applicable. And a bad design principle would be like “use at eight pixel grid”. Like it's something super specific that will be useful only in a specific environment or context. So we were trying to think about things that are more broad, and finally they aren't truisms. I mean, they are not things that are like pretty common sense, or like things that are too obvious. So for example, a bad design principle that are truism is like “make users happy”, like super, super obvious in terms of systems that we're trying to eliminate friction, but then a good design principle would be “don't solve every edge case” for example. And another way to create design principles is, are using even over statements. So choice A over choice B statements, right? So we can formulate this design principle, as for example, “accessibility, even over aesthetics”, “platform conventions, even over cross platform consistency”, “user preference, even over business preferences”. So again, this is all example of design principles that are trying to remove friction, but we want to think about design principles that are inserting friction.

**Isabella**

That is more or less clear? Any questions? Did you guys more or less got what, what are design principles and when they're used for in et cetera?

**Participant 3**

Yeah. I think it's kind of funny. We were trying to make very frictionless guidelines for a friction experience.

**Participant 2**

I always think of all of that. Like it's like interesting.

**Isabella**

Yeah. So I brought here for helping us this “deliberate violations of good design rules” is something that Dom Norman said we could use to create friction. Right? So if we deliberately violated the rules of design principles to eliminate friction, then maybe we can come up with stuff that actually insert friction. So I brought here a cheat sheet. I don't know how to say this. That have some of heuristics, if you're not familiar with it, Norman seven fundamental design principles, some design principles for game design and et cetera. And I want us to try to look at these to see, okay, this is a strategy to remove friction. How we could maybe repurpose this strategy to insert friction, right? So there are several things here that we could think about. And, and I wanted to just say, like, it's not only thinking about the reverse, right?

**Isabella**

Because for example, we have Norman seven fundamental design principles. You have like feedback. And he says that we must always provide feedback and it must be informative and et cetera. And instead of not providing feedback, which something that we could do Hellblade, for example, provides a faulty feedback, feedback that is not true. Like giving a feedback, saying that we were going to lose our saved file, but it's actually, they're lying to us. So it's, it's not exactly a strategy of only like removing the feedback is also like giving you a feedback that is a lie. So this is the kind of thing that I, that I want us to think about. And I have a working space here for everybody. If you, if you wanted to use this, like participant 1, 2, 3, and et cetera. And I will put like, let me see 25 minutes.

### **Isabella**

And when you're done, you can like go to the bathroom and get some water and et cetera. And then we come back later. So I'll put like a 25 minutes timer and if you finish before, take the last 10 minutes to, you know, go have some water, go to the bathroom and et cetera. So pick a space for you and try to come up with as many ideas as possible. And don't be really preoccupied with quality. It's more important to think about quantity. Okay. Okay. So we're be working alone for this 25 minutes and then when you're done, when you think he's okay. Go and have a break. Okay. So I will put the timer and then we'll mute myself.

### **Isabella**

Just to remind you guys to, to have a break. So if you want to grab a water, go to the bathroom. Feel free to go to.

### **Isabella**

Hi. Hello. We're talking about the Oscars, Chris Rock. You're on mute. Yes. Yes.

### **Participant 3**

I didn't watch the Oscars. So if you want to keep talking in Portuguese.

### **Participant 1**

I didn't saw it too, but it was a very polemic take. There is Chris Rock make a joke about the Will Smith's wife and then Will Smith is on the, on the, on the audience, like yeah. Yeah, of course. And then you see, Will Smith going in direction of Chris and slap in the middle of the ceremony without any context? Oh yes.

### **Participant 3**

I never watched the Oscars. So I have like absolutely no context for how wild this is, but I did hear somebody else today telling me about this. And the dude said it was like crazy or something.

**Isabella**

Yeah. Normally It doesn't have slapping people in the Oscars.

**Participant 1**

You have errors, like giving the, the, the award to, to the wrong person, yeah. The wrong person or the wrong movie but this slap is the first time.

**Isabella**

Yeah. So, Hi Participant 2. Welcome back I, I don't want to take much off of you guys' time. As we schedule like two hours, we have like 15 minutes. So I'll try to wrap up everything. So what I was thinking about doing for, for wrap up is just trying to pick up the ideas and try to cluster them and group them together, according to their similarity. So maybe when we go through quickly through these post-its and try to group them. So for example, let's see we have here "obfuscate data". "If you wanted to play it, to think about something, making them work for it". I'll grab everything to this canvas here. Yes. Yes. It will speed up the process. Yeah.

**Participant 3**

I think like, maybe from mine, like there's two things that are like, like kind of the leading thoughts, I guess like the first one is like to "subvert expectations". Cause I feel like all of my, like things are about like building up expectations and then subverting them or subverting already created expectations. And then one like "screw to colorblind". Like you don't care about accessibility. Cause like the moment you start introducing friction in it's like you are going to alienate somebody and that's ok sometimes. Right? Because this can also be used as a tool to reflect on the people who are not able to have everything be extremely accessible to them. Like the, the suit, right. That you had as an example, when we were talking about like that tries to make you feel like an elderly person, right? Like an elderly person can put that thing on but that doesn't matter because it's like they already have like some growing pains when it comes to dealing with regularly— things designed for regular people, quotation marks.

**Isabella**

So it's kind of like using mixing regular people, quotation marks, experience the same hardships that people with— that have accessibility barriers. Yeah. Okay. And I really like subvert expectations. I think we can group these, I think it's aligned with— where is it? Misleading feedback messages, right? I think it's, it has something to do with these. And also I think I put something that is similar. Making content—

**Participant 1**

I have this "misleading naming conventions", calling different things that —

**Participant 1**

where is it? Can you group—? Yes. Thanks.

**Isabella**

“Use visual noise to distract”. I think somebody else puts something like this, right?

**Participant 3**

Yeah. I think this goes to the “screw the color blind” category.

**Isabella**

There is something that I think that Participant 2 put that is “get inspired by how shitty the real word is”. And I, I actually thought about something that is where it is “match the system and the word only when the real world actions are pain to do”. So thinking about the example that he told about the document for a driving license, right? So it's the pain to, to accomplish this. And it's also like paper please, right? The document going through through all this stuff is terrible. So it seems similar. What else? “complex UI interactions”. I think there is something along these— “create distractions” and “complex UI interaction”. I think they're kind of similar. “make content not understandable to communicate to deception”. I think it's also “subvert expectations”. Don't you agree?

**Participant 1**

Yeah. Maybe the “require from the user of the recall rather than recognition”.

**Isabella**

Yes. I think too, Yes. “Constrained users actions to communicate oppression”. I think—

**Participant 3**

This goes here close to the “shitty real world” is.

**Isabella**

“Not accessible documentation”. I think this is another category.

**Participant 1**

It's like those documentations that you need to go to this link than that Link, and then that link and then you need to pay and then you need to perform a lot of actions.

**Participant 3**

I think I had something similar “consider the world outside of the game”. Right? Cause like there was one thing like in the, in the game design, like in the Federoff for game design, like advice that struck me, which was like, do not expect the user to read the manual. And I started thinking of ARGs and like games that like deliberately hide data in underneath or use like real world objects as a part of them. Right. Where it's like, you are intentionally creating friction. You— the player has to like break out of the magic circle, like realize, okay, now I have to like turn away from the screen and do something else to proceed in this screen.

**Isabella**

I think, I think they're similar and I also put like "show instructions in ways that are hard, impossible to follow". What else? "Create a bad first impression".

**Participant 3**

I think this is interesting that you wrote this one. Cause I wrote "built trust into the system after trusting the system, abandon it".

**Isabella**

I really liked this one.

**Participant 3**

I feel like it's a bit like at odds with yours. Right? Because like, what I was thinking of is like, okay, make like— make the player expect things, and then after they're expecting things right, then subvert it. But you're saying no, just like make the bad impression at first. Right.

**Isabella**

And Federrof said also like "make a good impression". And I was thinking about these like open, as we mentioned before, like open a system and see a lot of buttons and noise and stuff and is already creates this "I don't want to interact with this", you know, like this kind of feeling. And, but yeah, I think there's different strategies, but I think they can be used for this kind of thing.

**Participant 3**

Yes, different case scenario.

**Isabella**

Yes, yes. What else?

**Participant 3**

I, I want to, I want to give an example, but like we're, we're using it but Participant 2 can you leave? Cause I wanted you to play test this. Headphones off. Okay.

**Participant 3**

So in our game we, we have like one section where the player has to do paperwork and what they write inside of the paperwork absolutely does not matter. And at the start was to make it like, make the, like the paper as you're filling it out, it's scrolls. Right? So like it forces you, you're kind of on a timer on like to fill it out. But we ran into a problem at first where players realized like during the first paper that it doesn't matter what they write in. So what we're doing now is like, we give the player like on the first two pieces of paper a lot of time and like a lot of care. And like, we actually require them to fill out some parts of the paper. And then once it gets to the third paper, that stops being the case. So after the third paper, they can just click submit without filling



like any of the required fields or anything like that. Right. I mean, it's just like, after some point we, like, we just give up on the system and they don't know when we give up to the system until like they're listening to voice messages. And then at one point we give them a voice message in Korean or at like at that point, I think it's like clear that it doesn't matter what they're writing in. Right.

### **Participant 3**

But I think it's like, something like this where it's like, you, you build trust, you make the player think like that their actions matter. But then at one point you take the agency away where it's like, or like empowerment the way without like necessarily telling the players that it's the case.

### **Isabella**

That's really interesting. I was playing around this concept as well, like this type of, of, of constraints in, in game jams before. But I think it's really interesting. I want you to play test your game too. contact me. Okay. Yeah. So I think we've grouped stuff. Just wanted to like finish up this five minutes that we have left to have a wrap up of the, of the session. Do you guys feel that these principles they could communicate stuff? Do you think what types of things you should—we could communicate to represent by these, these principles or these strategies? Do you think they could serve the purpose that we've talked about before of expressing where is it create empathy and et cetera, I'll put it here. Like, so for example, subverting expectations or screw the color blind, what type of things we could express or communicate using this?

### **Participant 3**

So I think especially like, like the screw the colorblind, like that can challenge dominant structures. Right. And also maybe create like empathy towards people that are not like in the dominant position and especially creating empathy. So I think it goes into the whole like inspired by real world scenario. Right.

### **Participant 1**

Explore human emotions.

### **Isabella**

I think it's more, it would be more appropriate to actually to call it like “screw the non colorblind” or something like this right. So it be more, more like that. I think subverting expectations could also express a lot of things that are here in my opinion. Right. There is disobedience, deception, uncertainty and betrayal. And I think the thing that you said, like build trust into the system and after this, you abandon it. I think it's a great way of expressing betrayal right. So if we want to make a game that it's about betrayal, that could be a strategy. But I want to hear from you guys

from, in this last three minutes, is there anything here that you think could be interesting? What are your favorites ones of you guys that you think, oh, I could be making a game with this?

**Participant 3**

For me, I really like, like the fake errors and making the player think like that something's going wrong. So I think that that's about like uncertainty, right? Like the player question, what is a part, like what is a part of the performance and not. And like, it really hearkens back to a performance art in my opinion where like some of the most like— some of the performance art, like you look up Marina Abramović, work right. Like where people started questioning, like, “is this supposed to be a part of this or not?” Right. Like, am I experiencing what I’m supposed to experience?

**Isabella**

Like the Oscars yesterday, the, that people were like, this is, this is part of the show or is this like real life? Yeah. Interesting.

**Participant 1**

You can also design to mess around with the emotions of the user is something, at least for me is challenging because all my work is guided by not creating frustration and not creating misleading to the users. And this is the all way around how to think on solutions for provoke these emotions.

**Isabella**

Yeah. That is exactly the thing that I think it's interesting why I wanted to study this more because my whole work is like, we live this paradigm right of removing the friction from the interface. And yeah. And I'm really interested in thinking about how to use these rules for good design to do the other way around. But guys, I think that is it, we reached the time that I scheduled with you. So thanks so much, really. I really appreciate the time that you spent with me and donated for this project. So it was really rich to talk about this subject with you. And I hope you enjoyed this. So the workshop and gave you guys ideas for your games and et cetera, you feel free to pick up ideas and implementing it. And don't forget to invite me to play test too, because I want to see what you guys come up with.

**Participant 3**

Thanks.

**Isabella**

Have a nice evening. Bye bye.

# Appendix F

## Co-creation workshop – Session 2

### transcript

April 1<sup>st</sup>, 2022

**Isabella**

I just want to know a bit about yourself. So if you could copy and paste these post-its and tell your name, what's your favorite game, and one lesson that you learned from it.

**Isabella**

So maybe we can start while everybody finish their post-its. Participant 5 do you want to go first?

**Participant 5**

Yeah, of course. I'm Participant 5, I'm currently living, living in Brooklyn. My favorite game is Myst the old, old adventure game from the nineties. And, and I think, I think the, like the one lesson, like the one takeaway I have from Myst, if I had to pick just one is just like how powerful and expressive and interest saying, like mystery and wonder can be in a game. It really drives me forward through that, through that game with frankly, terrible puzzle design.

**Isabella**

Good. I never played Myst, but I really wanted to try. Great. Thanks so much.

**Participant 7**

Hi again. So my name is Participant 7. And my favorite game is a old version of super Mario bros because it was my, maybe my first video game and an a NES. We called these, I don't know what this game like simple Mario in Russia. And we talk about video games from childhood and what I learned from these the game, maybe as I described for first of all, you have fun, but as the answer, you need to find your princess in a castle. It's maybe a little bit sadness to know that you need to try and try again to achieve your goal. And so really, really serious and adult conclusion now in this game, from my perspective.

**Isabella**

Thanks so much.

**Participant 4**

Hi, I'm Participant 4, I'm currently getting a master's in game design. My favorite game is *Melee*. I just like *Melee* because moving is so cool. And then I put *Dumpling Love* with the projects, self, a little bit of self-love here. It was a project that I made with a couple other friends. It's more fun to make probably than the game actually is. It is pretty fun as well, but it's the best game, but it was pretty fun to make. And just like the process of like wild collaboration, processes and *Asfix* is this game that I think about almost every week that it asks you not to breathe while you're under water. And this really makes me like, it's like a video game, but every time you're underwater, you shouldn't breathe in real life. And it's just like, when I played it for the first time, it blew my mind. They're like, whoa, I can do that. And changed how I make games forever.

**Isabella**

Good. Thanks so much. And so I put a post-it here too, so Isabella interface, a UX designer, my favorite game— I mean, I have a lot of them, but one of my favorite games is *Her Story*. And one thing that I really liked of *Her Story* is the fact that I don't need to— I mean, I had to solve the case in my mind if that makes sense. And it was the first detective game that I played that was like that, that the progression was in my brain in not something that it was visible and explicit in the game. And I thought it was really cool. So, yeah, so that gave them, marked me because I learned that I could do this kind of thing in the game. You know, the progression being in the brain of the player, not something that it's visible. And also, I like the ambiguity of the end of the game as well. So, and Participant 6?

**Participant 6**

Hi. So my name is Participant 6 and I'm also an UX designer and I've met Isabella because of a colleague that works also with Isabella. And my favorite game is *Last Guardian*. And it's because you know, about building connections for experience. I really enjoy the game. And I think it's a beautiful thing that it teaches to build those connections with other people or beings just by experiencing the same things and working together. I really like it.

**Isabella**

Good. Thanks. So maybe moving on, the problem landscape of my project is— the main question that I wanted to get answered is how might we, game and UI designers, right? So UI designer like Participant 6, Participant 7 and myself and game designers as Participant 4 and Participant 5, how might we use intentional friction? And when I say intentional friction, I mean like building unfriendly UI on purpose. So intentional friction through the interface can communicate ideas, arguments, and promote reflection. So this is the who, what and why of my, of my research. And the goal of this workshop is discussing using these intentional friction, this purposefully

unfriendly design, as a strategy for the UI in games and bring some, some idea of principles for using this kind of strategy. So the first exercise that I wanted to have a discussion with you guys is ask you, when you think of design frictions, what are three words or phrases that come to mind immediately? And they can be positive, negative, or neutral.

**Isabella**

And you can write in the post-it and, and talk out loud, while you are doing so, so we can have a conversation, brief conversation about this. So I see here, “slowness”. Yeah. Can you tell me a little bit about this?

**Participant 5**

Yeah. That slowness. I think that when I think about designs that have like a high degree of friction, I think they, they tend to like in different ways, like slow a user or a player down and makes it more, you know, whether, whether it makes it more difficult for them, or they just have to spend more time reading weird copy, or they have to like interact with it in strange ways. It really like forces them to like, stay on a screen or like interacting with a single element for longer.

**Isabella**

And you are to your opinion about these Participant 6?

**Participant 6**

About — sorry, I was writing.

**Isabella**

No worries. No worries. Ah, she was talking about slowness as something that is slow players and users to interact with the, with the, with the game interface. What did you, what did you put down? Participant 6?

**Participant 6**

I put down overcome errors, frustration and give up on what you're doing. Yeah. Sorry.

**Isabella**

No, no, go ahead please.

**Participant 6**

No, I was just saying it's it's. I think it's more like the consequences of that might be the consequences of that. I mean the last two are negative, but I think the, the first one can, can be positive or neutral, but it, it depends a lot on what, what happens. I would say the overcome errors.

**Participant 6**

How so do you think he, it would be positive or neutral?

**Participant 6**

It might be an error that happens because you are exploring something and it's okay. You can learn about, you know, limitations and constraints and it's, you can overcome it by learning those, those constraints. You can by overcome the error, learn something new. I think that's that's important and learn how to use it or do something. So it might necessarily not be something bad. It can be perceived at beginning of scenario, but it might be just like a learning experience.

**Isabella**

Okay. Does anybody has anything to add to this? Agree? Disagree?

**Participant 4**

I guess the overcoming errors is like— because it's more— has more friction it's more likely that you have— make mistakes or errors and that's you like learned about overcoming them? That the idea if its positive?

**Participant 6**

No, I was saying it might be positive because of that. It might be, that is supposed to happen. It might be. It's not, I'm not saying that it's always, but it can be the case where it can turn into something positive.

**Participant 4**

I see.

**Participant 6**

I can be a error that you can like use in your favor, it's just, you know, that it's going to happen and it can help people like just, you know, learn about it.

**Participant 5**

I think learning is a really interesting word that keeps, keeps coming up and talking about overcoming errors. And I think it's, I think it's, it's super cool and interesting to ask users or players to, you know, learn things about a UI, about an interface.

**Isabella**

Great. Somebody wrote “actually friendly”.

**Participant 4**

I wrote that. I was thinking of— [laughing] yeah. Yeah. When you said something, it was the— you said the word friendly before, and I was like a friendly, friendly UI is like, they're trying to be your friend. I think that's usually friction. Like if the UI thing like, "Hey yeah, hello, I like you, you should click this button". That sounds like more friction than it is good. It's good. It's fun. But that's the first thought that came to mind as a UI that's trying to be your friend too much and then ended up like having like— there's a lot more friction in friendship than there is in utility.

**Isabella**

Do you mean like Microsoft Clippy?

**Participant 4**

Yeah. Like clippy. Yeah. Yeah. There's a lot more friction and Clippy than it is in like whatever current version, there is a press a question mark somewhere and you learn how the thing works.

**Isabella**

And Participant 7, do you want to comment on one of the post-its?

**Participant 7**

Oh yeah. Oh, we have already raised a question regarding the cognitive overload. Let's they say have a cognitive load. So sometimes this can be a fact when I playing with video games. And so also I mentioned sometimes I like right now, I like indie games and games and arcade, for example, because I use apple one and I don't have so much time to play video games on Xbox or PlayStation. And I like to spend my time in indie games for arcade. And anytime I can see what UI and couldn't understand what I should do. And I see a tutorial guide and see some abnormal places for buttons, for interaction. And so a little bit negative aspect of the indie games, but many of them try to create a design like for one time and you can skip and directions on the screen and move forward with your hero.

**Isabella**

Okay. So maybe moving on. What we understand as design friction in the UI. If you have to make a definition, how would you define a design friction in the interface, by one word or a phrase?

**Participant 7**

I guess it depends on our experience because some of us has a huge experience in video games, for example, a game developer. So other guys, and regarding my experience—

**Isabella**

If you had to summon these up, how would you, how would you do that? Like, you know, phrase or, or a word. So Participant 4 wrote, Sorry. He's writing.



**Participant 4**

I think the first—I'm just writing it, just like writing a bunch.

**Isabella**

“Things that slow down to user”. “Things that the user had to think about”. Okay.

“When they make the UI evident”, like when the UI is not invisible?

**Participant 6**

Yeah. Like, Participant 7 was saying, like when you start like being conscious that you need to understand things and learn about things, and this is the right menu, when it's like evident, its not like helping or just be in the game when you start like being conscious of it. And just like the thing that you are focused on in, that's not the game anymore. And it's like, how can you play it? And how can you play it? Like, you know, UI level? Like this is like the correct work. And I find things when, you know, is more. I was thinking more like that.

**Participant 7**

Right now I can say, or one word, like system simplicity.

**Isabella**

But you mean as understanding the design frictions in the UI?

**Participant 7**

I hope, like, so summarize my thoughts—

**Isabella**

But you think design friction is simplicity or is the lack of simplicity? Sorry, just, could you elaborate?

**Participant 7**

So let me explain. I mean, if we design friction, maybe I didn't understand the context of design friction as a start point and maybe I'm wrong in this moment, but I think that simplicity can be a good base for my perspective. Like I said, designer, other then game designer, likes a designer because I see a layout. I see the places and user or game players should interact with the screen or with joystick or something like that. And I think simplistic can be the base for design, maybe I'm wrong in this.

