Mise-en-jeu Framework for Analysing the Design Grammar of Videogames

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Our research focuses on Game Studies, Game Design, Player Experience, Videogame Spaces and Cinematic Techniques. In videogames, the mediated space's language has not yet been well established. Addressing this, we developed the mise-en-jeu proto-framework, a system that attempts to address the lack of a unified game design syntax. The continued development of the Mise-en-jeu Framework we propose aims to help resolve this by constructing instruments for game design's study. We will conduct mixed research, embrace various genres, and consider player experience. Such studies are vital for the mise-en-jeu framework's success and need urgent development, as designers strive to find unified frameworks for comprehending and projecting level design mechanics, but find a limited amount of research available.

Introduction and Purpose

Concepts from traditional audiovisual schools of thought should be applied in the comprehension of videogames, even if videogames are by no means traditional audiovisual media. Videogames are artefacts that provide specific types of experiences (Kirkpatrick 2011, 1), in part due to their interactive nature, which supports innovative aesthetic happenings. This research aims to find how gameplay, from players and designers' viewpoints, is affected by a game's visual, sonic, behavioural, and interaction languages. We will identify rules and design standards used throughout videogames.

The primary goal of this project is addressing the question:

1. What is the grammar of the mise-en-jeu, and how can it be used in game design?

With it, these secondary questions arise:

2. What models have been developed that may be useful?
3. What is the epistemological definition of the mise-en-jeu?
4. What is the impact of the mise-en-jeu on experiencing a game?
5. Which mise-en-jeu analysis and design tools can be provided to game designers?
6. Which are the variables, codes and conventions of the mise-en-jeu framework?
7. How can the framework be tested?

To answer these questions, we established these objectives:

1. Elaborate a framework with the dimensions of the mise-en-jeu.
2. Provide design patterns of the mise-en-jeu, allowing for an easy way to understand the framework's application.
3. Deliver a study on the impact of the mise-en-jeu on players' experiences.

Survey of Related Work

Our project considers contributions from academics studying the audiovisual output of videogames. The MDA Framework (Hunicke et al. 2004) helps designers conceiving enjoyable experiences. It is defined as Mechanics, describing the game's components; *Dynamics*, describing the mechanics' run-time behaviour acting on player inputs and each other's outputs over time; and Aesthetics, representing desirable emotional responses evoked in players (ibid.).

Spatiality in games implies multi-layered understandings of players' spatial experiences. It was advanced by Henri Lefebvre's notion of *social space* (Wood 2012, 89). Social space does not represent "a thing among other things, nor a product among products: rather, it subsumes things produced and encompasses their interrelationships in their co-existence and simultaneity" (Lefebvre, as cited in Wood 2012, 89). Janet H. Murray adds to Lefebvre's social space, saying that social structure is a foundational and expanding conduct of the human experience, so people need not be confounded when it replicates through virtual worlds. However, we must inquire what environmental factors allow social structure to arise (2012, 148). Murray also summarises the key-affordances of digital objects: they are *procedural, participatory, encyclopaedic, and spatial* (51-68). Henri Lefebvre introduced another vital concept, that of dialectics of triplicity, distinguishing three types of space: *objective, conceived, and lived* (1980). Edward Soja refined Lefebvre's ideas into *trialectics* – similar to dialectics but including *real* and *imagined* spaces. The *lived* space "never stands alone, totally separate from its precedents or given absolute precedence on its own" (1996, 70).

Michael Nitsche (2008) introduced a model with five spaces: rule-based, "defined by the mathematical rules that set, for example, physics, sounds, AI, and game-level architecture" (15); *mediated*, "defined by the presentation, which is the space of the image plane and the use of this image including the cinematic form of presentation" (16); *fictional*, "the space imagined by players from their comprehension of the available images" (16); *play*, in which players act within the rules of the game and the physical devices accommodating the play experience (16.); and *social*, "defined by interaction with others, meaning the game space of other players affected" (16). The importance of Soja's trialectics is recognisable here, promoting a unidirectional exchange of information between all spaces not present in Nitsche's model. Soja's framework defines third space and argues it contains the two preceding spaces. Within the third space, all the spaces come together (1996, 65).

