

Roteiro Metodológico para Gamificação do Geodesign Aplicado ao Planejamento Urbano: Por uma Experiência Lúdica no Projeto de Futuros Alternativos para a Cidade com Crianças

Methodological Guide for the Gamification of Geodesign Applied to Urban Planning: For a Ludic Experience on the Project of Alternative Futures for the City with Children

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Abstract

This article aims to present a Methodological Guide to add gamification elements to the Geodesign framework when planning the future of the city, using Geogames such Minecraft, with the participation of children in Tirol, in Brazil. The problematic tackled is related to the challenges that participants of a Geodesign workshop face when co-designing projects as alternative futures for the territory, such as losing engagement and involvement. To support the participants overcome these challenges we incorporate playfulness into the some of the Geodesign workshop phases enhancing geovisualization, collaboration and cognition.

Keywords: Geodesign; Geogames; Geovisualization; Participatory Planning; Children's Design.

Introduction

This article tackles recent discussions about the application of instruments and logics of videogames towards architecture and urbanism studies. The double thematic is Participatory Planning & Geodesign, which in the state of the art deals with the use of tools of Geographic Information Systems (GIS) (Moura, 2014) for modeling and simulating urban scenarios, and its correlation with advanced studies in Smart and Digital Communities (Banerjee and Fischer-Schreiber, 2015). This articulation of knowledge creates an opportunity for innovation in the research of methods, techniques and instruments aimed at participatory democracy in territorial planning (Paba et al., 2009).

The problem identified is related to the construction of maps and systems to run a Geodesign workshop by the technical team, but mainly the difficulties in user-computer interaction, such as the loss of engagement in certain phases of the workshop activities. Geodesign (Steinitz, 2016) is an example of a participatory design methodology directed to projecting alternative futures for the territory, using the online platform Geodesign Hub as a facilitator tool to the process. Zyngier (2016) argues in favor of Rowe and Frewer (2004, p. 548) with respect to the “what works best when” theory, in which the typologies and techniques most appropriated for public participation must be hybrid, covering also traditional methods. Therefore, this research proposes to tackle the problematic related to the difficulties faced by the participants in the Geodesign workshop, which, although it already presents a hybridization of participation techniques, there is a gap to

propose gamification dynamics to face the loss of engagement in certain phases of the workshop.

The goal is to develop a method associating game technologies to Geodesign for application in urban scenarios. Therefore, a Methodological Guide is presented with the intention of incorporating ludic elements of gamification to the Geodesign workshop, through the application of the digital game Minecraft, with the participation of children between 09 and 13 years of a public school in the town of Tirol, in Brazil. It also presents “Unity” (Goldstone, 2009) as a tool for the reconstruction of the block-by-block co-design logic used in the aforementioned game, to dialog to the proposition of this gamification of geodesign research. This critical reflection of the Geodesign workshop towards gamification, refers to the incorporation of theories and practices such as engagement and fun (Poplin, 2012), geovisualization (Andrienko et al, 2007, Andrienko et al, 2011, MacEachren, 2004), and geogames (Schlieder, 2014; Schlieder et al 2005).

Regarding the challenges of the participatory Geodesign dynamics that this research intends to face, the focus is on the difficulties faced by the users (Front-end) during the workshops, which are related to 1) reading, visualizing and working with georeferenced data, maps, systems and models in the online platform; 2) interaction and consensus with other users/groups, and 3) timing control of the process of understanding and handling data and designing diagrams/projects. The methodological procedure for modeling the Minecraft geogame as a tool to gamify Geodesign, in order to face the three challenges described above, is structured and adapted from the Design Games

phase and the Design Models of the multidisciplinary Design Thinking (mDT) (Tellioglu, 2016a; 2016b), whose centrality is involvement of users in all phases of the design process to support creativity in design and relevance of the artifact-in-design. The evaluation of the mechanical performance of the geogames will be developed according to heuristic criteria based on Schlieder (2004) and Ahlqvist et al. (2014), and participatory the performance evaluation will be developed according to Participatory Cube criteria (Poplin et al, 2013).