**Isabella**

Hmm. Okay. I will show some definitions of design frictions after we, we wrap up here and maybe the concept will be more clear as well, but I just wanted to get your perspectives beforehand, but

thanks. And also here have “difficulty or challenge” or “antagonism”, “doing it wrong”, “detours” and “noise”, “sand paper”. Okay. So moving on, I'll show some definitions that I found out when I was trying to understand what were design frictions. And I found two interesting definitions. The first one is “points of difficulties occurring during interaction with technology”. And the other one is “anything that prevents users from accomplishing tasks”. So what's your perspectives on these definitions? There is some that you— one of these definitions, do you think it's more accurate than others and why, or any of those are accurate in your opinion?

#### **Participant 4**

I think the, the accomplishing a task is very similar to the thing I wrote, I guess like I, I wrote that idealized golden path and accomplishing a task its probably a better way to say that, like whatever it gets into way. Makes sense. Yeah. Yeah. This starts to bubbly my brain when we start to think about games or video games just because the task itself is less objective. And then in the, like a traditional UI that you want the user to know to like buy a book in the website. Yeah. So I think it's interesting to try to find a definition that would still work when a task is not like ideal. Like there's a, I dunno, I dunno, just how to finish this thought.

#### **Isabella**

What is your perspective on this definition using the word tasks, because you are also a UI designer and also, you know, have this familiarity with games.

#### **Participant 6**

I would say probably even for UX design and I can talk like, from my, from my perspective that we have this problem that most times our user are not just doing a task, there's a lot of different ways of working with the same tool. And it doesn't necessarily mean that like the task is obvious and it's like they to do everything in the same order. So we need to think about that. So I would say accomplish a journey as in like the complete reason why they are using that. And sometimes it's not like it's like selling something and it's not the specific task. It's like an entire journey that has different tasks inside it. And they might follow that task or not just like probably a journey would make more sense because it's more like goal oriented, like a general goal oriented, you know, and they even might not have a goal, it might be there, you know, just to check something. Oh, okay. That's like a new goal. So I would probably switch task with journey just because it's more, you know, it encapsulates like more, more ideas and more, more use cases, I guess. But I do think like the two definitions that are very connected because it's basically like points of difficulty that prevent users from accomplishment for like doing their journey as they want to do basically, or as they, the way they, they think they should do it.

**Isabella**

And Participant 7 what do you think of this definitions? Do you think it's a bit more clear?

**Participant 7**

Yeah. Right now I understand the context because I thought a negative aspects for getting this definitions of design frictions. And right now I think that I can agree with some points of difficulty occurring during interactions with technology. And it's make made clear from me design friction. And so right now I can say that maybe my last sticker here regarding simplicity is not right. Because right now and understood this fact. And in this case, maybe I can say that not as simplicity, maybe as I mentioned, weird and abnormal UI and interaction with the system, because so maybe it's my professional disaster in design because I thought like a designer and not player, first of all. And I think if I faced these struggles or weird design on the screen, I have liked to make simple and user friendly. And it's our goal. Yes, it's a business goal, but I think we need to provide a fun and a good time for players and for users.

**Isabella**

Good. Thanks. And lastly, I wanted to ask you to share what are your feelings about the relevance of design frictions in their user interface? Both in general and in games. So we have here “new ways for interaction through gamification”. “Open space of possibility for games”. “It might make the design more friendly”, “Learning, investigating the experiments are fun and expressive activities”, “Posing challenge to player creates good tension”. “I think they might be good opportunities if you are aware of them”. So what are your thoughts? On this one “it might make, did design more friendly”.

**Participant 4**

I wrote that one. It's the same idea as before, but maybe less, less in your face. That my idea that I was saying before that like literally the, the Clippy thing, but I, I tried finding the right words. It's just like, when you feel like it's not, it's not too distant from you. Like it's like closer, you feel it. And you like all, you can always like, see the designer behind it. You see the, the hand of the designer behind it, like, oh yes, a person made this and they are my friend. And they are struggling to make this not friction...like this frictionless

**Isabella**

OK, anybody has anything to add on top of this?

**Participant 5**

I think it's, I think it's fun to reclaim the word friendly and it's like interpersonal context instead of, and it's like, you know, like we are, we're going to make, you know, friendly. And it's, it's sort

of like a corporate, UXy this sort of context where we're going to, we're going to make this as easy to use as possible. We're gonna make it unobtrusive. That's not really what friends do. Friends, friends, friends, kind of pester you and play with you and they're present. And you, you, you care about them and you see them. And so to make a UI that is like actually like attempting to be your friends is a, is, is a fun way to think about it. I think

**Isabella**

Participant 6, since you wrote, “I think there might be good opportunities if we designers are aware of them”, do you want to comment this further?

**Participant 6**

Yeah. I think it was what they were talking about. If we, we are aware of that. If we make them with a purpose, they can serve something, you know, like to be a friend like they were saying, I just like, I, what I was saying was like, make a distinguish between like have a design friction that is, has a purpose and a design friction that is just like a mistake or something that we made out of mistakes. So just be aware of them and use them. Like we use like other kinds of like patterns or heuristics for creates everything very clean. I also use them with like, if we are aware of them, we can use it as an opportunity to teach something or to create something new.

**Isabella**

Good. So if anybody else has any comments here, maybe we should move on because of time constraints. So if you follow me for the next exercise I brought here, a quote from Gonzalo Frasca, who is a famous game designer that its interested in political game design use gaming in, et cetera. And this quote I think it's interesting. I wanted to share with you is: “human computer interaction and design theory generally assume that the user is always after positive and enjoyable and satisfactory experience. And this may be true for designing tools that have specific practical goals. However, the rhetorical spectrum plays far faster than simply fun and enjoyment.” He was talking about these in the context of comparing— giving examples of comparing like architecture, right. So we have functional buildings that are banks and et cetera, and they have to be functional, but we also have like haunted houses where the purpose of the haunted houses its like to scare people and have like a experience that is not enjoyable or pleasant in the, in a strict sense. Oh, so I got here some examples of interfaces that I feel that try to explore a bit of this. And I wanted to have your thoughts on this type of UI design. So the first example that I, that I've brought here is the Hypnospace Outlaw. Has anybody has heard of this game or play this game before?

**Isabella**

Okay. I think Participant 4 and Participant 5 played before, right. Or at least heard of it before. Right? So

**Isabella**

This game is about navigating a nineties internet and exploring it. And there is this software there that is kind of like Clippy, which is a malware and a adware software that you can download, but you don't know about this beforehand. And in this page they had like these terms and conditions. They are super low contrast with the background and they have like this, all this sketchy terms and conditions saying that if you download this you have to pay to uninstall it afterwards and they'll have access to your marital status, marital doubts, preferred cleaning products and all sorts of stuff. So it's, but it's purposeful purposefully shown in a way that it's really difficult to, to read. So what are your thoughts? What are your thoughts on this type of UI design? What do you think they're trying to communicate or why they're choosing this type of a presentation for this UI?

**Participant 7**

I can say like designer and artist, because for example, on this screenshot, I see is that, is this—is this iconic video game?

**Isabella**

It's from, it's a indie game from last year.

**Participant 7**

Yeah, I didn't play this game, but sometimes not only in, in video games, but also in design, we can mix art and design and it's not absolutely simple and not maybe same areas. I mean, and if we talk about the art, we can see that we can mix colors, fonts, icons, and make absolutely unique art pieces. And we can say you don't, you don't understand my art and its your problem. You need to context. For example, if you go to the museum and sees a contemporary art, you need to understand the context you can see on display shoes or colors. And here we can see that we have different types of accessibility issues. As you mentioned, we couldn't read texts on this paper sheet, like on the screen. And if we thought about like art piece of video game, we need to skip this problems with accessibility, with interaction and so on. And maybe if we'd like to earn money, if we produce this video game, we can fix this because when I act to be not iconic video game, but we'd like to sell more games to our customers. And so it's problem, maybe a for majors, not only for indie gamers game companies, I mean.

**Isabella**

And do you agree or disagree with this? You all?

**Participant 7**

If I would like to see art pieces in video games, because for example, as I mentioned, super Mario bros for me is iconic video game. And many, many players can support me in this fact. And I guess that if we like to support indie gamers, game companies, sorry, like trendy or fresh art movement, art movement, not designers, we like to skip these problems with design or accessibility and something like that. And if we talk about the design, like main or the base element for layout, for accessibility standards, for— in other types of, I don't know how to say, maybe it like design standards.

**Isabella**

But I mean, you think that this is purposely choosing because it communicates something? So I, I wanted to, to hear all their perspectives on these as well, maybe Participant 5 or Participant 4, if you, if you wanted to comment, like, because this is a example of friction, right? What do you think the designer— why they choose to represent this with accessibility issues? For example?

**Participant 5**

Yeah. I would love to comment. I think that, you know, this is, this is using using something which is typically thought of as bad design, right? It is, it is an inaccessible, there's an accessibility issue, but it's still like using visual arts to solve a problem. And so it is, and it is successfully solving the problems. The problem is how do we depict this website as sleazy, as you know, they're trying to trick us into clicking a button and accepting the terms. And I feel like one of the, one of the quick ways to do that is to be like, is to imagine that the person who made this website was so it was so sleazy that they, they wanted to make the terms and conditions very hard to read. So I think that this is this, this is a very good example of like very successful frictional design.

**Participant 6**

Yeah. I agree. I think like if this happens, it's not only like in games, but also in cinema, this happens a lot where like you have rules and you learn them and you're supposed to follow them. And if you want to tell a story, if you wanted to tell a mood or something, sometimes you need like to twist it a bit to, you know, pass the message to, to, to whoever is seeing, whoever is playing. And I think that this is the case. So in a way, even if it is design friction, it is using design to tell a story, even if it's friction. So they are using, they are aware that if they, the, the contrast is really low, this is going to do this effect. So in a way it's like using design the same way is just not using as the rule as it should. But it's still a conscious use of design of the rule. Just to tell a story. It's just like, that's the only thing I think, I think in this case specifically.

**Participant 4**

Yeah. Yeah. And I think in Hypnospace outlaw specifically, since it's a game that you open, like you pressed the executable engineer inside this game, now you're like, like clicking then downloading the software and not cause anything bad for you. Like it's like the whole point is clicking in like, not understanding the, like the, this internet is about having this weird vibes. So like, which is, which is a thing that I would say, like, it could be pushed forward. Like it feels to me that it's almost not friction because you're in this like, oh, I'm in the state of mind right now were friction is fine. So like, I dunno, this is like a, an interesting other layer here that was like, oh, I don't care that this has happened in here because this is not really friction, this is the whole point, like clicking on this. Like, I know that I'm not supposed to read this probably, or that reading this is the challenge that— I don't know, I'm trying to— as opposed to, like, if I go to a net art website that literally download the PDF into my computer, that is more intense and like, I will feel the pain of that more than in here where I'm like, I have a little separation from it.

**Participant 7**

Isabella, I guess this is a great example of the ugly design. We can name this construct, like a great example of ugly design. I follow a Instagram page, ugly design and there are so many incredible things from designer. Maybe like jokes, but it's a really cool.

**Isabella**

If you can post the Instagram here in the chat I would love to take a look.

**Isabella**

Thanks. Cool. So the other example I have here, and I'll try to go through this more fast. Hellblade. I know that Participant 4 played this one. I don't know if others' played as well, but in this game, it's a game that [inaudible] mental health issues. So the main character has psychosis, she's schizophrenic. And after you die the first time in the game, this message appears like almost as a modal screen that says “the dark rot will grow each time you die, and if the rot reaches Senua's head he quest is over and all progress will be lost.” And the rot is this thing that is in her hand. So every time you lose, every time you die, sorry, these things grow a little bit. And this is the message that he gets. So what do you think will happen after you die sufficient times. By this message that appears on the scree, what do you assume that who happened?

**Participant 5**

Probably have to start the whole game over again.

**Isabella**

Yeah. And that is the purpose of this message to exist because actually the thing never reaches your head. The thing slowly crawls in a, in a pace that will never reach your head. And there, the



designers wanted to actually have people have this anxiety feeling of fear of death that schizophrenic people feels. So this is something that they incorporated to, to make this— to have this feeling of anxiety. And when I played the game, I didn't know that. So I play the game all the time, like really anxious in every time I died, I thought, oh, I lost all my progress and et cetera. And I was really in this anxiety state. So yeah, if you want to give me your thoughts in this, in this space as well, do you think this is an example of UI or not? Do you think this is using interface or is debatable?

**Participant 6**

Yeah, but I think it is—, I think it's kind of debatable in a way, but in a way, maybe it's not. Because yeah. It's a message that is telling, like, if you fail, like this amount of times, you need to like start over and you're going to start like, be aware of her arm. So I dunno if it really is like UI in itself, probably like it is designed, but it's not specifically UI, but I don't know. It's a good question.

**Isabella**

How would you classify this if not UI? how would you classify this design strategy? Where do you, would you put it?

**Participant 6**

Because this happens like, again, I know this is going to be like the same as the last one, but this happens a lot in movies when they say like, this is a true story, but then in the end, like, you know, it's not a true story. So like the events of the story have like an intensity that you feel a lot more emotionally and you feel like all more intense. So they like a lot of stuff just because, you know, it's true. But in the end you find out that it's not. So I dunno, it's like just information that is given to whoever is playing and it's not necessarily UI, probably is like information that, but I'm not sure.

**Participant 5**

Yeah. I think that pertains to the thing that Participant 4 was saying about the previous example where, you know, Hypnospace Outlaws kind of, it's a, it's a bound system of—. The virus that you've downloaded in that game is never going to affect your computer. And so it doesn't really matter if it's frictional, you can just sort of, you can do with it and accept the consequences, but like the, you know, based on a true story and message or the, you know, all progress will be lost, message like changed the way a player is going to interface a player or a viewer is going to interface with the text. It's going to, it's going to establish like an immediacy, a fear of death, a fear, a fear of the interface.

**Isabella**  
Great.

**Participant 4**

I have a thought on that. Cause cause like you have the, you have the rot growing on your, on your character, right? So you have like a, like a diegetic progress bar happening there.

**Participant 4**

Not progress bar, anti-progress bar, death bar or whatever, but it's kind of like a fake loading bar, right? Like it's a, like it's serves a similar purpose of any fake loading environment in a negative way. Like, oh yeah. Whatever, just showing you progress. But you think it's going up and by making a diegetic and making it like harder to parse, it makes it scarier, scary forever. It's like, oh, does it go up this time that I died? And then you're ah, damn, I'm going to lose. Also, I think they are cowards that you don't lose the progress. [laughing] Like that's fine. It doesn't matter then.

**Isabella**

Okay. And the last example that I brought here was Undertale. I don't know if you guys played Undertale. It is more famous than the other ones. So this one here, the status of your character display XP and you promptly assumed it referred to experience points like all other RPGs in the world. But then when you get to the end of the game, it actually stands for execution points. So all the, all the other characters and NPCs that you interact throughout the game and you were murdering to collect points, they're actually a bad thing ingame, right? The, the game rubs this in your face by the end of game saying that it's an execution points instead of experienced points. So do you think this isn't more on the interface ground than the last one? What are your thoughts on this kind of design?

**Participant 7**

I didn't play this game once again. I say, I say that and I don't know the context. And for me, it's absolutely understandable on— non understandable and I couldn't not understand what I can do on the screen and what type of information I can take from this interaction and what I should do. And to be honest, I don't know. I don't know. And this is a PC game or console game?

**Isabella**

It's a PC game. I think it's really worth— So yeah, if you like RPGs, I think it's a really a worthwhile game to play. I think it's a really interesting experience because he has this, all this subversion of expectations throughout the whole game. And it's really nice, but yeah, I, I do agree. That's maybe it's lacking context here this example for everybody that—

a person that didn't play the game to understand what this example is showing. But for those of you who play the game do you think he'd say interface example or it's more like other type of also it lives in other space of design?

**Participant 6**

I think is interface. I think they actually do other stuff like this and in Undertale, like they subvert some, some ideas that we're already have, and this is the case. And it's really funny because like, for most of the games, it is like a bit of execution points, but yeah. But I think it is UI and they use the UI like in a very funny way also. And this idea that you brought up the like design friction. Yeah. I think it makes it makes sense. And it's very clear. So.

**Participant 7**

It's visually it looks better than other examples.

**Participant 6**

Yeah. And it's, I like the way it's used, like to tell the story, it's really, it's really funny.

**Isabella**

Good. So moving on, I have tried to map some things that this kind of games communicate or like what kinds of messages or ideas we can express through their interface. So things that I put in here was create empathy, challenge dominating structures and biases, explore emotions other than enjoyment, express disobedience, oppression, deception, uncertainty, uncontrollableness, unforgiveness, betrayal. And also this is something from the previous workshop that people said, like expressing uncanniness, noise, ambiguity and overwhelmness. You think there is something missing from this list? There are other types of things that we could maybe communicate, trying to use this kind of strategy that is not here? Or do you want to dive deeper on one of these? You can put post its if you want.

**Isabella**

“Friendliness”, from Participant 4 again [laughing].

**Participant 4**

Yeah. I'm just putting emphasis [laughing], that's the thing that's happening is just going to put it here. I liked it better than empathy.

**Isabella**

And you're, what are your thoughts on this list? Do you think it makes sense?

**Participant 5**

So I think, I think this list makes sense. I'm having, I'm trying, trying to imagine any else that I would want to add. And I think most of the, most of the things that I think about keep getting summarized in, in this fourth bullet point about, you know, disobedience oppression, deception, friction designs are very— can tend to pick those things in either very obtrusive, aggressive ways or in very fun ways.

**Isabella**

I will put aggressive, obtrusive, right? Yes. Apologies for my grammar and English, et cetera will correct everything that I misspelled later on. Any, any thought from this?

**Participant 7**

Regarding Participant 5 points. It makes sense.

**Isabella**

Okay.

**Participant 7**

And so, as I said at the start, I prefer more maybe negative experience because the negative experience, can you be more and more available for the user? Maybe it's my background. And I liked to gain not only positive emotions from the game, from when I see as a story, or I read a story in the books and here I can see another side of the video games,

**Isabella**

“Not only positive”.

**Participant 7**

I don't remember— one game when the hero move on the screen and you can see how he is growing up and marry and move forward with his kids and wife and then died. In most— maybe I don't remember exactly exact name of his game. And it was a really great experience for me. It's like the immersive performance on my screen. And I see as a start point of the life of this hero. And then I saw the— and the point and that game end with titles. That is all and I see as the dead of the hero. It's a negative experience and you can— you can think about yourself.

**Isabella**

Good. So we have here also creates challenge or difficulty as a formal feature of the game. I think this is interesting because mainly people think about difficulty and challenge in terms of mechanic aspect mostly. Right. So, yeah, I think that's interesting as well. And transparency.

**Participant 4**

Someone wrote— I wrote this in the first thought and then someone wrote in the second thing, like make the UI evident. I think that's a cool thing. It's like, like makes you think just like Participant 6 said like, makes you think about experienced points. You never consider what EXP meant. And then that, that, it's the thing that you're thinking about. And then you're like, oh yes. And then in all other games, that's actually a thing. Like in like in the game, that's not Undertale, it's also execution points. It's not only experience points. So like, it makes like these ideas, evident, like it makes it think about these things outside of the game.

**Isabella**

Okay. And the last thing that I want to do is as curious, you have other games or other examples that come to mind besides these ones that I showed. And could be also, any other examples of friction outside of UI as well or games?

**Isabella**

So Participant 6 was, I was saying like, I feel— if you have any other example of friction, I, in video games, like in interface of games or outside of video games as well, that you think it is interesting. So there's this designer Natalie Lawhead. And she's all like about friction in the interface. It's pretty interesting if you, if you guys want to see some games. House of Leafes?

**Participant 4**

It's a book that you have to like turn around to upside down and, and it has footnotes inside the footnotes inside the footnotes. It's pretty fun.

It's pretty interesting. It's kind of, yeah. There's some creepy parts. It is a horror book.

**Isabella**

Gertrude Stein or James Joyce. These are—is a book author writer? Never read anything from, from him.

**Participant 5**

Yeah. They're, they're modernist poets and, and novel authors. And I think that their, their writing styles are like, like very frictional and they still— they write, they write using improper grammar. And so they're, they're sort of like using, using grammar in unconventional ways that really reminds me of these UI experiments.

**Isabella**

Interesting. I would definitely check it out. Thanks. Anything else? So what is, what is Inmost?

**Participant 7**

Inmost is a game. I thought it was a game for Apple Arcade, but also I suppose it not only for Apple, also for PC and Nintendo Switch. It is a platform game and the game follows the fantasy world of a young girl is then in search of answers and this game explores the pain. So I think some serious game.

**Isabella**

Interesting. I would definitely take a look too. Thanks. And what else? Cruelty Squad?

**Participant 4**

It's a, it's a, it's a game that's like a first person shooter game that came out last year. Very, very noisy, very like the whole UI is complete, like intensity, but it feels like very intentional. Like it's all very like put there in place. And part of the game is trying to parse it, like trying to understand what's happening. Part of it is like just intensity is just like similar to Hellblade thing, but like in a small timescale, instead of in a long timescale is just like, short timescale. Like why like this happens in the UI when you're shooting. It's a very interesting, I don't know. It's an interesting case for me and made me want to put a border in every game I play and every game I make. Let me open an image.

**Isabella**

“Dark Souls item descriptions”. That's interesting.