We also considered the Eye Space Framework (Chang & Hsieh 2017), which proposes a taxonomy of compositional elements and their importance and significance, with four categories: *primary subject, distractions, backdrop, and guiding information*. We also analysed Heather Logas' work (2005), *distinguishing cinematic* and *cinematography* in videogames and establishing the importance of colour values. Girina (2013) identified the need for the mise-en-jeu framework.

Fernández-Vara states that games may be studied from other media's perspective, like *cinematography* and *Design*. She also understands videogames' idiosyncrasies. Rather than regarding games as just a form of expression, we may see them as objects encoding values and concepts that players decipher and communicate with (2019). To create our framework, we will scrutinise mise-en-scène, analysing works like Louis Giannetti's Understanding Movies (2014). We will also establish videogame-exclusive variables.

We established a prototype of the framework with these variables: *Lighting Key, Camera Proxemics, Camera Perspective, Shapes, Area Of Phase Space, Depth Of Field, Horizon Of Intent, and Setting* (Ribeiro et al. 2018).

Table 1. Summary of variables and possible values of the mise-en-jeu framework (Ribeiro et al. 2018).

Possible Results	Variables							
	Lightning Key	Camera Proxemics	Camera Perspective	Shapes	Area of Phase Space	Depth of Field	Horizon of Intent	Setting
	High-key	Extreme Long shot	Side Scrolling	Circle	Tight	Existent	Can be represented with a geometrical coordinate system.	Descriptive, with depth changing depending on scope.
	Low-key	Long shot	Isometric	Square	Loose	Non-exis-tent		
	High-con-trast	Full shot	Third person	Triangle				
		Medium shot	First person					
		Close-up	Over the shoulder					
		Extreme close-up	Side static					

Approach

We will use mixed methods, since our problem is theoretical as well as practical. Different phases of our work need different methodologies; thus, we distributed the methodology along various phases.

Phase 1: Literature Review

We have started organising the literature review and research methods. We have been searching for publications we deem relevant, using academic search engines, namely *Google Scholar, ResearchGate, ProQuest,* and *Scopus*. We have listed and indexed our results according to their subject matters and significance. Subsequently, all resulting texts will be organised and articulated into an extensive literature review.

A portion of this phase has been carried out in preparation for papers we publish as a result of our research. Some papers are pending acceptance for publication or have been accepted.

The final review will provide some context to work we have done regarding the mise-en-jeu, including theories in game design, interaction design, and ludology. It will present models that attempt to resolve the mise-en-jeu proto-framework's shortcomings. Videogames often use codes developed in other media and academic fields. Some reviewed theories are not native to videogames but are useful to their study, such as those in media geography and film theory.

Phase 2: Mapping the Variables, Codes, and Conventions

This phase consists of 6 sub-phases. We expect to start by identifying and expanding the elements of the framework. We expect to chart many variables that we had not previously identified through bibliographical research and the play of many works. We also expect to categorise them into larger groups containing interrelated variables (e.g., sonic, visual, behavioural, and interactive). None the less, we have already identified some parameters that we will study to provide contributions to the framework: *Horizon of Intent, Patterns of Design, Passing of Time, Impact of Colour,* and *Sound in the Mise-en-jeu*. The Horizon of Intent cannot be mapped using interviews or surveys; we will gather information on a population's sample through language-agnostic geometry-derived methods. In the histograms of our case studies' analysis, geometrical cues will allow us to recognise repetition in the analysis's visual manifesta-

tions, resulting in *design patterns*. Towards examining temporal continuities, our subjects will play videogames of different genres. A mixed nature analysis will be conducted to verify who is in control of the *passing of time*. We will use a multi-method approach to understand the impact of colour, using eye-tracking, surveys, and interviews. To test *sound in the mise-en-jeu*, we will use ethnography-derived methods, framed by literature research (Roberts 2002, 6), resorting to "documents of life" (Plummer 1983).

Phase 3: Studying the Phenomenology of the Mise-en-jeu

To determine the effect of the mise-en-jeu on player experience, we will define a stratified population. A sample of that population will interact with select case studies. They will be subject to the Games Experience Questionnaire (GEQ) (IJsselsteijn et al. 2013) – a qualitative instrument used to understand player experience. We will also use the GameFlow model (Sweetser & Wyeth 2005), which allows for verbal and non-empirical player enjoyment measurements.