**Participant 5**

Yeah. Yeah. I think that the games games by the, by that development studio From Software who, you know, did Dark Souls, Elder Ring, Bloodborne, they tend to have like, in their UIs, like copy, like in the, in the words that they're filling the UI with, they tend to just have absolutely inscrutable an item does you, you often don't actually understand what mechanics it's conferring and then like everything in the UI will not actually help you understand what's going on descriptions of what, what— And so you sort of have to figure it out through experimentation or just sort of accept that it's— “is that this ring will make me go faster? So I guess it does.”

**Isabella**

Interesting. And “Text parser games”, dark.

**Participant 5**

Yeah. Yeah. These are, these are, these are games that are like text only adventure games. You— there's like a little input and you'll type like go north and your character will like go to the next tile and it'll print new texts and you'll look around. And these were like, they're very popular early

video games. But these days the, the UI is— the, the, the UX is like considered like atrocious. It's like these games are so unfriendly. There's usually no UI at all. It's just printed text. And so the ways that designers chose to keep track of information and let the player know like where they are in the world, what they're holding are usually like, like very idiosyncratic, very particular, like not standard at all. And so I think, I think they're good places to look for people, people just kind of experimenting and, and failing a lot with, with frictional and smooth design.

### **Isabella**

Interesting. Thanks. Okay. So thanks a lot for these examples and discussion. So now we are going to pass through the exercise of brainstorming and the last part of the, of this session. And for this brainstorming, what I wanted for us to try to do is construct some design principles to actually insert friction in the interface— in the user interface. So I'm not, I'm not sure if you guys are familiar with design principles. So just make a quick alignment and definition for everybody to, to understand more or less what they are. And if you follow me here, I have some boards that try to explain this, right? So design principles, they are general points of direction that we should have in mind when we're trying to construct a design and usually design principles are for removing friction from the interface. So for example, here, we'll have a model of, of design principle, right? Of clarity over abundance of choice.

### **Isabella**

And this is the design principle. What we are trying to do, like a general point of direction. It doesn't— it's not really specific because it has to be broad enough for adapting for different contexts of use and these design principles, they, they are valuable when they effectively provide guidance and frame decision-making from, from designers, right? So they can establish decisions for the design using just the same principles. So there are few rules to construct good design principles that I think may be interesting for us to have in mind. One is that it's good when they are memorable. So for example, here, a good design principle statement would be “good design is as little design as possible because” it's short. And a bad not memorable design principle would be like “design with intention to conserve effort and produce as little material output as necessary”. It is too long. So people don't memorize it. And it's difficult to remember.

### **Isabella**

There aren't truism in the sense that, you know, they are not overly general and obviously statements such as, for example, “make users happy”, which is something that it's like very truism. So a good design principle would be “don't solve every edge case”. And as I mentioned before, they are broadly applicable. So a good design principle statement will be “solicit and respect user feedback” and a bad one would be like “use an eight pixel grid” like super strict and therefore not



applicable in different concepts, contexts, contexts. And another way to construct design principles is thinking about even over statements. So choice A over choice B. So for example, here, some design principles statements, “accessibility even over aesthetics” or “platform conventions even over across platform consistency”, “user preference even over business preferences”, things like that. Any questions about design principles? they're just like general, general points off directions. That the designer— could help a designer make their decisions. Is that okay? Clear so far?

**Participant 4**

What's the difference between choice A over choice B and choice A even over choice B?

**Isabella**

It's like we should do choice A even over choice B. Like choice A has precedent over choice B.

**Participant 4**

Ah, I see. Even if it takes choice B away from the, the— okay.

**Isabella**

Yes. Yes. That's it. So it's a way of constructing a design principle, right? So accessibility even over aesthetics for example. But we're aiming to think of ways of using friction as a strategy, right, to communicate all this stuff that we have been discussing. So what I want us to do is each one of you get one of these boards here for ideation and try to brainstorm as much as designs principles, as you can think of for inserting friction in the interface. And quantity is more important than quality. So try to generate as much as you can. And also I have here, I don't know how to say this word, cheat sheet. That is, that has some design principles for removing friction from the interface, right? And Don Norman suggest that we can insert friction by deliberate violation of good design rules. So I have here like the Nielsen ten usability heuristics, Norman seven fundamental design principles and some other stuff from video games and etc.

**Isabella**

So you can take a look at this and try to think of ways that we could disobey this, this principles, rights to insert friction. And it doesn't need to be like a reverse statements as well. So for example, feedback. We have to give users feedback is a design principle to remove friction. So we could state like, don't give any feedback, but we also could go beyond that and say like, give feedback that is a lie or false, right? Like the Senua one that the thing in her hand is a false feedback. Is a feedback but it's a fault to one. So yeah, I will give us like 15 minutes and after you've done it— we'll be making this silently—and after you're done, if you want to go to the bathroom, get a coffee, water, like 10 minutes break, and then we should return in more or

less 25 minutes. I'll put a timer and everybody can check the timer to know, but, Okay. So pick a board with your favorite color and let's try to think of ways of generating friction.

**Isabella**

Hey, just wanted to remind you guys to take a break. So if you wanted to grab a water or something to eat, go to the bathroom, feel free to do it now.

**Isabella**

Cool. So maybe we can have the final discussion and wrap up of the, of the things that I wanted to— for us to just take a look into the ideas and try to organize them on this part here, down here. So let me stop this timer here. If you guys can copy and paste your post-its on these board down there, that would be awesome, please.

**Isabella**

So for this final exercise, I just wanted us to read these ideas and try to group them. Whether we feel they are liking the same idea space and see if we can come up with this affinity map. Like if there they have some similarities. So maybe let's start from here at the top. We have "map controls opposite to the player's mental map". There is anything else that appears to be similar to this?

**Participant 5**

I've got "subvert expectations", which is sort of about that.

**Isabella**

Yeah. I have a subvert expectations too. This is "using design rules [inaudible] create moments of humor, discomforting and insight", cool.

**Participant 4**

Consistency, which I think is related.

**Isabella**

Also, what else? And this here for cultural ignorance, maybe in this, in these helm as well? What, what would it be like? Cultural ignorance. I'll put it—

**Participant 7**

That's my sticker around a around about if we're ignorant some subjects. And for example, Arabic countries, we can face with some issues and we couldn't produce our games and maybe we can provoke them to make some abnormal actions because we didn't pay our attention and provoke them to interact with our hero in the game.

**Isabella**

Cool. I will put it here together with the others. I think limited use a control over the interface. I saw something about input. Where is it?

**Participant 4**

I have, yeah, I have this one. This one.

**Isabella**

Yeah. I will put like “use the entire keyboard”.

**Participant 7**

Maybe even the “cognitive load”.

**Isabella**

Maybe instead of— maybe more design I think is—

**Participant 7**

Yeah. Yeah. More design, more design and we can confuse the user.

**Isabella**

What else? “Exploit's consistency” I will put here with the ah— It's duplicated. Okay. “Minimalistic design, That is it. It's actually friction”. Yeah. I was— I was thinking of what [laughing] I have one here that I think maybe it's about this “make users committing errors by making critical things easy to do”, like things that should be more difficult to do. What is this? Is this blender? [looking at a Blender screenshot pasted by Participant 4 next to the post it of minimalistic design]

**Participant 4**

Yeah, I know what zero of these symbols means and they, and I never know what it's just looks. [laughing]

**Isabella**

I have no idea what this is too.

**Participant 4**

I'd rather it was just like some like language like compact. Yeah. Whatever.

**Isabella**

Ah, “match between the system and real world, have users close their garbage bag, replace it with a new one.” Like make things inefficient, Right? Kind of things. I think i will put next to like

“delay users as best as you can”. I think they're kind of connected, maybe? Anything in this real from the others?

**Participant 4**

I like the “aporias” one. “Intentional use of gaps, lacks and elision” that is cool. I missed that when I was copying blender.

**Isabella**

Cool. What else? I think maybe this inefficient impulse itself from the user, maybe also something here in the thing. “Let's play a cheat”. That's interesting.

**Participant 4**

Yeah, I got, I got far, far, far fetched on my, on my manifesto of good design.

**Isabella**

The “not be consistent of your components” I think they are here. “cluttered the UI with distraction”? I think maybe— Hmm.

**Participant 4**

Yeah. There's the “show your beautiful UI”. There's “no restraint”.

**Isabella**

“Often too many options in a multi-layer manual”. I think its Blender right? Yeah.

**Participant 4**

Oh yeah. I think these kind of go here.

**Isabella**

“Give useless Information like feedback”. I think this one is interesting too. Where that could be?

**Participant 5**

I don't know, but I have “lie for fun”. And so that can, that can go there too.

**Isabella**

Yes.

**Participant 7**

I guess also we can combine with “info bubbles”, bubbles, because they don't provide any necessarily information for the user. And you always saw short horror or open bubbles to see information. “Giving feedback randomly” also can be—

**Participant 4**

Here.

**Isabella**

I put here “express your point over transparency” and I think you could be here too.

**Participant 4**

It's the, there's this one? Participant 5 you are teal, right?

**Participant 5**

Yeah.

**Participant 4**

Yeah. Yeah. “Signifier even over signified”, I think is similar to “express your point over transparency”. That's a fun one. Oh, and there's the, the, the trash one where where's my one? Match between system and real world. Oh yeah, there it is. Good. Yeah. This, this is kind of here.

**Participant 5**

We can just move up, we can move them closer.

**Participant 4**

Yeah. This is one of my favorite games actually organizing post-it notes on a Miro board.

**Participant 5**

I write, they started as like, like independent collectors in a rush to become just like a rhizome.

**Isabella**

There are some here on errors, like “make warning messages to help recover an error unreadable” this really interesting. “Give no instructions and write a gigantic manual to explain to game” These ones are here in the top.

**Participant 4**

Good. There is the “design for slips”.

**Isabella**

“Design for slips”.

**Participant 4**

Yeah. Slipping is fun. No better feeling in life than recovering from a slip.

**Isabella**

I think they're mostly grouped. "Break any rule you like at any time for any reason at all, It's fun". Cool. I'll put like this cheats stuff I think maybe —

**Participant 5**

Yeah.

**Isabella**

And "every interaction can have a fun sound, make that mute button useful". I think it is a "cognitive overload" too right?

**Participant 4**

Yeah.

**Isabella**

Okay. So do you guys have any favorites? and you see here that you feel like, I dunno could— what types of messages do you think we could maybe communicate with this for like, you should have to, sorry, let me rephrase all of this. What I mean is: is there any particular one that you feel would be interesting to explore for communicating messages and expressing stuff?

**Participant 5**

I'm fond of "delay users as best you can". I think that that's, that's like also, that's also a property of like 20th century formalist literature is to like really cause a reader to like linger in a thought or to like slow them down while they're reading something so that they really have to consider it. And I think if we're making like expressive interfaces and expressive games, like slowing people down, so they're interacting with the material of the interface is, is really interesting.

**Isabella**

Interesting. Have your breads you're familiar with Don Norman emotional design stuff?

**Isabella**

He has, like he says, that's we have three level of, of processing emotions and the top level that is the only one that is more conscious is the reflective level. And he said that this, this is one that takes more time to, to start and to processed. And it's only when we're facing unusual situations, you know, because for the rest of the time, we were almost like on autopilot or for the visceral and the behavioral type of, of emotional response. So the reflective one, the one that makes us think about something, he says that it's mostly when we're facing new situations and new stuff. And when, when you say like this delaying the user maybe contributing to this— sorry, it's just my, my own perspective on this. What else? Participant 4, Participant 6, Participant 7? Do you have any, any particular one that's—?

**Participant 7**

For me a golden rule is “breaking all the rules in the game” because in our systems, what we produce and implemented in our work, we need to define all goals, all places and all interactions. But at the same time, if we give opportunity to break all limits, it will be fun, but I don't know how we can produce a game.

**Isabella**

Yeah. It's, it's different right? From the work that we do on a daily basis as—

**Participant 7**

Yeah, it is a alter ego of Minecraft.

**Isabella**

Participant 6? We're almost out of time. So maybe just quickly, if you want to add something?

**Participant 6**

I don't know. I was reading this one, like “make users experiences accessibility barriers”. I think it could be interesting, like to give the possibility of having accessibility on our games, but like with other things like too much feedback and all the other like design friction happening, but keeping like the game accessible to everyone, it could be like a cool balance to try to reach, you know, it could be interesting. I think something to think about instead of going for that way.

**Isabella**

Yes. Okay. And finally Participant 4 do you have—?

**Participant 4**

I'm looking at all of this, I already mentioned the, the, the aporias, like the lack, the, the holes, one that I liked, I really liked this idea of like having the user feel that something is missing there. Like something like there's something not there that should be there. I think it relates a lot of stuff that is in this board. Like, like it has expectations of breaking expectations and like creating this meaning of, wow, God, why is this not here? Like, what is like— what should I learn about this? Like what, like, I don't know. This seems pretty cool. Like letting— it related to a lot of things that I think is like, let players imagined stuff, which is also kind of this it's like, let some information not be there. Like let some interactions, just be a button that you— like a form that doesn't matter if it's submitted or not. You're just filling the form then like, you don't need to submit it or like, it doesn't need to have a feedback. As long as you're doing it.

**Isabella**



The boys from the other project, Brin, he's trying something like this in his game, like a form that doesn't have any purpose to be, to be filled and users don't know that.

**Participant 4**

[laughing]

**Isabella**

Just for the, for the sake of it. okay. Guys, we reached our time. I want to thank you so much for participating. I hope that it was interesting and fun to you. Certainly it was for me. And yeah. Thanks so much for sharing your time with me today and have a great rest of the day.

**Participant 4**

Thank you. This was fun. Bye.

# **Appendix G**

## **Co-creation workshop –**

### **Affinity map**

The following page contains the PDF exported from the Miro board used to map the ideas generated during brainstorming sessions 1 and 2 of the co-creation workshop, detailed in Chapter 5.

Input

delay input

make those buttons kinda lazy

use the entire keyboard

human beings have evolved past only using WASD

Expectations/bias

Subvert Expectations

Fictional interfaces can subvert a user's expectations - missing design rules, real world analogs, or game conventions - to create moments of humor, discomfort, or insight.

subvert expectations

Break Any Rule You Like At Any Time For Any Reason At All Ever

It's fun.

Use false affordances and signifiers (Actions should be performed elsewhere)

name things to generate cacophony or Spoonerism

exploit consistency

If a thing is expected to work some way, break it. remind the user things only work a certain way because some human beings decided that one day.

give objects affordances that are unexpected

do not be consistent on UI components

map controls opposite to the player's mental map

A bug can always be a feature

Trust

let players cheat

they are going to do it anyway

teach cheat engine

if the game industry invested 1/10 of its resources on making cheat engine approachable, the current accessibility discourse wouldn't exist

build trust into the system. after trusting the system abandon it.

use the data you have about the player

Context of real/fictional world

Good Tension

Challenges, difficulty, & tension are driving forces in narrative. A fictional interface can serve as a metaphor, allowing the player feel tension as an in-game character would.

Make the designer evident though the UI

Create uncomfortable scenarios and environments

consider the world outside of the game. make it a part of the game.

culture ignorance

Get inspired by how shitty the real world is S2

Match the system and the world only when the real word action is a pain to do

Use cases/stories out of the "real world"

interface as a disfunctional family

Deliberate inefficiency  
Inefficiency

if it can be one click, make it take two clicks.

Use long delays

Complex UI interaction

drop random inputs

not all buttons want to work all the time, its hard work being pressed. If the button wants to be nice, it can tell you that its not feeling like doing it now

random screens in the userflow

just boring design

Delay users as best as you can

Golden Detours

Allow the user to take some roads less traveled by adding non-functional or minimally functional interface functions.

Match between system & real world

have users close their garbage bag, replace it with a new one, throw it out in the dumpster. i hope they know when the garbage collectors are coming.

limit the save possibilities

slow the player down. give them time to think

obfuscate data. if you want the player to think about something, make them work for it.

Ineficacy

Provoke the User

Goad or tease the user with options which they can't use, drawing their focus away from their task or play, & onto the interface.

Limit user control over the interface

take complete control over the user's game without warning

Constrain users actions to communicate opression

to save adjustments you must break something

make things that break forever

Emotion

Create a bad first impression

Stress the user they deserve it

Overwhelming

more design

cognitive load even over aesthetics

offer too many options in a multi-layered menu

mickey mousing

every interaction can have a fun sound. make that mute button useful

Create distractions

clutter the UI with distractions

too much feedback

a lot, really, like, an uncomfortable amount, im not kidding.

show your beautiful ui

stop trying to hide it. if its in there, i bet its important. if its important, put it on the middle of the screen. don't be shy, make it enormous.

info bubbles

The interface should impose itself on the user

If it can move, make it shake

If you can click it can blink

No Restraint

Put every idea you have into the UI as soon as you have it. It'll all come together eventually.

Use visual noise to distract

Misleading visual effect to hide important information

There is no such thing as bad resolution

Errors and slips

Make errors and slips unrecoverable

Require recall action rather than recognition

minimalistic design

thats it, its actually friction

Make use commit errors by making critical things too easy to do

Create Aporias

Intentional use of gaps, lacks, & elision in information delivery leaves room for interpretation & experimentation.

do not give any signifier about spacial limitations

put a timer on it

cognitive load too high? it doesnt matter, just do it faster.

design for slips

skateboarding is only fun because you may fall at any moment. let the player's slip (but please, not with a dice roll)

give no instructions and write a gigantic manual to explain the game

Not very accessible documentation/rules/guides

do not constraint players to do anything - and don't warn about consequences of doing so

give time to provide feedback so the player needs to wait to understand the result of it's actions

make warning messages to help recover an error a riddle

Show instructions in ways that are hard/impossible to follow

Impairment of ability

Perception inpairment

accessibility check-lists

Make users experience accessibility barriers

screw the colorblind!

but also reflect on them with friction filled design!

## **Appendix H**

# **Intentional friction card deck tool**

The following pages contain the complete card deck tool, detailed in Chapter 6.

Intention

1

## Create empathy between the player and a situation

Use the interface to develop empathy or provoke reflection and understanding through experience.

Intention

2

## Make the UI an tool of self expression for the designer

The interface can be a self expression tool, where the designer can communicate their own worldview or struggles with players or use it for for aesthetic purposes.

Intention

3

## Subvert the power dynamic between the user and the technology

Create situations when users are not trully in control and the interface is not actually there to serve them.

Intention

4

## Challenge dominating structures and bias

The interface can challenge game and society conventions, player expectations, and the plethora of entities and connections that make up digital games.

Intention

5

## Explore human emotions other than enjoyment

Negative emotions are a powerful and valid way to foster action and reflection.

Intention

6

## Build upon the game natural antagonistic nature

Understanding and interacting with a frictional interface can be a formal challenge in the game.

Intention

7

## Make a point, a critique or capture real life/ everyday struggles

Get inspired by all the friction real life already has to reflect critically on the triviality of everyday life.

Intention

8

## Teach something to players

Committing errors and failing is part of learning.

Intention

9

## Reinforce the game narrative

Challenges, difficulty and tension are driving forces in narrative. A frictional interface can serve as a metaphor, allowing the player to feel tension as an in-game character would.

Express

1

disobedie  
nce

Express

2

oppress  
ion

Express

3

deception

Express

4

betrayal

Express

5

uncertai  
nty

Express

6

uncontroll  
ableness

Express

7

unforgive  
ness

Express

8

inter  
personal  
hardships

Express

9

overwhel  
mingnes

Express

10

**vulnera  
bility**

Express

11

**powerless  
ness**

Express

12

**apathy**

Express

13

**annoy  
ance**

Express

14

**shame**

Express

15

**regret**

Express

16

**inscruta  
bility**

Express

17

**hostility**

Express

18

**fatigue**



Express

19

**sluggish  
ness**

Express

20

**slyness**

Express

21

**isolation**

Express

22

**perplexity**

Express

23

**boredom**

Express

24

**sadness**

Trigger

1

What if we...

## Explore diegetic interfaces

Make everyone be aware of your interface, even characters in the game. The information may become hidden or difficult to parse, increasing the cognitive load of some tasks or making actions take longer.

Mimicry / Performance Load /

Trigger

2

What if we...

## Use deliberate inefficiency

If users want to move a file to the trash, have they close their garbage bag, replace it with a new one, and throw it out in the dumpster. I hope they know when the garbage collectors are coming.

Mimicry / Errors / Performance Load

Trigger

3

What if we...

## Do a golden detour

People tend to choose the easy way out. Give a generally unfavorable outcome on the path of least resistance. Allow the player to take some roads less traveled by adding a minimally functional UI.

Nudge / Hick's Law / Signal-to-noise ratio

Trigger

4

What if we...

## Slow the player down

Give them time to think: If it can be one click, make it take two clicks. Use long delays or display too many options.

Redundancy / Hick's Law / Doherty Threshold

Trigger

5

What if we...

## Drop random inputs

Give the interface power over the user. Not all buttons want to work all the time; it's hard work being pressed. If the button wants to be nice, it can tell you that it is not feeling like doing it now.

Signifiers / Jakob's Law /

Trigger

6

What if we...

## Lie or lie about lying

Use the interface to display completely untrue information. Who knows? Eventually, they may start using their critical thinking and skepticism.

Signal-to-noise ratio / Forgiveness / Errors

Trigger

7

What if we...

## Make content not understandable

Sometimes, it is tiresome to explain everything. Remain loyal to the material of your design language even at the cost of user comprehension. Exploit readability: Use jargon and unfamiliar terms.

Readability / Mental Model / Forgiveness

Trigger

8

What if we...

## Use mismatched visual mimicry

Not everything is what it seems. When a design copies the visual appearance of a known object, it indicates the way it will work or be utilized (due to its familiar look). Exploit this assumption.

Mental Model / Consistency / Errors

Trigger

9

What if we...

## Use faulty feedback

Give useless information like it is feedback or fake errors as a part of the experience. Make people wonder what is part of the show and what is not.

Errors / Nudge /

Trigger

10

What if we...

## Create perception or ability impairment

Put the players in other people's shoes. Make players experience accessibility barriers firsthand to get some perspective. Consider making the interface less perceptible, operable, simple, and forgiven.

Accessibility / /

Trigger

11

What if we...

## Exploit Signal-to-Noise Ratio

Manipulate the proportion of important to irrelevant information. Consider diluting useful information with useless information. Clutter the UI with distractions.

Signal-to-noise ratio / Hick's Law /

Trigger

12

What if we...

## Give too much feedback

A lot, really, like, an uncomfortable amount, I'm not kidding. Think about visual, auditorial, and haptic feedback. Every interaction could have a fun sound, making that mute button useful.

Signal-to-noise ratio / Errors /

Trigger

13

What if we...

## Stop trying to make the UI invisible

Stop trying to hide it. If it's in there, I bet it's important. If it's important, put it in the middle of the screen. Please don't be shy; make it enormous.

Signal-to-noise ratio

Trigger

14

What if we...

## Give too much control

Do not constrain players to do anything – and don't warn them about the consequences of doing so. So let players do things very easily, even if they are not sure what they are doing.

Control / Forgiveness / Confirmation

Trigger

15

What if we...

## Create a bad first impression

Make players judge you by the cover. Foster a negative attitude and emotional reaction from the get-go.

Aesthetic-Usability Effect / Contour bias

Trigger

16

What if we...

## Bait players

Build trust in the system by fostering internal consistency. After the user trusts the system, doublecross them.

Consistency / /

Trigger

17

What if we...

## Make errors unrecoverable

Don't let the user take it back. Don't provide any way for players to reverse their actions, any safety nets, confirmation, warnings, or help.

Errors / /

Trigger

18

What if we...

## Use minimalistic design

That is it! Simplify interfaces to the point of abstraction.

Tesler's Law / /

Trigger

19

What if we...

## Create aporias

Intentional use of gaps, lacks, and omission in information delivery leaves room for interpretation and experimentation. Let them wander a bit.

Readability / Feedback /

Trigger

20

What if we...

## Design for slips

Skateboarding is only fun because you may slip at any moment. Therefore, design the interface for users to commit actions they did not intend to do.

Errors /

Trigger

21

What if we...

## Give lazy feedback

Delay feedback, so the player needs to wait to understand the result of their actions. Make it difficult for them to course-correct their mistakes immediately.

Forgiveness / /

Trigger

22

What if we...

## Exploit memory shortcomings

Make users recall information from memory as much as possible. Maybe interrupt users while they are in the middle of it. Is the cognitive load too high? It doesn't matter; Make them do it faster.

Forgiveness / /

Trigger

23

What if we...

## Reclaim "friendly" design

There is a lot more friction in friendship than there is in utility. Make the interface mimic human relationships and behaviors, even the annoying ones.

Mimicry / /

Trigger

24

What if we...

## Provoke the user with oppressive constraints

Tease the user with options they can't use or are missing, drawing their focus away from their task or play and onto the interface. Where is that mute button?

Constraint / Signal-to-noise ratio / Nudge

Trigger

25

What if we...

## Use mismatched mental mode

If a thing is expected to work some way, break it. Make them have to relearn it and remind the user things only work a certain way because some human beings decided that one day.

Consistency / Mental Model / Errors

Trigger

26

What if we...

## Require precision

Make the players thread the needle by designing the interface to demand players be precise, accurate, or fast.

Errors / Forgiveness /

Trigger

27

What if we...

## Consider the world outside of the game

Make the real-world part of the game through the interface. Get inspired by how unpleasant the real world is to create moments of humor, discomfort, or insight.

Mimicry / Mental Model /

Trigger

28

What if we...

## Use confuse mapping

Map controls to be unlike the player's mental map. Make it difficult for players to understand the layout of the controls and the devices being controlled.

Mental Model / /

Trigger

29

What if we...

## Keep users in the dark

What they don't know won't hurt them, right? Refrain from giving players critical information on their performance and status of the system.

Feedback / /

# **Appendix I**

## **appraisal workshop – Survey**

The following pages contain the survey participants were asked to answer after the appraisal workshop, detailed in Chapter 7.

# Intentional friction in the user interface of digital games - Card deck

Thank you for participating in the workshop.

We would love to get your feedback on the card deck tool and its utility.

**This survey is anonymous.**

The record of your survey responses does not contain any identifying information about you

**Time required to complete: 5 min.**

\* Obrigatória





1. Based on your usage of the card deck tool, did you find that: \*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Interacting with the tool was fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interacting with the Intention cards (Deck 1) was fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interacting with the Expression cards (Deck 2) was fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interacting with the Trigger cards (Deck 3) was fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Based on your usage of the card deck tool, did you find that: \*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
You were satisfied with the visual design of cards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You were satisfied with the time given for each activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You were satisfied with the sequence the cards were used	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Based on your usage of the card deck tool, did you find that: \*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The card deck was easy to understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The first activity - define intention (Deck 1) was easy to understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The second activity - define expression (Deck 2) was easy to understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The third activity - ideate with trigger cards (Deck 3) was easy to understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Based on your usage of the card deck tool, did you find that: \*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The information on the cards was useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The tool helped me consider strategies I would not have without it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Intention cards (deck 1) was useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Expression cards (deck 2) was useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Trigger cards (deck 3) was useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Este conteúdo não foi criado nem é aprovado pela Microsoft. Os dados que submeter serão enviados para o proprietário do formulário.

# Appendix J

## appraisal workshop – Transcript

June 6<sup>th</sup>, 2022

### Isabella

A gente vai começar primeiro a explorar o primeiro deck, que é o de definir intenção. Então vou marcar dez minutos pra gente dar uma olhada nesse deck número um aqui, que é o deck da intenção, e vocês escolherem qual a intenção que vocês querem dar para poder utilizar a fricção intencional. Eu acho que pra gente intencionalmente criar uma interface que seja unfriendly, que não seja amigável, a gente precisa ter um objetivo e uma intenção para isso. Então, isso aqui são algumas cartas que propõem algumas intenções para a gente propositalmente estar inserindo um design que seja unfriendly. Eu queria que vocês dessem uma olhada e escolhessem uma uma que vocês acham que define melhor a intenção de vocês com relação a esse desafio. Eu vou dar dez minutos e podem ir falando em voz alta, conversando, discutindo e chegar em uma carta só para essa fase.

### Participant 8

Em conjunto, certo?

### Isabella

E isso em conjunto. Exatamente! Vocês estão trabalhando com um grupo. Ok, ok, então tá bom, vou botar um timer.

### Participant 8

Eu sinto que, caso já tenham lido tudo, que a carta de intenção número sete parece ser a mais óbvia. No entanto, não sei se é a mais— tem haver com o teu tema, mas não sei se é mais útil tendo em conta o sistema vigente de propriedade atual.

### Participant 11

De certo modo, até lendo ali a parte do desafio, kinda que relate com a primeira de criar empatia entre o jogador e a situação.

**Participant 10**

Pois, o que estou a pensar a primeira, ok, criar empatia é sempre bom, mas ao mesmo tempo a problemática não é algo que as pessoas possam mudar. Por isso, até que ponto queremos criar empatia ou queremos mais fazer a crítica?

**Participant 8**

Eu estava a olhar para a cinco que era provocar emoções negativas nos jogadores. Se calhar é um bocado isto, criar empatia pela as pessoas sentirem se mal, pelo estado atual do mercado das casas. Não sei. Mas também acho que a sete também tá muito nessa linha. Portanto—

**Participant 8**

Desculpa, diz.

**Participant 11**

Não, podes dizer. Diz.

**Participant 8**

Eu ia dizer que quando eu disse que a sete podia não ser muito útil é porque, acho que todos nós criticamos o sistema atual e estamos todos muito tristes em função do mesmo. E se calhar, a cinco, como diz a Participant 9, pode ser mais fixe para realmente irritar as pessoas e fazer algo acontecer. Diz, diz.

**Participant 11**

Acho que pronto, como temos de chegar a um consenso, acho que às tantas podemos, em vez de começar a escolher, podemos e começar a eliminar quais é que não seriam. E sim, começávamos a reduzir também a pool de cartas que teríamos.

**Participant 9**

Se calhar é uma pergunta estúpida, mas Isabella, este jogo seria digital ou tabuleiro. O monopólio continua a ser um jogo de tabuleiro neste caso?

**Isabella**

Desculpe, não é uma pergunta estúpida! A ideia é de realmente pegar o que é, já que é um jogo de tabuleiro, e transformá-lo num jogo digital. Pensar na interface. Como é que seria a interface do Monopoly se ele fosse um jogo digital e vocês quisessem explorar essa questão no sistema de casas e realstate como ele é hoje?

**Participant 11**

Só uma questão. Então nós temos este desafio de fazer o remix do jogo no modo de equity, inclusion and transparency, enquanto fazemos a Bad UI, é isso?

**Isabella**

Exato. Tentar ver se a gente consegue fazer essa investigação, de equity, inclusion and transparency, com bad UI. Tipo, se é possível tentar fazer essa exploração com a bad UI. E aí tool ela tenta direcionar vocês para esse sentido.

**Participant 8**

Agora, com esse cena de retirar cartas que não são adequadas, li agora com mais atenção a três e fiquei a achar se uma UI em que o utilizador não tem controle podia ser engraçada para realmente refletir a dinâmica em que, por exemplo, a 173onopól já vive em sítios pobres e não tem muita hipótese para mudar de situação, por exemplo. No entanto, a cinco para mim continua a ser mais— consegue fazer a criação de empatia através de irritar, acho eu.

**Participant 9**

Acho que cinco e a três são muito parecidas, o resultado final é provável que seja o mesmo de frustração, irritação.

**Participant 8**

Quer dizer, pois o utilizador pode não estar sob o controle da tecnologia e tecnologia, ser perfeita e linda e criar boas emoções. Portanto, se calhar não é muito definida.

**Participant 9**

Confeso que estou a olhar para as cartas e to só com medo do que depois vamos ter é que fazer.

**Participant 9**

Porque acho que são todas ótimas. Mas estou só a tentar encontrar na minha cabeça, tentar encontrar a resposta que vem a seguir e aí já está a me deixar estressada.

**Isabella**

Mas por que seria isso? Porque é uma cena— Você pode falar um pouco sobre essa sensação?

**Participant 9**

Imagine estou a olhar para as cartas e eu conheço muito bem o Monopópio. Eu tenho seu objetivo de fazer esse challenge e eu olho para as cartas e acho super boa ideia, e to pensando, uau ia ser mesmo fixe jogar um monopólio que me deixasse a pensar nessas questões. Mas estou com muito medo. Vou ter que ser eu, e vamos ter que ser nós, a encontrar esta solução. Até agora estou com medo de escolher uma carta que seja muito difícil de 173onopól-la na frente.

**Isabella**

Mas não se preocupe, vocês não vão precisar pensar em todos os pormenores do jogo, nada do tipo. É só um exercício mesmo high level. A gente não vai sair daqui com o jogo fechado e a interface completa, e nem nada do tipo. Então, fiquem tranquilos.



**Participant 11**

Eu olhando, acho que efetivamente a terceira é mesmo uma boa candidata como carta, porque a questão do monopólio é mesmo uma pessoa estar em controle não só das cartas que tem, das cartas das casas, dos hotéis, do dinheiro e depois, quando a situação subverte completamente e afinal não— pensava que, por exemplo, que tinha cinco 174onopó e afinal não tinha nenhum, por exemplo, perde o controle todo daquilo que tinha nas mãos. Seria um pesadelo de monopólio. Acho que a três é uma ótima candidata como carta.

**Participant 8**

Estave a me a lembrar quando falou essas coisas, que no 174onopólio toda a gente começa com o mesmo dinheiro. Não é o caso atual. Portanto, retirar esse controle—

**Participant 10**

Só não sei, pronto, lá esta. Por exemplo, este controle do dinheiro. Não sei até que ponto é que será mesmo subverter as dinâmicas. Porque, ok. Eu, por exemplo, podia começar com um avanço em relação a ti nos termos de ser diferente do meio jogo, me tirar dinheiro a mim, não a ti. Ou seja, sem— tendo em consideração que, se calhar, no meu ponto de vista seria interessante dar um mímica a vida real. Do género: Eu já sei, tenho pouco dinheiro e tu sabes que tens muito. Não sei até que ponto faria sentido o jogo mexer nisso tão drasticamente. Não sei se fiz entender. Ou seja, essa aleatoriedade, essa essa questão de perder tudo, agora tenho pouco, agora tenho muito, se calhar se desde o início que já estamos a contar que vai acontecer, faz mais sentido porque é mais parecido ao mundo real.

**Participant 11**

Mas eu acho que aí está, o fato de não ter esse conhecimento desde o início tem um maior impacto até.

**Participant 9**

Sim, mais aí tem mais a ver com a mecânica do jogo, não é, e menos com o UI. O UI pode ser, por exemplo, não conseguir ver quanto é que tens na sua conta bancária e ter que estar a contar na tua cabeça ou tomar notas e isso o UI do jogo não está a te ajudar. Não sei se estamos a pensar bem, mas se temos que pensar também na mecânica de jogo ou se focamos mesmo só na UI, na interface.

**Participant 11**

Efetivamente, a parte de UI também pode entrar no modo como cada propriedade está representada visualmente, por exemplo, e até mesmo a construção das casas e dos hotéis.

**Isabella**

Eu vou iniciar uma sessão de votação. Se calhar, vou dar três votos para cada um. Então vocês podem votar nos três que vocês acham que faz mais sentido e a gente pode ver se sai um vencedor.

**Participant 8**

É só clicar no mais do que queremos votar?

**Isabella**

Acho que sim. É. OK.

**Participant 11**

Esse Miro [Whiteboard tool used] é muito fixe. Aqui dá para fazer essas votações. O timer e tudo.

**Participant 9**

Vou roubar, nas minhas apresentações.

**Isabella**

Eu gosto muito da ferramenta do Miro. Usamos lá no meu trabalho também. É muito fixe para fazer esses workshops online, então. Todo mundo já votou certo? Então. Vamos ver. A Carta número cinco ganhou. Com quatro votos. Pronto. Então a gente vai pegar a carta número cinco e vai colocar ela aqui no define intention. A intenção vai ser explorar outras emoções humanas que não sejam enjoyment. Pronto. Agora, da parte número dois, que é explorar a expressão e a emoção que a gente quer que as pessoas então tenham com relação à interface. Eu vou marcar mais dez minutos para vocês darem uma olhadinha e discutirem um pouco.

**Participant 8**

Pode me explicar a, desculpa, interpersonal hardships. Interpersonal hardships é a número oito. O que isso significa?

**Isabella**

Sim. Significa, por exemplo, conflitos interpessoais. Ou seja, uma briga que você teve com uma pessoa e você está sentindo— sabe um conflito entre pessoas no sentido de, enfim, emoções humanas. Assim, sabe? de nada.

**Participant 8**

Eu agora estou. Eu estou sentindo a necessidade de rever a carta de intenção à medida que estou a ler as cartas de expressão.

**Isabella**

Porque? você pode comentar um pouquinho sobre isso?

**Participant 8**

Sem problema.

**Participant 8**

Sinto que como eram tantas cartas, também porque estou mais cansada do que o normal hoje, e já me tinha esquecido qual foi a carta de intenção que tínhamos escolhido então estou a sentir a necessidade de rever a medida que tenho tantas opções à minha frente. Agora sinto que era fixe ela estar ao lado ou em um sítio que eu pudesse a ir revendo.

**Isabella**

Ok, eu vou colar ela aqui no lado, que aí fica mais fácil da gente ir vendo ela.

**Participant 8**

Não sei se eu fui a única sentir isso, se calhar é só porque to muito muito cansada.

**Participant 11**

As tantas. Estou completamente focado na parte da— na questão do enjoyment, e em encontrar alguma coisa que não seja isso. Eu vejo aqui boredom, mas acho que como boredom é tão oposto, no bom sentido, ao enjoyment, acho que é demasiado óbvio. Então eu não iria para essa carta também. Só porque é mesmo, enjoyment e boredom são literalmente antónimos.

**Participant 10**

Eu estava pensando mais em cartas, por exemplo, a incerteza ou a vulnerabilidade mais por que, pronto, como é a questão da realstates, se calhar é na mesma algo que não é enjoyment.

**Participant 11**

A vulnerabilidade é. Eu por acaso curti bué da carta que a Participant 8 mencionou no início, a oito, interpersonal hardships. Acho que estas brigas assim são também muito— Tudo, menos aquilo que é enjoyable. Mas realmente não estava a pensar muito nessa parte do tema. Exato.

**Participant 8**

Eu estava a pensar em perplexidade ou hostilidade, a número 17, ou lá embaixo entre incerteza ou opressão porque não consigo— Não sei se é por ser um tema que eu estou a pensar recentemente, mas não consigo parar de pensar, por exemplo, de pessoal que vem recentemente viver ou gerações que foram recentemente viver para um país e estão em situações mais precárias. E não— e por causa de ser toda a família nessa situação não conseguem sair. A cena de não— como já vem de uma geração pobre, não consegue sair de— serem educados a sair do sistema.

**Participant 11**

E sabe que as tantas também pode ligar aqui a carta 11, powerlessness, se sabe que é uma coisa que não conseguem, não está no poder deles e também é uma coisa que não é enjoyable at all,

quando não temos poder nenhuma sobre uma situação e acho que ninguém gosta de se encontrar nessa situação.

**Participant 9**

Também estava mais inclinada para o powerlessness ou uncontrollableness, não consigo dizer isso, credo. E também a deception, esta ideia de que nós não temos controle ou o jogo está nos enganar porque se refere a quem passou por essas coisas de comprar casa e renda, que pode sentir isso.

**Participant 11**

A deception, yeah.

**Participant 9**

Nós falamos lá em annoyance quando estávamos nas outras cartas nos estávamos a falar da irritação e da frustração. Mas eu acho que as outras são mais ligadas ao tema do jogo e o irritar se calhar não era tão forte. Não ia criar uma ligação tão forte, emocional com o tema do jogo, mas não tinha a certeza.

**Participant 8**

Concordo. Concordo com as cartas que tu referisse e também com as que a Participant 10 disse mais do que com a boredom porque a boredom é o antônimo que sinto certo, mas é só boredom. No meu posso estar aborrecida, mas no caso é muito bom. Enquanto quando há incerteza ou powerlessness, ou uncontrollableness, desculpe mas não consigo, podem ser mais ilustrados.

**Isabella**

Nem eu consigo falar a palavra. Depois preciso pensar talvez em outras palavras. Inclusive se estiverem sugestões também, fiquem a vontade para comentar. Ok, acho que eu posso começar uma votação.

**Participant 9**

Posso falar aqui uma última sugestão só para baralhar as contas todas que é regret que eu não sei se vocês já tipo alugaram uma casa ou compraram e depois rotos e mal, afinal estavam podres por dentro. Eu acho que isso é um caso também muito real, que nós investimos tudo da nossa vida em uma coisa que depois nos arrependemos. Não sei acho que também esta é uma emoção muito forte e relacionada com esta coisa de investimentos em sítios. Mas pronto, já que estamos todos de acordo, nas outras, era só para deixar esta opinião contraditória.

**Participant 8**

A forma como eu vejo a intenção do jogo era mais como uma questão de quais são as escolhas de que as pessoas tem e qual a diferença de escolha ou de poder de investimento que as pessoas têm,

e não tanto a nível de singular. Mas, nesse sentido, concordaria cem por cento com o regret. Não, não por mim, mas por que acontece imenso então no Porto também

**Participant 9**

Acho que podemos votar.

**Isabella**

Então vou começar. Deixa ver aqui. Mas bem interessante, está nessa cena também dos regret que acho que faz sentido no sentido da transparência também. Tipo, explorar a questão da transparência. E pronto. Eu vou começar aqui a votação. Cada um tem três votos.

**Isabella**

Pronto. Todos votaram. Vamos ver aqui quem ganhou. Powerlessness. Então eu vou pega-la e colocar ela separada ali, mas eu também agora, dado o seu feedback, que eu acho que se calhar é interessante mantê-las juntinhas aqui. À medida que a gente vai movendo para a próxima etapa, dá pra gente saber qual foram as outras decisões. Eu vou copiar ela aqui. E agora a gente tem a trigger card. Essa atividade de trigger cards ela vai demorar um pouquinho mais, porque elas são um pouco mais densas. Então eu ia falar para a gente dar uma lida e conversar sobre elas 20 minutinhos e aí depois a gente faz uma pausa de dez minutos para poder ir no banheiro, beber uma água, respirar um pouco e voltar depois. Tudo bem? Então eu vou colocar aqui 20 minutos para você primeiro dar uma lida nas cartas e depois discutirem um pouco sobre os possíveis jeitos que a gente pode inserir fricção intencionalmente. Se você tiver alguma dúvida também sobre alguma carta, "não entendi muito bem que essa carta quer dizer o que isso significa", podem perguntar pra mim.

**Participant 9**

Adorei a dois já. Me lembrou da burocracia que tem a ver com o monopólio, que tem muita burocracia e muitas cartas que é preciso controlar e as rendas. Se calhar era engraçado também termos isso na UI que é ser tudo muito pouco eficiente, mesmo que ter datas e horas e coisas assim, de gente com documentos oficiais que têm que ser tratados de uma certa maneira.

**Participant 8**

Burocráticos e parvos.

**Participant 9**

Que o escritório só estarão abertos cinco minutos e tem que ser naquela data, naquela hora, naquele sítio.