The GEQ evaluates game experience as scores, explores players' emotional and communicative participation, and gauges how participants feel after ending a session of play (IJsselsteijn et al. 2013, 3). The GameFlow model allows us to establish player enjoyment patterns through game heuristics and user-experience literature (Sweetser & Wyeth 2005, 2). Combined, these allow us to survey players' perception of play as experienced from their perspective. The labelling and organisation of our data on players' experiences', along with the testing of our hypotheses and the literature review, will allow us to make a phenomenological description of the mise-en-jeu. It will provide the basis for an epistemological description.

Phase 4: Testing

We will evaluate the applicability and effect of mise-en-jeu in practice. This process involves describing success variables, obstacles and threats. We will consider all the factors arising from its application by examining the interrelationship between individuals, procedures and the framework. This examination will take the form of semi-structured interviews and focus groups, which allow us to understand game play experiences (Eklund 2015), as well as usability evaluation.

To enhance applicability, we will produce application directives focused on intuitive design, ease of learning, efficiency of use, memorability, error frequency,

and subjective satisfaction (USDHHS n.d.). Our preference for integrating usability evaluation within the testing phase arises from a trio of crucial goals: improving framework features, decreasing implementation expenses, and getting the flexibility of techniques.

Phase 5: Debate & Synthesis of Results

The synthesis will be a reflection period where we will read and reassess our results and our work principles. The synthesis entails gathering our findings, building a discussion with previous studies, and establishing a roadmap for further studies.

Phase 6: Thesis Writing

By using a precise structure, we will write the thesis throughout the PhD. This phase is the last writing period, as parts of the thesis will be published as articles.

Progress and Expected contributions

We plan on editing all the studies in peer-reviewed publications. They allow us to construct a final report using the papers as a base, grounding it and giving it relevance and validity. This method does not mean adaptations will not be made, as they are necessary for the continuity and connection of topics in a document as extensive as a PhD thesis.

As we write, we have already published some articles related to the topic of our thesis. They are the following:

1. Ribeiro, João P., Miguel Carvalhais, and Pedro Cardoso. Forthcoming. "Categorising the Sonic Experience in the Soundscapes of Videogames." In *Perspectives on Design: Research, Education and Practice II*. Forthcoming.
2. Ribeiro, João P., Miguel Carvalhais, and Pedro Cardoso. 2020. "Connection of Dynamic Temporal Continuities in Videogames." In EIMAD 2020: *Advances in Design, Music and Arts*, edited by Daniel Raposo, João Neves, José Silva, Luísa Correia Castilho, and Rui Dias, 195–212. Springer Series in Design and Innovation, vol 9. Springer, Cham. https://doi.org/10.1007/978-3-030-55700-3_14.
3. Ribeiro, João P., Miguel Carvalhais, and Pedro Cardoso. 2020. "Sound in the Mise-En-Jeu: Conveying Meaning through Videogames' Mediated Space." In *AVANCA | CINEMA 2020*. Forthcoming.

4. Ribeiro, João P., Miguel Carvalhais, and Pedro Cardoso. 2018. "Mise-En-Jeu: A Framework for Analysing the Visual Grammar of Platform Videogames." In VJ2018 — *10th Conference on Videogame Sciences and Arts*, edited by Miguel Carvalhais, Pedro Amado, and Pedro Cardoso, 86–108. Porto: i2ADS – Research Institute in Art, Design and Society, University of Porto, Faculty of Fine Arts. https://vj2018.fba.up.pt/files/Papers/PagesfromVJ2018-Proceedings-full-5.pdf.

Below we provide a provisional title of the publications we anticipate producing:

» A Taxonomy of the Simulation of the Depth of Field Effect in Videogames
» A Phenomenological Study of the Mise-en-jeu
» Mapping Players' Horizon of Intent in the Mise-en-jeu
» Patterns of Design in the Mise-en-jeu: A Holistic Analysis Approach
» The Impact of Colour on Players' Experience of the Mise-en-jeu
» Usability and Applicability of the Mise-en-jeu Framework
» The Mise-en-jeu Framework: A Summary of Findings

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