**Participant 8**

O sete também. Fazer o povo—

**Participant 8**

Tava a ver que fazer conteúdo não compreensível e brincar com isso, porque às vezes uns jargões que não são compreendidos. E é mais difícil serem acessíveis a todos. E isso brinca muito com a inclusividade.

**Participant 11**

Eu ainda não tinha chegado a ler aí, mas lendo a seis também do “lie or lie about lying” acho também joga bem com o oposto do enjoyment e com o senso de powerlessness, pois a interface display completely untrue information se literalmente é tudo mentira o teu poder é zero, praticamente, porque todas as escolhas que vais tomar, são com base num pensamento que está errado. Mas tu não sabe que está errado.

**Participant 8**

Sim, é interessante brincar até com politiquices. Se formos a ver o coiso final, do género, se for um país muito corrupto e quiser chegar ao mesmo sítio que os outros. fixe.

**Participant 9**

Tem algumas que são mesmo fixes. Só que não sei qual é a mais adequada para essa sensação de powerlessness, mas tem algumas incríveis de criar confiança e depois doublecross them. Eu acho que tudo isso era aplicável para para estragar o nosso enjoyment no jogo, mas não sei se iria ser nesse sentido de impotência, essa sensação de impotência. Mas ainda vou ao meio, olha só, largando os pensamentos.

**Participant 8**

Ui, o dos erros serem irrecuperáveis é tenso.

**Participant 9**

Essa aí era mesmo bom para a para a sensação de regret.

**Participant 8**

Pois era.

**Participant 9**

Eles ficavam mesmo arrependidos.

**Isabella**

Essa é um pouco da cena que eu estava falando, das características do jogo de ser um safe — porque isso acho que a gente consegue explorar essas cenas sem necessariamente prejudicar de fato a pessoa. É um lugar playful para poder explorar esses tipos de estratégia. E acaba sendo cenas que podem ser divertidas no fim das contas, dependendo da forma como a gente for explorar também.

**Participant 9**

Eu acho que a 25, quando eu li, foi aquele até agora que me fez sentir mais impotente. Porque tu querias que a coisa funciona e não consegue fazer com que ela funciona em outras maneiras de fazer com que ela funcione. Acho que foi isso que eu entendi, que vamos tentar interagir e a coisa não vai funcionar nunca, como nós achamos que ela deveria funcionar e também não temos maneira de corrigir e estamos à mercê da interface.

**Participant 11**

Vocês estão a ler mega rápido.

**Participant 8**

Mas fazem bem também. Eu também fico nervosa e, ah não tenho que ler rápido.

**Isabella**

Eu deixei esses 20 minutos só para a gente ler, conversar e depois fazer uma pausa também, porque eu sei que há muitas cartas.

**Participant 8**

Sim, eu sinto que vou ter que ler outra vez.

**Isabella**

Se vocês quiserem já ir marcando algumas das suas favoritas só para vocês lembrarem, depois vocês podem criar uma bolinha. Só pra vocês relembrem depois, mais ou menos as que vocês querem chamar mais atenção.

**Participant 8**

Só podemos copiar, então.

**Isabella**

Isso copia e cola nos que vocês acham que se calhar— que vão chamando a atenção de vocês, só pra ficar mais fácil depois de vocês lembrarem quais são. Acho que isso pode ajudar. De nada.

**Participant 10**

Eu estava ler agora a 27 a considerar o mundo fora do jogo e se calhar essa sensação de powerl— a falta de poder. Pode ser interessante mostrar se calhar diferentes tipos de casas ou diferentes tipos de realidade em que as pessoas vivem. E também criar a sensação de falta de poder, não só com a nossa situação, mas também com a situação dos outros e se calhar criar empatia a partir daí, não sei.

**Participant 11**

Uma questão: o que é que são aporias? Na 19?



**Isabella**

Então são gaps de informação no caso dessa carta. Então, por exemplo, não sei. Se calhar as vezes você dá uma informação meio incompleta que a pessoa— A informação está correta, você está dando a informação, mas ela não está completamente completa e esse pequeno pedaço de informação que você deixou de dar para a pessoa, se calhar era uma coisa que era importante.

**Participant 11**

Ok, ok. Obrigado.

**Participant 8**

Sei também que há 28 e a 29 também são muito fixe. A 28, diz: Use confusing mapping e é mapear os controles de forma que sejam diferentes do mapa mental dos utilizadores. E para lhes tornar o que seja— para fazer com que o jogo seja difícil de compreender. No entanto, a 29, me parece que é uma versão mais interessante, dizendo que os jogadores não sabem o que é que estão a fazer, porque não lhes é dito. Sei lá, brincar com linhas, com as letras pequeninas de contratos.

**Participant 8**

Pode lhes tirar a sensação de poder. Mas se calhar— preferem falar depois de lermos todos?

**Participant 11**

Como acharam melhor.

**Participant 10**

Já estão até com [inaudible] todas?

**Participant 11**

Ainda não.

**Participant 10**

Então se calhar, como ainda faltam nove minutos, melhor esperar.

**Participant 8**

Mas para ir falar sobre essa parte esperamos.

**Participant 11**

Para mim já acabei de ler tudo.

**Participant 8**

Querem falar sobre os que marcamos? Se calhar, já que estamos no fim.

**Participant 11**

E sim, é esse. Alguém quer começar?

### **Participant 8**

A pronto. Eu falei recentemente da 29 e da 28. Eu sinto que a 29 é um a bocacado 28, mas vez 1000. Porque, keeping the users in the dark para mim também é confundi-los. E sinto que, tendo relendo agora um bocadinho que é parecido com, bait players, a 16, que é construímos segurança, confiança no sistema e de repente esfaquea-los por trás, como diz a expressão.

### **Participant 11**

Como falaste tanto na 28 e na 29, quando li a 29, também fiquei bué logo focado nessa, e acho que se adequa bastante. Também curti a 28 vezes, mas entre as duas também acho que são mais fan da 29. No entanto, essa 16 do bait players e doublecross, acho que faria mais sentido se fosse o betrail em vez de powerlessness. Eu so lendo pois também acabei por escolher a 6, que era aquela em , no âmbito do lie or lie about lying. E ainda achei interessante a 22, make users recall information from memory as much as possible e make the memory load too high, porque é uma coisa que efetivamente tu não consegue controlar a quantidade de informação que consegue decorar a curto ou longo prazo. E é uma coisa, pronto, é informação que é dada, tu não consegue controlar aquilo que efetivamente vais conseguir decorar. Então não tem assim muito, não tens muito controle sobre a situação. E a 24. Tease users with options it cant or are missing drawing their focus away from their task. Como estas a distrair também, de certo modo, estás a provocá los também não ficam com muito controlo sobre a situação, mas também não é das minhas cartas preferidas, mas chama-me a atenção.

### **Participant 9**

A minha acho que eu, acho que eu tinha marcado só quatro, era 5, a 7, a 25 e a 29. Só que eu estava a le-las e estava a tentar ver qual é que era realmente a do powerlessness, porque, por exemplo, a cinco que eu já vou muito fixe, que é que diz drop random inputs, ou seja ali alguma aleatoriedade. Mas eu acho que vai criar uma frustração em vez de ser falta de poder. A 29 eu também acho que tem mais a ver com enganar ou mentir, a sessão é de ilusão, de traição e se calhar não é tanto falta de controlo, e não tenho a certeza. Isso são só também assim ideias. Já a 7 e a 25 que sinto que estão mais relacionadas com isso, de não termos controlo. A 7 é aquela, eu acho que tinha sido tu, Participant 8, a falar também não é, que o conteúdo não ser facilmente entendido, portanto nós não conseguimos entender o que é que esta a passar. Usamos o jargão e termos que nós não temos familiaridade nenhuma. E agora, a que o Participant 11 falou também, a 22 também me parece que vai trazer um bocadinho de sentindo de falta de poder. Mas já, a 29 não, a 25 era que eu também achava que tem a ver com falta de controlo, que é nós queremos usar qualquer coisa na interface que não funciona. E eu até gostei porque, diz ali a frase, a coisa só funciona porque uns humanos decidiram que ia funcionar nesse dia e não no outro, e não noutra altura. Ou seja, nós não temos um controlo nenhum sobre aquela funcionalidade e estamos dependentes de outro fator.

**Participant 11**

Eu por acaso, nessa 25, eu também gostei bastante da maneira como termina, precisamente porque because some human beings decided that one day. No entanto, não, não fiquei muito fã por causa da parte inicial em que if a thing is expected to work some way break it and make them have to relearn it. Ou seja, tipo acaba por dar uma solução a cena. Pronto, tens de repreender aquilo, portanto, é por isso é que também não fiquei muito— mas gostei da maneira como termina.

**Participant 10**

Eu também pensei na 17, porque aquela dos erros seria irrecuperáveis, porque acaba por obrigar os jogadores a se calhar a recomeçar o jogo várias vezes para realmente conseguir chegar a algum lado. E tem também falta de poder, mas outros outras já saíram, por exemplo, a 29, acho que o OK pode não ser tão diretamente essa falta de poder, mas as pessoas, ao não saberem tudo, também não estão tanto em controle. Por isso, acho que também se aplicava muito bem.

**Participant 8**

Sim, para mim sinto que a 29 pode se adequar melhor, porque sinto que também há transparecer um bocado a acessibilidade que as pessoas têm à informação e muitas vezes aquelas, muitas vezes manhas de investimentos, etc. Que o pessoal com mais acessibilidade financeira pode fazer e porque também tem maior acessibilidade à pessoas que já o fazem anteriormente, também já tinham dinheiro e portanto, podem começar a investir mais cedo. No entanto, pessoas que nunca ouviram falar de investimento na vida só porque não têm acesso a esse tipo de informação, nunca o fizeram e não puderam, não só porque não puderam financeiramente, como também não sabiam que era possível. To só mesmo a fazer um pensamento aleatório. E por isso eu penso que, ou pronto, ou pior não é. Não fazem empréstimos e depois não sabiam que os iam correr mal. Não têm acesso a um contabilista. No tanto. Participant 9 falaste também de uma que tambem era—

**Participant 9**

Era 25, 25, 29, e depois era a 5 e a 7. Mas eu acho que a 7 era mais por frustração e A 22, que foi a que o Participant 11 também falou, que tinha a ver com termos tanta informação que não conseguimos processar. Portanto, eu não sei qual é que é assim mesmo aquele sentido de impotência de “eu não posso fazer nada, eu tenho só que ficar a olhar e ver o que vai acontecer”, porque eu sinto que para mim isso é que é impotência. Por mais que eu clique, por mais que eu tenta no campo, eu não consigo. Tenho que esperar que me aconteça. Não sei qual é que seria a melhor hipótese, mas estava a tentar que fosse mesmo específico a esse problema e não a outra, lá está, da frustração, medo. Mas é muito complicado.

**Participant 8**

Eu sinto que powerlessness também tem— sinto que são várias numa. Não é? Porque o medo pode dar a impotência ou falta de informação.

**Participant 9**

É isso— eu sinto que é a consequência de muitas outras sentidos e de muitos outros sentimentos. Escolhemos mal a carta anterior.

**Isabella**

Escolheram mal qual carta?

**Participant 9**

Eu estava a brincar. A carta anterior da emoção. Foi muito difícil. Eu (uninteligible) outra mais a ver— mais simples.

**Isabella**

Pronto, olha. Não sei se vocês querem conversar um pouco mais, mas eu ia propor toda a gente, na realidade, fazer essa pausa de dez minutos e pronto. Podem ficar à vontade tomar um café, ir no banheiro, qualquer coisa e a gente volta daqui a pouquinho. Eu vou colocar de novo um timer com esses dez minutinhos de pausa pra gente. Tá bem?

**Participant 11**

Vai haver votação depois para esta?

**Isabella**

Vai, vai, vai quando a gente voltar

**Participant 11**

Ok.

**Isabella**

Quando a gente voltar a gente volta e aí vai para a parte de tentar desenhar alguma coisa e tem um brainstorming também, ok.

**Participant 8**

Gente obrigada. Até já então.

**Isabella**

Até já.

**Isabella**

Hello again. Olá. Desculpem. É. Pronto. Esperar a Participant 8. Todos pegaram uma água e conseguiram dar uma pausa? Ok, então vamos voltar e eu vou iniciar a votação então das cartas e vou colocar um pouquinho mais tempo só para vocês terem uns três minutinhos só para vocês conseguirem reler as cartas, se vocês precisarem. Só um segundo. Tem alguém que está idle. Não sei se essa pessoa conseguiu—

## **Participant 10**

Acho que era eu, mas já está.

### **Isabella**

Pronto, ok. Era só porque não estava aparecendo como uma pessoa que estava podendo votar. Mas agora já apareceu. Pronto. Acho que todos votaram. Vou ver aqui a resposta: Keep users in the dark. Então. Deixa eu colocar aqui. Então só para rever. O desafio é: Como a gente pode fazer um remix do monopoly para investigar o sistema de housing e realestate em termos de igualdade, inclusão e transparência. E aí a intenção para inserir a fricção intencional que a gente colocou é explorar emoções humanas que não sejam especificamente enjoyment e a expressão que a gente quer dar é powerlessness. É a forma que a gente vai tentar fazer isso é manter os users in the dark.

### **Isabella**

Então refrain to give players critical information of their performance and status of the system. Em relação a feedback. Ok? Tudo certo? Então vamos agora para a parte da ideação. Se vocês me seguirem, eu tenho aqui— a gente tem aqui um canvas para fazer a parte de ideação. Eu vou colocar as nossas cartas e o desafio e etc aqui para a gente não perder de vista. E eu tinha imaginado a gente tem aqui 40 minutos e vocês podem discutir ou então pegar cinco minutinhos, dez minutinhos e tentar a ideia sozinhos e depois conversar sobre as ideias e tentar chegar numa solução em comum. Mas eu queria reiterar dois pontos que são esses dois pontos aqui. Primeiro, que não precisa ter nenhuma skill de artista para essa parte. A maior parte das ideias, quando a gente faz esse tipo de ideação mais simples, mais highlevel, a gente pode representar tudo com um caixa, com texto. Então, não precisa se sentir pressionado por fazer nada bonito, lindo, maravilhoso, a interface finalizada. Só é realmente uma questão de ter as ideias em highlevel. E a outra coisa que eu queria reiterar também é que a gente não precisa sair daqui com um jogo completo, com a interface completamente finalizada. Então, era mais para focar numa pequena parte do jogo do monopoly que a gente quer fazer esse remix para poder investigar com relação à interface. Então, não se sintam pressionados para encaixar o jogo todo, finalizar o jogo todo, a ideia do jogo, todo completinho, é amarrado.

### **Isabella**

Eu coloquei aqui alguns elementos que vocês podem utilizar para poder fazer um wireframe, etc. Vocês podem desenhar também com essa ferramenta de desenho que tem aqui no Miro. Então, se vocês preferirem rabiscar alguma coisa, vocês podem usar essa ferramenta de rabisco. Ou, se vocês preferirem, vocês podem só copiar e colar esses esses elementos. Aqui já tem alguns elementos de interface que vocês podem e vocês podem utilizar se vocês quiserem. E pronto. E é isso. Podem conversar e ter ideia, mas se preferirem e começarem a fazer alguns post its para pensar em algumas soluções e depois discutirem, fiquem à vontade.

**Participant 8**

Ok. Acho que podemos começar por pensar em como funciona o Monopoly. Partindo da relembração que a Isabella fez muito bem no início deste workshop e não sei se estava a imaginar remixar o monopólio em termos físicos também. Ou seja, se estava a pensar mudar a interface a 100% ou se estavam a pensar em manter o tabuleiro. Mas como é que começaram a imaginar de alguma forma?

**Participant 11**

Eu imaginei uma coisita. Imagina ok, temos o monopólio que é o quadrado com as casas com identificação das casas. No sentido de powelessness, e keep users in the darks, acho que podemos fazer alguma coisa de modo a que o utilizador, que o jogador, meio que não saiba em casa a que está a calhar, isso pode não fazer muito sentido. Mas acho que ter— de não ter a noção de onde é que está a calhar podia ser— podia ajudar no powelessness and keep users in the dark. E para fazer isso, em vez de tornar, em vez de mantermos alinhados o monopólio, uma cena vista de cima, com o quadrado sendo uma cena vista de lado. Ou seja, o tabuleiro deixa de ser— deixa de ser tipo a base e passa a ser tipo assim, um plano e depois tipo as peças ficariam tipo verticais. E tu andaria assim porque não conseguimos ver em que casa que estás a calhar. Mas, por outro lado, isso não faz muito sentido, porque tecnicamente precisas de saber se queres comprar a casa e se estás a calhar em uma casa que tens de dar dinheiro, alguma coisa assim, alguém que já tenha aquela propriedade. Mas pensei nessa cena tipo passar do ângulo vertical vertical para uma horizontal.

**Participant 10**

Estou a pensar no Monopoly. Normalmente, as primeiras casas são as que valem menos. São aquelas que vão render menos ao longo do jogo. Enquanto faz [inaudible]e tudo mais. E depois a ultima casa é que vale mais. Se calhar subverter isso para que tu nunca de saibas, que nunca sabes quais é que são as casas que valem mais, e que valem menos. Se calhar, ocultar essa informação, quanto menos saber em quais é que compensa mais investir e quais é compensa menos investir. E se é digital, por exemplo, tu calhas na minha casa, tu não sabes quanto é que vai ter que pagar. O dinheiro podia ser simplesmente retirado da tua conta e tu não saberes exatamente quanto é que foi, por exemplo.

**Participant 10**

[inaudible] matemática.

**Participant 11**

Mencionaste as casas mais baratas quanto as casas mais caras. Quem estava no monopolio, tipo vai naquele sentido. Estava a pensar tipo trocar a ordem das casas e ficava tipo de tudo uma mistela?

**Participant 8**

Sim, talvez.

**Participant 11**

Ok.

**Participant 11**

Também se podia alterar cores.

**Participant 8**

Keep the users in the dark também pode que funcionar em função de, em vez de não se saber onde é que se calha, sinto que onde se calhar deve— poderia dar a sensação de impotência ao jogador. Ou seja, eu calhei aqui eu sei que calhei aqui, mas não posso fazer nada em função disso. Ou seja, não tenho capacidade para arrendar ou nada. Não tenho capacidade para nada, porque não me foi dada essa possibilidade e isso pode dar essa sensação de impotência. E keep users in the dark pode ser a sensação de quando eles vão fazer uma, uma renda ou uma hipoteca haver uma condição nas regras do jogo que nunca lhes foi dita e de repente eles entram em bancarrota e não sabem porquê. Ou então—

**Participant 8**

Ou então não sabem quanto dinheiro é que tem. Penso que foi tu Participant 9 que disseste a pouco.

**Participant 9**

Sim, tínhamos falado disso, não conseguir ver o extrato bancário. Eu gostei também de ideia da Participant 10, de o dinheiro sai e tu nem sabes quanto é que foi.

**Participant 8**

Sim.

**Participant 8**

Eu tava mesmo a pensar nisso. Ok. A ideia do Participant 11, se calhar podia ser literalmente andarmos no escuro, tipo como se fosse jogar Monopoly num quarto escuro em que nós não sabemos em que casa que estamos, ou essa ideia de sabemos as peças, mas não sabemos onde é— onde é que elas andam. Só que depois, o que é que se faz com isso, não é?

**Participant 11**

Pois, exato.

**Participant 9**



Como disse a Isabella, não temos de saber tudo, mas é só ok, se a gente souber... se eu esconder toda a informação ao jogador e o que é que ele faz? Não faz nada. Então aí está powerlessness e por isso se calhar— [laughing] estamos no caminho certo.

**Participant 11**

Só se, por exemplo, ok podemos estar mesmo a alterar regras ne? Algumas coisitas? Por exemplo, se mantivermos então nessa cena— no conceito do quarto escuro do jogador não saberem que casa está a calhar— Porque pronto, o jogador precisa de saber se ele quer comprar aquela propriedade.

**Participant 8**

Uhum.

**Participant 11**

É por norma no jogo é: calhas na casa. Na primeira volta não podes comprar propriedades, mas a partir da segunda, calhas, a partir do momento em que calhas, se ninguém tiver aquela propriedade, pode comprar. Podias era tipo, calhava numa casa, lançava os dados e se— não conseguia ver, congelaram todas, ok já voltaram.

**Participant 8**

Sim.

**Participant 11**

O jogador calhava numa casa, lançava os dados e dependendo do número de calhasse, o utilizador ou era obrigado a comprar a propriedade ou não comprava a propriedade, de acordo com o resultado de um dos dados do mesmo. E assim ele já não precisa de saber em que propriedade é que está para saber se a vai comprar. Fica um bocado a sorte, senão não tem poder de escolha. É os dados.

**Participant 8**

Sim. Isso faz me lembrar um bocado aquela cena de dos enganos de esquemas de pirâmide. Ou seja, o pessoal não sabe muito bem no que que se está a meter. E é assim aleatório, porque foi só alguém que vem ter contigo e supostamente é amigo e depois... Não é para aí.

**Participant 10**

Só estou a pensar que em relação ao ponto inicial da situação real do sistema de housing. Não sei se estamos a conseguir com estas ideias, ainda assim, transparecer a situação real. No monopólio em si, nós somos investidores e no mundo real somos mais pessoas comuns.

**Participant 8**

Nós não temos que— estou a reler a pergunta inicial. Nós não temos que mimetizar a situação real, mas sim investigá-la.

**Participant 10**

Sim

**Participant 10**

Podemos investigar a situação da falta de poder em investir, por exemplo. Porque o pessoal não tem formação e literacia financeira, sim. O comum devia ser poder investir no que temos. Não sei to um pouco perdida, mas esta é aquela fase mais complicar a de ideação. Mas acho também que como é um jogo que também nos podemos divertir um pouco com isso. Por isso que eu me lembrei da situação ridícula que é o esquema em pirâmide que é uma pessoa, sente-se que encontrou de uma situação que é estupenda e muito boa. E é um amigo, é e sabes tudo é o amigo que mostrou-te vídeos no início. Isto porque isto aconteceu há um ano. Mas não, não entrei, mas simplesmente uma pessoa veio ter comigo a fazer essa sugestão e fiquei um bocado confusa. E o esquema deles é mesmo interessante porque mostram-te vídeos, mostram nos tutoriais dizendo para ler livros de literacia financeira para sentir-se mais em controlo possível e no fim, efetivamente temos que pagar para trabalhar, para pagar aos que estão em cima, na pirâmide. Enfim, essa é a sensação de controle e de poder.

**Isabella**

Eu vou escrevendo aqui alguns— alguns postits com algumas ideias que vocês tão a dar só para capturar essas ideias, então tem o esquema de pirâmide tem questão de não saber quanto dinheiro saiu.

**Participant 10**

É não saber que deal é que estamos a fazer, não é, Participant 11?

**Participant 10**

Da aleatoriedade.

**Participant 11**

Sim, exato. Onde é que estamos no— no tabuleiro, também. Sim, é a questão da aleatoriedade sim.

**Participant 9**

E outra sugestão disso— Mas eu estava numa de procurar que informação é que pode ser omitida, mas que ainda, que ainda exista um jogo, porque senão parece que escondemos tudo, deixa de haver jogo. Então uma sugestão de: e se o que fosse omitido tivesse a ver com os outros jogadores, quer dizer, isso é uma espécie de monopólio não se joga sozinho. E nós também, muitas vezes

jogamos em função do que a outra pessoa já comprou, as casas que ela tem, onde é que vamos cair. Estamos sempre conhecimento. Se nós não soubermos nada sobre os outros jogadores, estamos a jogar quase que sozinhos. Até quando teremos nas casas, lá está, não sabemos se temos que pagar ou não. Se calhar, quando tentamos comprar, também não sabemos se podemos ou não comprar, porque essa casa pode até ser vendida. Foi por aí. Aquela coisa de esconder a informação dos outros, em vez de ser só a nossa era esconder o panorama geral e nas casas isoladas.

#### **Participant 8**

Eu gosto dessa ideia até.

#### **Participant 11**

Mas, imagina, quando tu dizes disso, de calhas na casa, não sabemos se temos de pagar. Como é que o jogo anunciava aquele jogador que tinha de pagar ao outro?

#### **Participant 8**

Pois assim eu gostei muito da ideia que a Participant 10 falou, que era das coisas acontecerem sem nós termos quase que controle, não podemos fazer nada. Portanto, basicamente eles lançavam— Os dados é que estão aqui a piorar a coisa, porque os dados já são aleatórios então eu nunca sei onde vou calhar. E se eu calho em uma casa aleatória e sai o dinheiro da conta, não há nada que eu possa fazer, ou seja, estamos mesmo no powerlessness total. Por isso eu não sei agora aqui como é que mantemos o jogo interessante. Estamos a retirar todas essas informações, mas eu acho que se nos calhassemos na casa dos outros era mesmo interessante em não sabemos em casa que vamos calhar e sair nos dinheiro sem nos sabermos quanto. E também vai encontrar aquela tua sugestão da outra carta. Acho que es tu Participant 11 tinhas falado na carta em que nós temos que manter a informação na nossa cabeça e depois torna-se demasiado para processar, até pode ter a ver com isso. Nós sabemos com quanto dinheiro é que começamos, mas depois ele vai desaparecendo, nós vamos comprando, vamos recebendo, mas não sabemos a quantas estamos. Nunca conseguimos ver o extrato bancário.

#### **Participant 11**

Duas coisitas. Até a primeira acho que— ainda bem que me lembraste dessa questão da memória. Acho que até se quase poderia trocar o elemento das cores. Pronto, cada propriedade tem uma cor, por números e cada propriedade teria um número. E eu não sei quantas propriedades é que são no tabuleiro, mas é muito mais difícil saberes Ok. Se eu calhar na Casa Azul tenho de pagar. Se calhar na amrela tenho que pagar do que 23, na 33, na 11, na 18. Ficam demasiados números ao longo do jogo e vai se confundindo. A questão de calhares na casa, e se é uma casa de alguém, sai-te o dinheiro sem tu saber, nem se sabe quanto é que se está a sair. Acho que é interessante, mas acho que a longo prazo, se isso for, se fosse mesmo assim, a longo prazo, basicamente, a única coisa que fazias no jogo era só rodar os dados, porque o dinheiro seria assim de saberes e depois ia chegar o momento em que rodava os dados e ficavas, Ok, já perdeste porque ficastes

sem dinheiro, mas ao mesmo tempo, se tu vais calhar numa casa e não sabe que é de outra pessoa e vai sair o dinheiro sem tu saberes como é que tu também pode comprar propriedades.

**Participant 10**

Eu estava a pensar—

**Participant 9**

Eu concordo com isso dos dados.

**Participant 10**

Desculpa, diz diz, força.

**Participant 9**

Era só para dizer que os dados eu acho que é o que está aqui a complicar as coisas, porque nós nunca sabemos aonde vamos calhar no monopólio. Até no monopólio verdadeiro. Nós nunca sabemos se vamos calhar na casa dos outros ou na nossa. É só uma sensação falsa de poder que nós temos que é “vou lançar um sete” mas nunca, nunca conseguimos controlar. Por isso também não sei muito bem como resolver aqui essa questão.

**Participant 10**

Sobre essa questão dos dados, não sei se caso seria um bocadinho demasiado, mas se retirássemos a questão dos dados e fossem as próprias pessoas a escolher para onde queriam ir, simplesmente elas nunca saberiam se aquela casa tem um hotel, se aquela casa é muito valiosa, então está sempre a escolher mas nunca sabes realmente se se vais pagar muito ou pouco. Lá está, também tinha a ver com a questão na memória, eu se calhar nem se quer lhe dava— pois não sei, pois também começam a decorar que é aquela casa muito cara e nunca iriam para lá, tinha que se calhar—

**Participant 11**

Mas a questão é que vai ser difícil decorar os vários números, e ok esta casa é mais cara do que esta e mais barata do que esta.

**Participant 10**

Mas na localização do tabuleiro—

**Participant 8**

Mas se calhar, mais do que números, podiam haver condições esquisitas. Ou seja, nós podemos saber o preço da casa porque, quando nós estamos no idealista, estamos a ver o preço da renda, mas nós não sabemos se a casa vai ser muito húmida ou muito, quen..no inverno ou muito quente no verão. E poderia também refletir, pronto isso não reflete ainda a acessibilidade. Mas poderia poderiam haver condições esquisitas de calho na casa, sei que vou pagar 500, mas eu não sei que daqui a três jogadas tenho que pagar 500 outra vez. E ninguém me disse. E, de repente, o banco

diz que todos dever 500. E de repente diz que o leitor dever 1000, porque não paguei os 500? Há três rodadas atrás. E acho que esse sentimento de espera— Eu assinei um contrato que eu nem sabia— que poderia também ser engraçado, que também pode brincar com a cena da memória, porque de repente, se não pagar a cada três rodadas— rodadas? rodadas das—500 com 500 notas. E depois, entra outros contratos. Também há aquela cena de memória e de confusão que também criou—

**Participant 11**

Eu só não sei se— se pudesses explicar um bocado melhor essa parte de, calhas aqui, mas depois de três e devias ter pago atrás.

**Participant 8**

Sim, basicamente eu calhei num sitio, pago uma renda, mas eu quando paguei a renda nessa casa eu não sabia que estava a aceitar um termo de contrato de que tinha que pagar o mesmo valor da renda de três em três jogadas, jogadas ara essa a palavra, e portanto de três em três jogadas eu teria que pagar 500, mas eu não sabia e de repente o banco depois de passado não sei quanto tempo de jogo diz. Olha, está a me dever 1500 notas, porque não me pagastes nestas últimas nove jogadas.

**Participant 8**

E tu não sabias.

**Participant 11**

E fez isso tipo em algumas casas específicas, ou em tipo em todas, tipo cada, se calhar, cada casa pode ter um contrato diferente também, por exemplo.

**Participant 8**

Acho que sim. A casas podiam ter um deal incrível e ter aquele serem muito baratas e pagarem-te para viver lá porque são rendas acessíveis e depois outras são deal horrível. E onde o senhorio te obriga a pagar o equipamento todo porque disse que tu pagasse— ficaste sem caução. Nem sabias.

**Participant 8**

Eu acho que é porque pode juntar os vários, varias das cartinhas que queremos, tê las aqui agora, aquela fresca, aquela sensação de perda de “oh não, havia aquela carta com o trigueiro mesmo fixe. Então, podemos juntar varios? Eu sei que estamos aqui, parece batota. Mas depois, na apresentação, mudamos o conceito, como se costuma dizer.

**Participant 11**

Mas imaginem, voltando, eu— aquilo que também mencionei mais cedo, vocês estariam a ver, então, a interface, como o tabuleiro mesmo tipo um quadrado, uma coisa vista de cima com os quatro lados.

**Participant 10**

Sobre isso, por exemplo, o monopólio da PlayStation dois e do switch permite ver de lado, não oculta na mesma o tabuleiro, só que ves tipo de um ângulo mais de cima, fica mais engraçado em digital, mas consegues ver a informação na mesma. Às vezes é um bocadinho confuso, porque perdes aquela noção de tudo.

**Participant 11**

Este monopolio é da PlayStation dois, certo?

**Participant 10**

Sim.

**Participant 11**

Mas essa questão de perder a noção de tudo, acho que é nice.

**Participant 8**

Concordo. Sim.

**Participant 11**

Mas que poderia ser algo ainda mais extremo, pelo menos nas imagens ditas que estou a ver. Calculo que seja aquilo que estejas a dizer. Mas podia ser ainda de um ângulo mais inferior, mesmo sem noção do tabuleiro. Só noção tipo de três casas atrás e cinco casas à frente que tens e depois tipo o ecrã vai-te acompanhando, vai acompanhar a tua pecinha.

**Participant 10**

Ok, por que estavas a pensar— porque é diferente se estivermos todos a olhar para o mesmo— para a mesma televisão, e cada um para o seu PC.

**Participant 9**

Sim.

**Participant 11**

Eu estava a imaginar sozinhos.

**Participant 8**

Sozinhos. Mas agora que a Participant 10 referiu—

**Participant 8**

Agora que a Participant 10 referiu isto da PlayStation, estava me a lembrar do Mario Kart quando se joga numa TV. Cada um consegue ver onde é que os outros estão. Mas o mapa está muito pequenino.

**Participant 9**

E.

**Participant 9**

Vocês estão a ver qual é aquele jogo muito antigo, Wolfenstein que tinha assim tipo um labirinto?

**Participant 8**

Não.

**Participant 9**

Porque agora disseste isso do Mario Kart e estava a imaginar mesmo tendo essas zonas todas espalhadas na televisão, podemos ter como estamos agora assim em grelha. Cada um tem o seu quadradinho, mas como estamos dentro desse ambiente, com os muros à volta, ou seja, quase como se tivéssemos umas palas e só vemos... quer dizer, só se a pessoa estivesse na casa à nossa frente é que nós íamos conseguir ver. Estão a perceber o conceito? Se estivesse outro lado do tabuleiro, vai parecer que está sozinho, mas também não sabe onde é que estás, porque imaginem só que quase como se o tabuleiro de monopólio tivesse um muro à volta das casinhas e nós só conseguíssemos ver duas ou três casas à nossa frente e depois o resto está escondido.

**Participant 11**

Se virem aqui na parte do canvas, era assim que eu também estava a visualizar uma cena, mesmo mais de lado em que esta é uma peça, e ves tipo x casas atrás, x casas à frente e depois pronto, isto eventualmente vai dar um loop. Se vê isto e depois podia haver números por baixo em identificar as casas, porque como disseste mais cedo menos, mas eu também— apesar de haver números, se tiveres um quadrado consegues ter uma localização tipo— se está mais próxima do canto, se não está. Mas se tivesse tipo uma linha infinita, ainda mais vais perder o sentido da orientação.

**Participant 8**

E depois, eventualmente, se chegares quase a um canto, consegues ver dali, tipo depende da perspetiva, mas se eu fizer assim e assim ficas tipo: “oh não, to ver ali uma linha, estou a chegar ao canto— tipo. Só— enfim

**Participant 11**

Mesmo usavas mesmo ter cantos. Quer dizer, tipo imagina, seria uma linha infinita, mas sempre chega ao 50 e volta ao um, tipo não tens porque— aí está. Se tu tiveres essa cena de cantos também consegue perceber ok, esta casa é mais cara, está mesmo ao pé do canto e decoras tipo aquela



localização ao pé do canto é cara e não— também não vais conseguir controlar se calhas lá ou não. Mas era mais nesse sentido.

**Participant 8**

Ok, mas então podemos manter o mesmo jogo aqui e aqui. E se estiverem todos na mesma TV e continuando a ideia da Participant 9, tipo não sei se será assim, mas ser um jogador e ter tipo, ya—

**Participant 11**

Ah, isso é nice.

**Participant 8**

E se tiver mesmo esse aspecto, acho excelente tipo com pouca luz e—

**Participant 11**

O fato de ter paredes— Imagina o fato de ter paredes seria bué nice— tipo, ter essa cena que bloqueia o resto do mapa—

**Participant 8**

Acho que nem sequer— yeah. Podemos manter a cena do ar livre de estarmos andando na rua e de repente temos aqui gare, sei lá, a cena dos comboios ao lado e estar tipo o céu em cima. Mas tipo, a cena de ser um caminho interminável— a cena de ser um caminho é horrível.

**Isabella**

Desculpa, eu só queria fazer— Eu estou me controlando muito aqui para poder não mas também não interferir muito. Mas é só que eu queria fazer um comentário que achei interessante a cena dos números em vez de cores, porque na vida real as cenas são com números, tipo de número tanto, não é em cores, é muito mais difícil.

**Participant 11**

Exato e a renda é em número.

**Participant 11**

Hm— tem um jeito também. Como é que fazemos isso com a questão dos dados?

**Participant 8**

Ai que seca.

**Participant 11**

E que eles efetivamente iam de ter, além de não só— as jogadas. Porque, tá— ok. Temos de perceber, então, como é que vamos definir a questão de comprar propriedades. Porque se não temos uma propriedade e é essa propriedade for de alguém— a eu curto essa ideia de tipo o

dinheiro sai sem sabermos e só nos vamos aperceber bué jogadas depois. Mas para nós calhamos na propriedade de alguém, alguém teve de comprar. Como é que essa pessoa comprou?

**Participant 10**

Quando disse isso, era mais— imagina tu sabes quanto dinheiro tens na conta. Só que imaga. Agora vou estar 100 euros e não sei que dei 100 euros. Eu só vejo a minha conta a decer o valor. Era mais nesse sentido. Sabes quanto dinheiro tens no momento, só que não sabe o que está a sair.

**Participant 11**

Isso quase que podia ser. Lembras-te do Rennes?

**Participant 10**

Sim

**Participant 11**

Tipo, o jogo tem uma hora que aquilo te dá uma indicação de, aquilo tens quatro categorias dentro da tua personagem e de acordo com as escolhas que fazes, vais perdendo ou ganhando percentagem nessas categorias. Não sabes quanto, só sabes que tens tipo ou é— só tens uma indicação de que aquela categoria vai ser afetada. E aqui podia ser uma cena tipo: uma setinha para baixo caso vais perder. Não sabes quanto. E é a mesma coisa. Até se alguém calhar na tua propriedade, recibes uma setinha para cima, uma indicação a dizer que ganhaste ali alguma coisa. Agora não sabes quanto. Achei, também a cada loop do mapa podia estar— imagina que estava na casa um até a casa 50 vais ganhando e vais perdendo dinheiro. Vais tendo essas indicações de positivo negativo e quando chegas ao fim do primeiro loop tens acesso ao teu extrato bancário e só tem acesso ao extrato bancário a cada volta dás.

**Participant 9**

Eu acho que a opção de comprar a propriedade podia ser como a Marina tinha dito. Nós temos acesso a informação de que aquela propriedade está vazia, está disponível e podemos escolher compra-la. Mas nós, imaginem, quase como a cartinha— Nós olhamos para a carta do Monopólio e vemos quanto é que as pessoas vão ter que pagar de renda. Se calhar lá quanto é que custa por mais casinhas? Mas nós não sabemos nada disso. E tem aquelas condições que a Marina falou que ainda por cima comprámos uma casa super velha e a cada lançamento temos que pagar de reparo do canalizações ou o condomínio é super caro. Ou então, ao contrário, foi um super bom negócio e nós não fazemos ideia e ficamos de milionários.

**Participant 11**

Podia ser até mesmo com informação datada—outra— Exato. Tipo assim, alguma coisa— Sempre— Exato.

**Participant 8**

E sobre a cena de pagar, podia, de repente, continuando nessa ideia, aparecer um pop-up a dizer “Tens que pagar a renda de 500 \$” e tu— nem dá a possibilidade de perceber do que. Porque só diz ou “ok” ou “pagar agora”. E o ok é só continuar a dívida ou não. Ou Clicas no ok e pagas.

**Participant 9**

Não era engraçado isso no "ok mas pagas", podia ser ele até te dava um bocado de conversa junto, ter uma opção que fosse— Não consigo pagar agora e tu clicas e ele aparece outro popup a dizer, “mas tens mesmo que pagar”. A parecer que a ver que há uma possibilidade de fugir à dívida, mas logo em seguida aparecer outra mensagem (uninteligible) todas e vais ter que pagar na mesma. Não tens como fugir.

**Participant 8**

As mensagens podem ser tipo recorrer ao advogado, recorrer ao contabilista, tinga, tinga, tinga a recorrer a processos de tribunal e, de repente, mas olhas, tens que pagar na mesma.

**Participant 10**

Sim, e ias gastando dinheiro nesses processos. Mas, afinal, pagar o mesmo. Isso era fixe.

**Participant 11**

Essa obrigatoriedade é nice.

**Participant 9**

Isso é aquilo— aquele designer com pouca eficiência, que também era outra carta que apareceu e que era criar desgaste desnecessário. Temos que clicar muitas vezes até chegar a um resultado.

**Participant 8**

Eu gosto da forma como nós já temos o tipo modo, o modo single player, o multiplayer e esta cena da rasura das cartas que Participant 11 desenhou que está muito fixe. Agora, em termos de interface, acho que conseguimos fazer em sete minutos e meio uma mini interface. Do género, vamos ter valor na conta e se sim onde? Por exemplo,

**Participant 9**

Só aparece uma vez a conta. Isso pode ser um pop-up, exato. Uma roda não, a cada volta do labirinto.

**Participant 11**

Sim.

**Participant 8**

Ok. Este é o primeiro, mas vou por os popups em cima então. Temos um pop up e temos outro a dizer “Olha só tens 2 \$ na sua conta” “Ok” “Cancel”

**Participant 9**

Eu gosto “olha”

**Participant 8**

Parece parvos.

**Participant 8**

tua conta. “Ok”, “cancel”. E o cancel até ficas. O que faz, o cancel?

**Participant 9**

Mais um dos cartões também era o UI ser tão minimalista que não tem nada. Que é um bocado por aí que nós vamos durante as rodas. Nós não temos informações sobre praticamente nada, a não ser quando calhamos em uma casa específica ou alguma coisa quando estão as outras pessoas a jogar. Estava a pensar se nós vamos estar em silêncio, às cegas, à espera que chegue a nossa vez.

**Participant 11**

Estou a pensar.

**Participant 8**

Ok, sera que vai haver— Desculpa, Participant 11.

**Participant 11**

Poderia ser a mesma, um de cada vez. Estou assim a olhar aqui para este Canvas, que tem as quatro divisões e acho que poderia seguir. Ser a mesma questão de um de cada vez. Continuo a achar que eu curto bastante deste perspectiva para os jogadores, mas na minha opinião eu manteria a mesma questão de não haver cantos e de ser mesmo uma linha infinita ao ponto que ok, apesar de ser infinita, podemos não conseguir ver literalmente até ali ao fundo— assim, imaginando assim— eu faço aqui em baixo assim.

**Participant 8**

Sim, é só porque era difícil desenhar, mas estou de acordo contigo.

**Participant 11**

Mas imagina, podia tipo— Pegando na cena do quarto escuro também o fundo quase podia ser preto e tipo tu conseguias ver— Apesar de ser infinito, tu só consegui mesmo mesma cinco, seis

casas à frente. Ou seja, se eu tiver aqui, e tu tivesse sete cartas, sete casas, ou casas na frente, já estava no escuro, eu já não consigo ver também. essa. Também não sei até que ponto é que isso é honestamente relevante, porque não vai trazer—

**Participant 10**

Nesse sentido podia ser quase ser um círculo em vez de um quadrado. E assim não ves os cantos. ves sempre a mesma coisa não é. Ves sempre o caminho ir assim, e já nem sabes onde estás.

**Participant 11**

Mas a questão é ok, isso é nice. Mas imaginemos que se sente mais a vibe de ter quatro ecrãs assim, todos a ir em frente ou quatro ecrãs tipo, todos com uma curva para um lado?

**Participant 8**

Mas a curva tão grande— Seria algo que não te aperceberias muito bem, só mais no final do caminho, talvez.

**Participant 11**

Não é mais no final do caminho, por ser um círculo, estás aqui ou estas aqui a visão é a mesma.

**Participant 8**

Sim, mas acho que poderemos manter a cena do parecer que era em frente mas no fim fim ir caindo um bocadinho para ao lado, só para ter noção. Mas é tipo tão grande e tão curvo que parece nunca mais acaba. Também dá um bocado a sensação de “onde é que isto acaba?”. Outra cena sobre o powerlessness, eu sinto que poderia não haver cadeia, cadeia, perdão é simplesmente estás num sitio random e me aparece um carro da polícia.

**Participant 11**

Isso é nice.

**Participant 8**

E vais para a cadeia.

**Participant 11**

Isso é nice. Ves um carro assim a chegar ao lado...

**Participant 8**

E não pode fazer nada. Isto porque, eu estava a imaginar ok, nós vamos conseguir ver a cadeia. Porque se vemos seis casas, três de um lado e três do outro. Imaginem. de fundo se tivermos a - 3 casas da cadeia ve-se a cadeia. Mas então, se for um carro—

**Participant 9**

Nos só vamos para a cadeia se fizermos alguma coisa criminosa, não é? Certo? ou é—

**Participant 8**

Ou não—

**Participant 11**

Eu acho que podia ser bué aleatorio.

**Participant 9**

Eu também acho que, neste caso podia ser alentório, pois eu acho que no monopólio original só vamos para a cadeia quando é tipo “ah não pagaste esta multa vai para a cadeia” Não é passar passar na cadeia.

**Participant 11**

Quando tiras uma das casas da sorte.

**Participant 9**

Pois não há cartas da sorte.

**Participant 8**

Não. Há mesma— há uma que diz mesmo vai para a cadeia.

**Participant 11**

Já não me lembrava. Nem me lembrava dessa.

**Participant 8**

Visita e há um “calhas ali vai a para a cadeia”.

**Participant 9**

Era engraçado porque a pessoa ficava atrás do muro nas grades e ous outros jogadores podiam passar.

**Participant 11**

Acho que era— a questão da cadeia, tipo imagina, tínhamos um cronómetro no canto tipo a cada seis minutos, sete, que era o cronómetro da polícia, mas não sabes... Ninguém sabe quem vai ser preso. Só sabem que daqui a sete minutos a polícia chega e vai prender alguém. Cria assim um momento de tensão.

**Participant 8**

Está a me dar vibe daqueles jogos da PS2 como é— do Buzz vez o tempo e ele vai atacar alguém, mas não sabe quem é tens que apertar o botão.

**Participant 11**

Total total.

**Participant 8**

Isso é fixe.

**Participant 8**

Ok, ok, em termos de cartas, elas aparecem no centro do ecrã. Porque cada um é tipo escolhemos aqui e clicamos no OK, aparece uma carta e aceitamos a carta? É isso?

**Participant 11**

Como assim?

**Participant 8**

Nós estamos num caminho, mas vamos ter então que calhar numa casa. Então calhamos na casa que está mais próxima, whatever, a porta que está mais próxima, seja esquerda ou direita, ou no caminho do lado esquerdo a que está atrás. E então a carta? Imaginem a carta aparece essas de se nós queremos investir ou não. Ela aparece assim, só no meio. E depois temos que por que sim ou não, não é?

**Participant 10**

Eu por acaso gostei daquela ideia de ser aleatório. Se compras ou não uma carta.

**Participant 8**

Ah, sim.

**Participant 11**

Eu acho que— desculpa.

**Participant 11**

Ficaste aqui a falar da situação das portas. Eu até agora não estava a assumir que ia haver efetivamente portas, mas havendo portas, acho que era bue interessante até tipo, e pegando também nessa questão de lançar os dados de modo aleatório, era tipo queres abrir as portas? Queres abrir a — calhaste nesta porta, queres abri-la? E abrir-la pode ser comprar e depois adiante e dependendo do número que calhe, abre a porta, ee a sala estiver vazia, tipo podes comprar. Ou então tipo aquela cena abre a porta e tem lá coisas e agora tipo tens de pagar.

**Participant 8**

Isso é incrível.

**Participant 9**

A sim.

**Participant 8**

Essa cena das portas é bué fixe.



**Participant 11**

É tipo as portas estão todas iguais de fora. Só percebe quando abres. A questão de abrir também é de acordo com os dados.

**Isabella**

Pronto. Olha, acho que a gente teve bastante ideias aqui. Eu fui anotando a maior parte. Mas pronto. Agora eu queria marcar uns 20 minutinhos para conversar sobre as sobre as cenas que a gente pensou e quanto à discussão da solução mesmo. Eu sei que é muito difícil a gente chegar numa interface finalizada nesses 40 minutos. Mas se vocês puderem falar um pouquinho sobre as ideias que vocês acharam mais interessantes, como é que isso poderia funcionar dentro de uma interface e como isso se alinha com relação às cartas que a gente escolheu.

**Participant 8**

Opa

**Participant 11**

Congelou.

**Participant 8**

Sim.

**Isabella**

Oi. Conseguem me escutar?

**Participant 8**

Estavas a explicar ainda. Pode repetir, por favor, Isabella.

**Isabella**

Eu posso sim. Eu ia— Eu tava alando sobre, pronto, para a gente discutir um pouco sobre as ideias que a gente teve e como elas se alinham com relação as as cartas que a gente escolheu e quais são as ideias que vocês gostaram mais com relação à interface, e assim, como é que vocês veem essa parte das ideias que a gente conversou?

**Participant 11**

Porque antes de dar aquela última sugestãozinha e Participant 9 também queria dizer alguma coisa e o tempo depois cortou—

**Participant 9**

Ah, não te preocupes, olha.

**Participant 9**

Olha acho que era mesmo parecido com que estavas a dizer. Lembrei-me daquele jogo do disco Elysium, em que nós temos a possibilidade de escolher, mas cada escolha tem uma probabilidade de acontecer ou não. Portanto, era quase como se o deixassem comprar, mas não tinha certeza se as comprar. Ou seja, era mais ou menos o que estava a dizer que era dependendo do número dos dados, podias ou não comprar a casa. Era introduzir um elemento de probabilidade de aleatoriedade que deixava na dúvida o que vai acontecer. Era só isso.

#### **Participant 9**

Isabella, eu gostei muito destas cartas, acho que estão muito completas. Eu queria era poder usar mais, eu queria combinar.

#### **Participant 8**

sim.

#### **Participant 8**

Eu senti que as cartas foram muito bem escolhidas em função do tema, e o tema é o facto também de ser a atual. E ainda por cima toca nos a todos, acho eu. Muito bem escolhido, muito fixe. E sobre as cartas em si, especialmente, senti que todas tinham tanto a ver com o tema que se tornou difícil escolher. A Participant 9 expressou muitas vezes, mas acho que nós sentimos todos o mesmo. Aquela cena de, “oh não podia ter escolhido outra”, tipo “ah também quero escolher aquela”, é e eu senti o mesmo. É assim, a escolha era tanta também que a vontade de ter sempre como fizemos aqui, foi excelente, de ter sempre acesso às 03 que escolhemos anteriormente. E o facto de que repetir a pergunta no canvas de ideação, repetir a pergunta feita inicialmente ajudou imenso a back to the bases. Não esquecer o briefing.

#### **Participant 11**

Eu, quando estávamos escolher a terceira carta do trigger, senti também muito isto que agora disseste que a Participant 9 mencionou que podíamos ter escolhido outra e senti muito bem isso enquanto estávamos à escolher a terceira. Mas acho que estes postits aos quais chegámos e estas conclusões acho que funcionam muito bem com as cartas. Confesso que acho que funcionam mais mesmo até com o powerlessness e o keep users in the dark, porque acho que funcionam mesmo bem. Eu gosto bastante destas ideias que surgiram agora neste 40 minutos, foram 40 minutos.

#### **Participant 10**

É isso. Eu achei que acho que havia muitas cartas que eram legítimas e podiam dar bons resultados e combinar novas possibilidades. Havia várias formas de chegarmos a um resultado e que iam influenciar muito onde chegamos. e se calhar eu preferia não ter essa escolha de escolher as cartas. Quer dizer, se bem que havia algumas que eu sabia que não queria, mas havia muitas que eu achava que poderia querer, ou seja, poder quase que randomizaar dentro de x cartas. Porque tornaria mais desafiante e facilitava a escolha.

**Participant 9**

Isabella, tu até tinha isso não era na terceira. Acho eu que dizia pick ou então chose random, porque eu acho que realmene a cena do random aqui era fixe porque nos estamos com decision fatigue quando chegamos ao fim. Eu já li tanto, já escolhi tanto... e eu achei que estávamos todos também muito conscientes das outras opções e quando estávamos a falar iamos “ah isto era bom para aquela carta e isto era bom para aquela cara”. Ou seja, de qualquer maneira, foi bom termos passado por todas, porque acho que nos abriu muito, fez a gente pensar nas outras questões, não ficarmos limitados também a estas cartas.

**Participant 8**

Em termos do visual das cartas, senti que o título das cartas de expressão está ótimo dá para ver todas quase ao mesmo tempo, enquanto que o título, o heading, digamos dois não é, da Intenção e do trigger também. tão também fixe para ir lendo. Sentia que o corpo de texto das cartas estava muito pequenino para, mas eu sei que é porque tem muitos textos. Mas senti necessidade de se aproximar uma de cada vez para conseguir ler o texto com atenção. Então, acho que preferia que aumentasse um bocadinho nada o corpo de texto para mostrar a leitura e a eficiência de ler varias mas.

**Isabella**

Ao mesmo tempo, né?

**Participant 8**

Não é ao mesmo tempo, mas de ser uma, duas, três, ter quatro, pelo menos no ecrã ao mesmo tempo.

**Participant 11**

Uma coisa que também achei foi que, por exemplo, ok, temos aqui o deck 2, temos aquele número de cartas. Mas ok, acaba por ser só uma palavra, enquanto que no deck três acaba por haver muito por onde escolher. E neste modo, como temos um título e temos uma descrição, a torna um bocado mais complicada a escolha e a compreensão de tipo de todas, porque temos de ler uma e temos de associar com aquilo que já foi escolhido previamente para chegar um bocado ao momento em que já são muitas cartas e torna-se difícil de escolher. Gostei dos conteúdos das todas.

**Participant 8**

Sim.

**Participant 8**

Senti também que o número poderia ser aumentado e percebo que está do mesmo tamanho que o express, intention and trigger, que pode estar pequenino, porque nós a cada momento sabemos onde estamos, mas nós nos baseamos imenso no número das cartas para falarmos delas, especialmente na última fase. E na última fase de cartas, eu não entendi o que é que eram as

etiquetas que estavam no canto inferior esquerdo da carta. Esta aqui trigger diz feedback, mas com duas barras e havia outros com vários temas. E não percebi. Eu não os usei a meu favor, nem entendi qual era sua intenção.

#### **Participant 11**

Eu olhei para isso.

#### **Isabella**

E isso, pronto. Isso foi uma cena que eu coloquei mais para eu me basear. Mas existem os princípios de design para tirar a fricção. Esses de baixos são os princípios de design para tirar a fricção que são relacionados com essa cena. Então tipo assim, não é uma coisa que eu expliquei e realmente acho que não fazia— não ia ajudar muito no caso do propósito do workshop. Mas no caso, por exemplo, existe um princípio de design de, por exemplo esse aqui que tem o readability, ou feedback ou signal to noise ratio. Enfim, são todos os princípios de design que existem para tirar a fricção da interface. E aí, é só um jeito de eu linkar cada uma das cartas com a cena por trás, tá a ver? Mas não era relevante e eu entendo que não tinha um contexto nenhum para vocês e a parte de baixo não cheguei a explicar etc. Mas mas pronto, é um bom feedback para eu, pronto, colocar em algum lugar assim, pelo menos o que, o que isso significa.

#### **Participant 8**

Fiquei só a me perguntaram-me se o trigger teria que saber disso ou não, mas como tínhamos tantas coisas efetivamente esqueci-me disso.

#### **Isabella**

A não precisa.

#### **Participant 8**

E dizer que ajudou muito a questão de usar bolinhas para destacar cartas na última fase. Eram mesmo muitas cartas e eram todas muito boas. Quase que até nos ajudou a simplificar a votação.

#### **Isabella**

Então eu pensei nisso no meio. Depois que eu tava vendo eu falei, nossa, eles não vão lembrar das que eles gostaram. Porque vocês estão comentando “ah e eu gostei dessa, gostei dessas três”, talvez se calhar seja a melhor realmente ir marcando à medida que vocês vão falando. E uma pergunta com relação a as ideias tiraram. Teve ideias que vocês acharam que foram interessantes ou nem por isso? Vocês acham que, no final das contas, a ferramenta conseguiu ajudar a ter ideias com relação a cena? Eu queria, pronto, perceber um pouquinho a percepção de vocês com relação a isso.

#### **Participant 11**

Eu confesso que eu gosto de tudo que está aqui praticamente. Estas ideias eu acho que dava mesmo grande jogo. Umas mais que outras, mas acho que todas teriam um bom peso num jogo.

**Participant 9**

Eu concordo. Acho que foi útil. Pronto, não é a minha área, não é, mas eu acho que sempre que a propts aleatórios, ou seja essas cartinhas, isso ajuda imenso a combinar coisas inesperadas. Isabella, acho que devias que ter esse workshop com outro grupo, mas em que as cartas fossem completamente aleatórias, eu acho que é muito interessante ver se esta nossa decisão e estar aqui na discussão das cartas, se interferia ou não ou o se jogo saia, seria incrível de outra maneira— se calhar até mais inesperado. As pessoas tinham que ligar ainda mais a criatividade.

**Participant 8**

Mais do que isso, senti até que não estamos presencialmente, alguns de nós não nos conhecem e conseguimos trabalhar conjuntamente mesmo bem. Foi correto e houve um— tipo não havia assim um “Agora é a tua vez de falar”. Cada um teve o seu espaço e acho que foi uma ferramenta que fixe para podemos trabalhar em conjunto, mesmo apesar de a equipa não ser super concisa. Não. Sei lá.

**Participant 10**

Ajuda a quebrar o gelo e aquele medo da folha branca, também sim.

**Participant 11**

Foi muito cooperativo.

**Participant 9**

Uma curiosidade, isabella tu vais Imprimir as cartas? Queria fazer disto uma cena física ou ia ser algo disponível em formato digital?

**Isabella**

Já, já, como é muito mais difícil organizar um workshop que seja presencial, pra já eu estou investindo mais nas cenas online. Vou fazer mais testes, mas a ideia é disponibilizar a ferramenta depois online e pronto. Como vai estar em SVG, etc. Se as pessoas quiserem imprimir também, elas podem ficar à vontade para fazer a impressão. Mas, por enquanto, eu estou só fazendo os workshops online, porque é um pouco mais, pouco mais fácil de organizar.

**Participant 9**

Mas ok, é que quero experimentar. Quero usar para outros contextos. Nas aulas.

**Isabella**

Quando tiver isso pronto, quando estiver finalizado, eu mando para vocês todas as ferramentas. Se quiserem utilizar um dia, fiquem a vontade. Realmente vai ser muito gratificante para mim

isso se essa ferramenta for útil em outros contexto pra vocês. Pronto. E a gente tem ainda— Deixa eu ver que a gente ainda tem mais cinco minutinhos, então se vocês tiverem outro apontamento— outro feedback que vocês gostariam de dar com relação a ferramenta?

#### **Participant 8**

Pronto, ao meio da nossa pequena discussão agora, lembrei me da questão de marcar quais as cartas que foram faladas, porque presencialmente é mais fácil descartar as que não queremos. Tira para fora. Mas aqui é importante então destacar aquelas que queremos falar depois de lermos todos. O sistema de votação foi muito fixe.

#### **Participant 11**

Sem dúvida.

#### **Participant 9**

Um. O Isabella, uma sugestão assim que eu sei que se calhar não é muito— Não é para toda a gente, não sei, mas acho alguém com menos experiência. Por exemplo, o texto que vem de baixo nas cartas do deque três para mim fez toda a diferença por ter o título e depois ler a explicação. E eu não vou dizer que dois precisasse disso, mas eu adorava que houvesse quase assim, um espaço com exemplos ou um espaço com alguma indicação do que é que pode ser feito, sabes quase que— não era um manual de instruções, mas, por exemplo, em cima. Estou a falar desta apresentação, claro, e não de como é que tu vais depois divulgar o trabalho. Mas eu acho que era superinteressante, porque se tu não tivesse tido aquela reunião comigo anteriores a explicar alguns destes conceitos, eu vinha para aqui demaseada perdida. Mas como já tínhamos conversado do undertale, e de não sei o que, pronto, aqueles jogos todos, eu fiquei com uma ideia de “ah, ok é isso que se pretende, é isto quer dizer subverter, é isto que quer dizer, pronto, uma série de conceitos”. Eu não sei se, junto aqui, ao challenge, quando tu falas, por exemplo, quando falaste do aldeia adormece, é, isso quase que não acrescentou nada. Mas eu gostava muito de ter visto era exemplos, sabe. Mas o que é que se pode fazer? Ou— mostra-te só um, não foi que foi aquilo da internet. Já não lembro do nome do jogo. Mas não sei se isto faz sentido ou não. Mas se o designer tiver muito perdido, acho que podia ajudar.

#### **Isabella**

E ainda mais quando a gente vem num contexto de design de interface usual, que é treinado o tempo todo para remover a fricção, fica um pouco complicado de pensar nessa outra possibilidade. Então realmente faz sentido sim colocar. Se calhar— eu fiz questão de ter essa reunião separada com cada um de vocês para poder explicar o contexto do projeto realmente, para poder deixar isso mais claro, porque essa é uma dificuldade que eu percebi no primeiro workshop que eu tentei remediar dessa forma. Mas, mas pronto. Quando for soltar a ferramenta no mundo, eu queria que isso ficasse um pouco mais claro para que as pessoas que fossem utilizar sem eu explicando direitinho o contexto com da ferramenta, então obrigada pelo feedback.

**Participant 9**

Fica mais autónoma. As pessoas podem usar sozinhas sem que tu explicasse nada.

**Isabella**

Exatamente

**Participant 11**

Uma coisa que também achei bastante importante e interessante foi este canvas com a parte dos elementos que precisava ser tipo drag and drop ali para o canvas onde estávamos a trabalhar. Confesso que a primeira vez que eu olhei fiquei ok, não sei como é que vou utilizar estes elementos também. Eu olhei diretamente aqui “check box”, “radio button”, este toggles e fiquei: Não sei como é que vou utilizar isto, pelo menos para este contexto e esta situação do monopólio. Mas achei que é interessante e aliás, até afinal até se acabou por usar aqui a questão do pop-up. Mas acho que é importante sim ter aqui estas... com estes elementos para drag and drop e ajudar na construção da ideação.

**Participant 8**

E até dão ideias. Sinceramente.

**Isabella**

E pronto. Uma última coisa que eu queria pedir de favor para vocês era que eu preparei um formulário na Microsoft onde se vocês me seguissem aqui e vocês clicarem na setinha do Source, eu vou colar no chat porque se calhar é um pouco mais fácil, mas tenho um formulário do survey rapidinho de responder sobre sobre as cartas, etc. Vocês podem fazer depois que a gente terminar chamada ou em algum outro momento. Mas seria muito importante vocês preencherem porque vão me ajuda bastante depois a compilar os resultados do workshop, está bem? Então, acho que só se vocês tiverem algum last feedback. Mas de novo, queria agradecer muito a participação de vocês. Foi muito divertido.

**Participant 11**

Foi uma experiência muito, muito boa, muito nice.



# **Appendix K**

## **appraisal workshop – Miro board**

The following pages contain the PDF exported from the Miro board used during the appraisal workshop, detailed in [Chapter 7](#). [Appendix J](#) includes the session transcript.

# 01.

## Onboarding



Brief introduction  
of the participants  
and agenda



**10 min**

Time (WET)	Activity	Description	Duration
18h00	01.Onboarding	Brief introduction of the participants and agenda	10 min
18h10	02.Tool introduction	Brief introduction of the tool and how to use it	15 min
18h25	03.Understand challenge	Understand the theme and challenge proposal	10 min
18h35	04.1 Define intention	Chose a card to define intention	10 min
18h45	04.2.Define expression	Chose a card to define expression	10 min
18h55	04.3.Explore principles	Explore trigger cards	20 min
19h15	<i>Break</i>	----	10 min
19h25		Pick one trigger card - Ideate	40 min
20h05		Showcase solutions and discussion	20 min
20h25	06.Discussion and wrap up	Final discussion regarding the tool	20 min
20h30	07.Follow up survey	Survey to measure tool usefulness, clarity and other factors	5 min

# 02.

## Tool

### introduction

Overview of the  
problem landscape  
and card deck tool



**15 min**

what

who

How might game and UI designers leverage intentional friction through the interface to communicate ideas, build arguments and promote reflection?

why

## ✨ Goal of this workshop

Test de ideation tool in context and  
collect feedback and potencial  
improvements

# ✨ Game characteristics

## Representation

A game subjectively simulates a subset of reality

## Conflict

The product of players interacting in the pursuit of a goal and intrinsic to any game

## Safety

A game is an artifice that allows players to experience danger and harm while excluding their psychological or physical realizations

## Interaction

A game allows players to directly explore causes and effects and engage with consequences.

(Crawford, C. (1984) The Art of Computer Game Design. McGraw Hill)



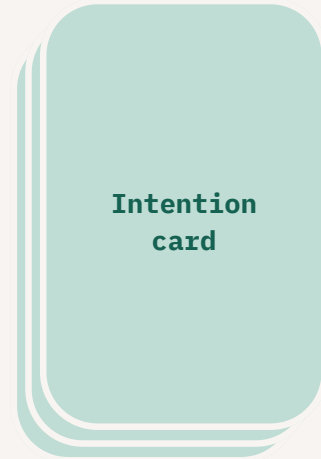
## Playful ideation tool to explore conflict through the user interface

- 1 Define Larger picture, context, challenge, issue

E.g How might we represent mental illness struggles thought the interface?

- 2 Define intention: Why use friction.

DECK 1



- 3 Choose or randomly pick a expression card. (The intended emotion/message)

DECK 2

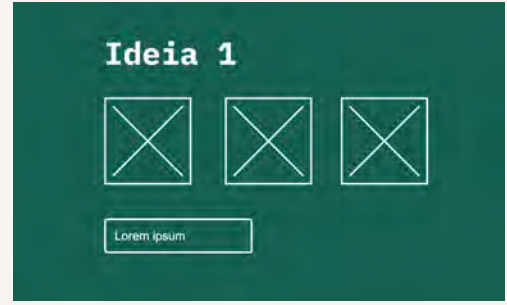


- 4 Choose or randomly pick a trigger card to ideate upon

DECK 3



- 5 Think of ways of solving the brief with the suggestion on the card.



# 03.

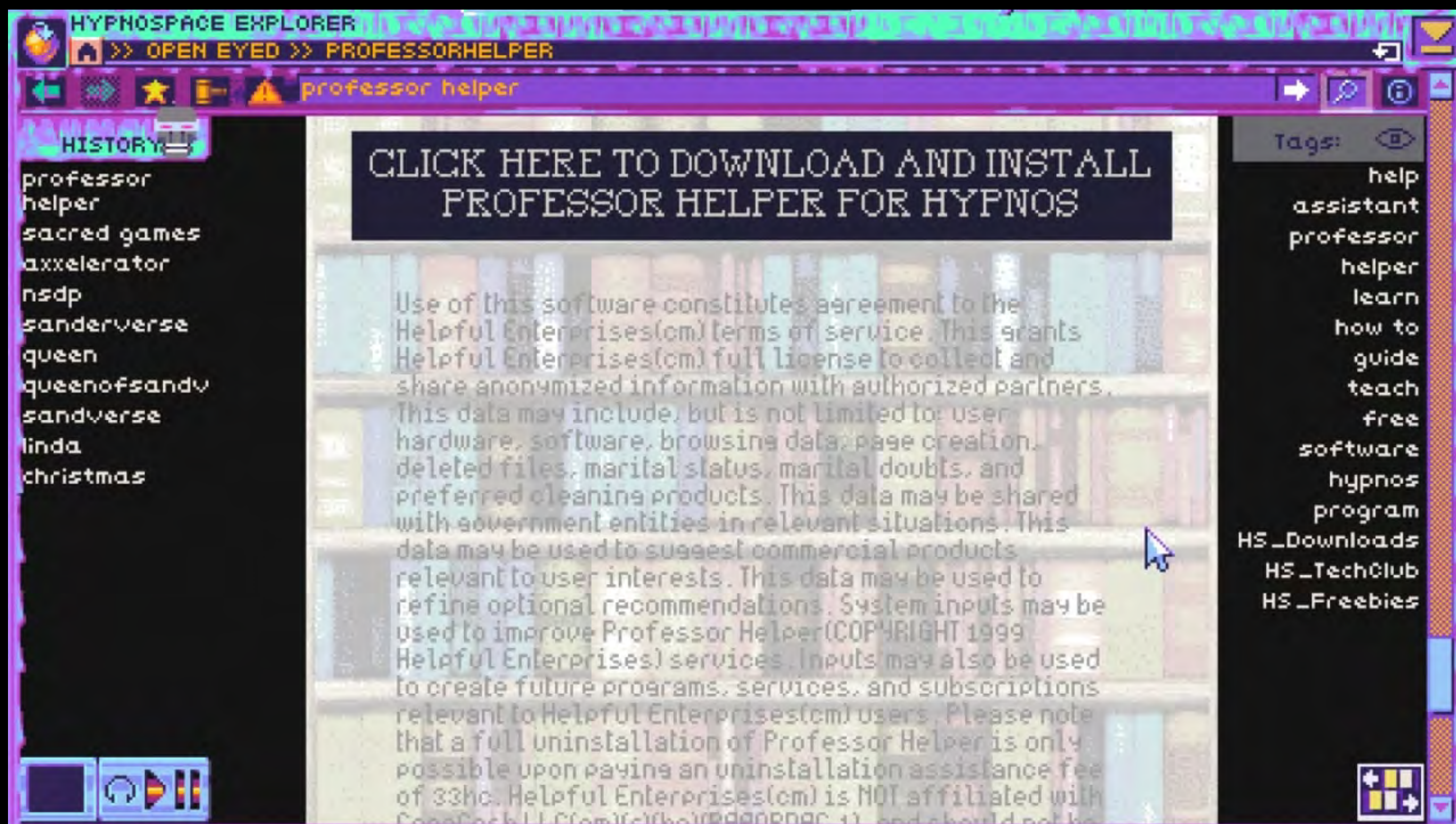
## Understand challenge



Sharing of interesting  
examples of design remix  
for inspiration and intro  
of design challenge



**10 min**



HYPNOSPACE EXPLORER

>> OPEN EYED >> PROFESSORHELPER

professor helper

### HISTORY

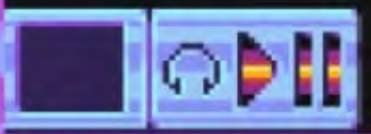
professor  
helper  
sacred games  
axxelerator  
nsdp  
sanderverse  
queen  
queenofsandv  
sandverse  
linda  
christmas

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HS\_Freebies



# Monopoly rules

## OBJECTIVE

The objective of the game is to become the wealthiest player through buying, renting and selling of property.

## ACTIONS

Walk, buy, sell, rent, improve a tile and get a mortgage.

# Monopoly elements

- A board representing a city
- 2 dice
- players' tokens
- Houses and Hotels' tokens
- Title Deed cards (one for each property)
- Money
- The bank (who never goes out of money)
- The jail





**Larger picture, context,  
challenge, issue:**

How might we remix the Monopoly  
game to investigate the real  
state/house system in terms of  
equity, inclusion and  
transparency?



# 04

## Explore ideation tool

Exploration of cards of  
each deck and definitions  
to guide ideation



**40 min**





## ✨ Define intention

Define why use friction.

Place card here





## ✨ Define expression

Define the emotion.

Place card here





# ✨ Define trigger

Define the trigger strategy to ideate with.  
Place card here



Trigger29

What if we...

**Keep users in the dark**

What they don't know won't hurt them, right? Refrain from giving players critical information on their performance and status of the system.

Feedback / /

2

Define intention:  
Why use friction.

DECK 1

Intention1

Create empathy between the player and a situation

Use the interface to develop empathy or provoke reflection and understanding through experience.

Intention2

Make the UI an tool of self expression for the designer

The interface can be a self expression tool, where the designer can communicate their own worldview or struggles with players or use it for for aesthetic purposes.

Intention3

Subvert the power dynamic between the user and the technology

Create situations when users are not trully in control and the interface is not actually there to serve them.

Intention4

Challenge dominating structures and bias

The interface can challenge game and society conventions, player expectations, and the plethora of entities and connections that make up digital games.

Intention5

Explore human emotions other than enjoyment

Negative emotions are a powerful and valid way to foster action and reflection.

Intention6

Build upon the game natural antagonistic nature

Understanding and interacting with a frictional interface can be a formal challenge in the game.

Intention7

Make a point, a critique or capture real life/ everyday struggles

Get inspired by all the friction real life already has to reflect critically on the triviality of everyday life.

Intention8

Teach something to players

Committing errors and failing is part of learning.

Intention9

Reinforce the game narrative

Challenges, difficulty, & tension are driving forces in narrative. A frictional interface can serve as a metaphor, allowing the player to feel tension as an in-game character would.

Intention  
cards

3

Choose or randomly pick a  
expression card. (The  
intended emotion/message)

DECK 2

Intention

5

Explore human emotions other than enjoyment

Negative emotions are a powerful and valid way to foster action and reflection.

Express

11

powerless  
ness

Expression  
cards

Express

24

sadness

Express

23

boredom

Express

22

perplexity

Express

21

isolation

Express

20

slyness

Express

19

sluggish  
ness

Express

18

fatigue

Express

17

hostility

Express

16

inscruta  
bility

Express

15

regret

Express

14

shame

Express

13

annoy  
ance

Express

12

apathy

Express

11

powerless  
ness

Express

10

vulnera  
bility

Express

9

overwhel  
mingnes

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5

uncertai  
nty

Express

6

uncontroll  
ableness

Express

7

unforgive  
ness

Express

8

inter  
personal  
hardships

Express

1

disobedie  
nce

Express

2

oppress  
ion

Express

3

deception

Express

4

betrayal

4

Choose or randomly  
pick a trigger card  
to ideate with

## DECK 3

## Trigger cards

How might we remix the Monopoly game to investigate the real state/house system in terms of equity, inclusion and transparency?

Intention

5

Explore human emotions other than enjoyment

Negative emotions are a powerful and valid way to foster action and reflection.

Express

11

powerless  
ness

Trigger

29

What if we...

Keep users in the dark

What they don't know won't hurt them, right? Refrain from giving players critical information on their performance and status of the system.

Feedback //

Trigger

1

What if we...

Explore diegetic interfaces

Make everyone be aware of your interface, even characters in the game. The information may become hidden or difficult to parse, increasing the cognitive load of some tasks or making actions take longer.

History / Performance / Load //

Trigger

2

What if we...

Use deliberate inefficiency

If users want to move a file to the trash, have they close their garbage bag, replace it with a new one, and throw it out in the dumpster / hope they know when the garbage collectors are coming.

History / Errors / Performance / Load //

Trigger

3

What if we...

Do a golden detour

People tend to choose the easy way out. Give a generally unfavorable outcome on the path of least resistance. Allow the player to take some roads less traveled by adding a minimally functional UI.

Nudge / Hint's / Law / Signal-to-noise ratio //

Trigger

4

What if we...

Slow the player down

Give them time to think. If it can be one click, make it take two clicks. Use long delays or display too many options.

Redundancy / Hint's / Law / Difficulty / Threshold //

Trigger

5

What if we...

Drop random inputs

Give the interface power over the user. Not all buttons want to work all the time; it's hard work being pressed. If the button wants to be nice, it can tell you that it is not feeling like doing it now.

Signal/force / Input's / Law //

Trigger

6

What if we...

Lie or lie about lying

Use the interface to display completely untrue information. Who knows? Eventually, they may start using their critical thinking and skepticism.

Signal-to-noise ratio / Forgiveness / Errors //

Trigger

7

What if we...

Make content not understandable

Sometimes, it is tiresome to explain everything. Remain loyal to the material of your design language even at the cost of user comprehension. Exploit readability: Use jargon and unfamiliar terms.

Readability / Notals / Model / Forgiveness //

Trigger

8

What if we...

Use mismatched visual mimicry

Not everything is what it seems. When a design copies the visual appearance of a known object, it indicates the way it will work or be utilized (due to its familiar look). Exploit this assumption.

Notals / Model / Consistency / Errors //

Trigger

10

What if we...

Create perception or ability impairment

Put the players in other people's shoes. Make players experience accessibility barriers firsthand to get some perspective. Consider making the interface less perceptible, operable, simple, and forgiving.

Accessibility //

Trigger

9

What if we...

Use faulty feedback

Give useless information like it is feedback or false errors as a part of the experience. Make people wonder what's part of the show and what is not.

Errors / Hints //

Trigger

11

What if we...

Exploit Signal-to-Noise Ratio

Manipulate the proportion of important to irrelevant information. Consider diluting useful information with useless information. Clutter the UI with distractions.

Signal-to-noise ratio / Hint's / Law //

Trigger

12

What if we...

Give too much feedback

A lot, really, like, an uncomfortable amount. I'm not kidding. Think about visual, auditory, and haptic feedback. Every interaction could have a fun sound, making that mute button useful.

Signal-to-noise ratio / Errors //

Trigger

13

What if we...

Stop trying to make the UI invisible

Stop trying to hide it. If it's in there, I bet it's important. If it's important, put it in the middle of the screen. Please don't be shy; make it enormous.

Signal-to-noise ratio //

Trigger

14

What if we...

Give too much control

Do not constrain players to do anything – and don't warn them about the consequences of doing so. So let players do things very easily, even if they are not sure what they are doing.

Control / Forgiveness / Confirmation //

Trigger

15

What if we...

Create a bad first impression

Make players judge you by the cover. Foster a negative attitude and emotional reaction from the get-go.

Aesthetic-usability Effect / Context Bias //

Trigger

16

What if we...

Bait players

Build trust in the system by fostering internal consistency. After the user trusts the system, doublecross them.

Consistency //

Trigger

17

What if we...

Make errors unrecoverable

Don't let the user take it back. Don't provide any way for players to reverse their actions, any safety nets, confirmation, warnings, or help.

Errors //

Trigger

18

What if we...

Use minimalistic design

That is, it simplifies interfaces to the point of abstraction.

Tactics's Law //

Trigger

19

What if we...

Create aporias

Intentional use of gaps, lacks, and omission in information delivery leaves room for interpretation and experimentation. Let them wander a bit.

Readability / Feedback //

Trigger

20

What if we...

Design for slips

Skateboarding is only fun because you may slip at any moment. Therefore, design the interface for users to commit actions they did not intend to do.

Errors //

Trigger

21

What if we...

Give lazy feedback

Delay providing feedback, so the player needs to wait to understand the result of their actions. Make it difficult for them to course-correct their mistakes immediately.

Forgiveness //

Trigger

22

What if we...

Exploit memory shortcomings

Make users recall information from memory as much as possible. Maybe interrupt users while they are in the middle of it. It is the cognitive load too high? It doesn't matter. Make them do it faster.

Forgiveness //

Trigger

23

What if we...

Reclaim "friendly" design

There is a lot more friction in friendship than there is in utility. Make the interface mimic human relationships and behaviors, even the annoying ones.

History //

Trigger

24

What if we...

Provoke the user with oppressive constraints

Tease the user with options they can't use or are missing, drawing their foot away from their task or play and onto the interface. Where is that mute button?

Constraint / Signal-to-noise ratio / Nudge //

Trigger

25

What if we...

Use mismatched mental mode

If a thing is expected to work some way, break it. Make them have to relearn it and remind the user things only work a certain way because some human beings decided that one day.

Consistency / Mental / Model / Errors //

Trigger

26

What if we...

Require precision

Make the players thread the needle by designing the interface to demand players be precise, accurate, or fast.

Errors / Forgiveness //

Trigger

27

What if we...

Consider the world outside of the game

Make the real-world part of the game through the interface. Get inspired by how unpleasant the real world is to create moments of humor, discomfort, or insight.

History / Mental / Model //

Trigger

28

What if we...

Use confuse mapping

Map controls to be unlike the player's mental map. Make it difficult to players to understand the layout of the controls and the devices being controlled.

Mental / Model //

Trigger

29

What if we...

Keep users in the dark

What they don't know won't hurt them, right? Refrain from giving players critical information on their performance and status of the system.

Feedback //

# 05

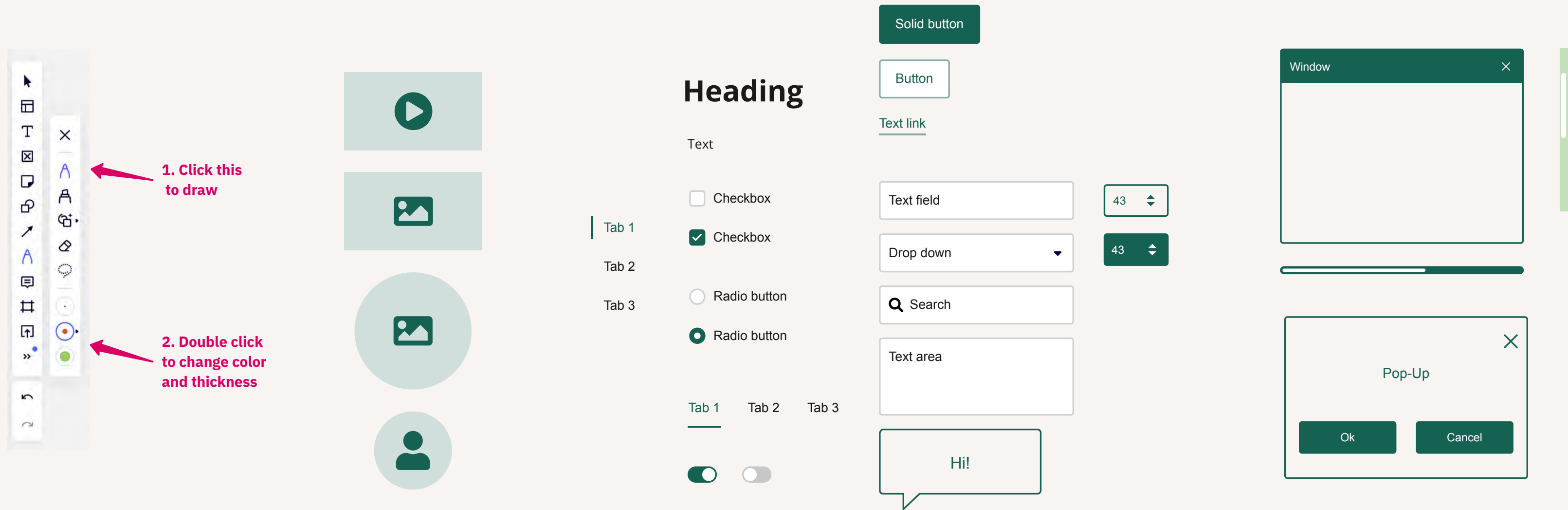
## Ideation

Brainstorm possible ways  
to remix and display  
Monopoly interface to  
convey the desired  
intention and expression  
defined previously



**50 min**





## No artistic skills necessary

Words are usually the most important part of each sketch.

You don't need much more than text and boxes to express even the most complex ideas

## You don't need to figure out every detail

Don't feel you have to figure out every detail of how every part of the game will work. Focus on a small part of the game and how it can be remixed to investigate the issue.

Assinei um contracto que não sabes (ve o arrendamento mas não sabe o quanto precisas pagar)

Cada casa tem um contrato diferente (calção)

Não tem como fugir da divida (aperta q vais recorrer a divida mas vai ter que pagar na mesma)

TITLE DEED  
PARK PLACE

RENT \$35

With 1 House 1100

With 2 Houses 500

With 3 Houses 1100

With 4 Houses 1000

With HOTEL 1000

Mortgage Value 1000

Houses cost 1000. each

Hotels, 1000. plus 4 houses

Tens que pagar a renda de 500\$

OkPagar

Olha, só tens 2\$ na tua conta.

OkCancel

não saber quanto dinheiro foi tirado da conta/deal que estamos a fazer

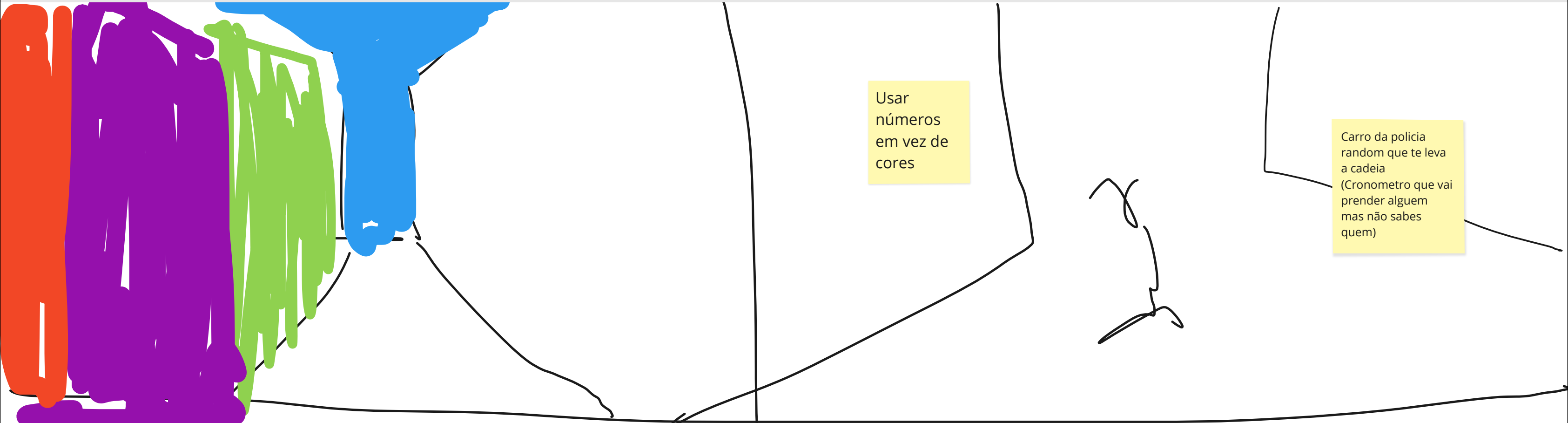
so tem acesso a seu extrato bancário a cada volta q da completa no tabuleiro

manter as infos na memoria (quanto recebem)

Não saber nada sobre os outros jogadores (não saber se temos que pagar ou não). Esconder o paronama geral

Não saber onde estamos no tabuleiro

linha infinita



Abrir Portas e ver decidir se queremos comprar (se tiver vazia, podemos comprar)

Ser aleatório se compra ou não a casa (Disco elysium)



# 06

## Discussion



Discussion of the tool  
and outcomes



**20 min**

What are your impressions  
of the card deck tool?

How the tool could be further improved?

What could be different?