3 G's: Geodesign, Geovisualization and Geogames

The Geodesign framework (Steinitz, 2016) proposes a collaborative design of alternative futures by maximization of consensus, in successive groupings among diverse actors of society (Figure 1). It is a spinal structure based on six questions that originates six models, in which the first three refer to the Evaluation phase, and the last three to Intervention, allowing non-linear loops and specific approaches. This article focuses on the first phase of Evaluation, as a study to prepare public participation for the Geodesign workshop. In fact, the framework is a methodological process for the co-design of a territory with support of geotechnology, in order to understand potentials and impacts of the designs, in a way to be an incessant review and improvement process.

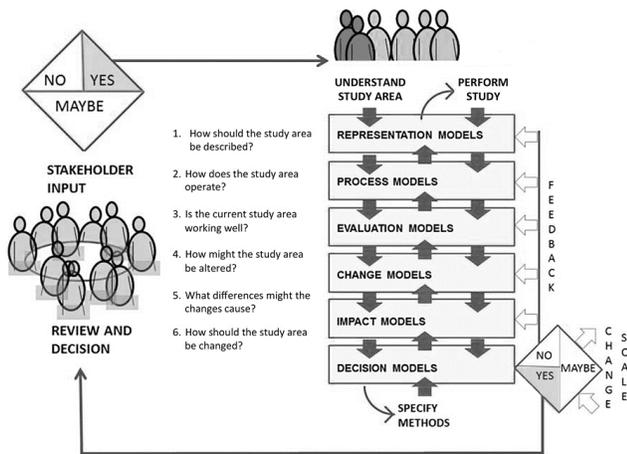


Figure 1: The framework of Geodesign (Steinitz, 2016, p.52)

The Geodesign Hub, an online platform for collaborative diagrams, is imbued with geo-visualization elements. According to MacEchren (2004), there are four major geo-visualization goals: visualization to decode volume and complexity of information, towards a visual representation of knowledge; 2) Universal access and usability, towards extending the view to diverse platforms; 3) acquisition of information on mobile devices, access and use, including visualization design for small and portable wireless; and 4) collaborative work with geospatial information (including attention to the role of visual display as mediator for groups discussion on different territories). One of the main challenges identified by MacEachren (2004) is related to the practical use of geo-visualization, in terms of the difficulty of manipulating software, mainly by non-specialist users. Andrienko et al.

(2011) defend the term Geo-Visual Analysis as new approaches to solve contemporary problematic involving geographic space and its objects, events, phenomena and processes. The articulation of the three keywords geographic information sciences, cartography and geo-visualization, is the path to the confrontation of the space-time relationship and the usability of users in the creation of cognitive subsidies to planning the territory.

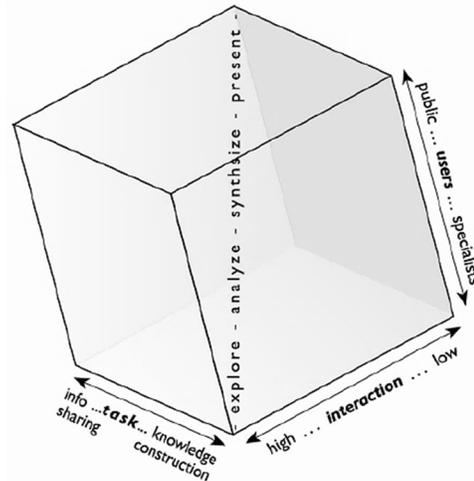


Figure 2: The four functions of visualization (MacEachren, 2004, p.01)

In addition, Geogame is a method and instrument with a focus on the virtual and / or physical exploration of the territory, based on geodata, for the incorporation of elements of fun, intuition, and engagement in tackling the problematic of playful, narrative and performative co-design (Schlieder, 2014). According to Schlieder (2005, p.168), not all games that encompass location are considered geogames, and, more important, if the game does not satisfy a binomial space-time relationship, which is prized in geo-visualization studies, it is also not a geogame.

In sum, it is proposed to articulate Geodesign, Geovisualization and Geogames applied to territorial planning, in order to provide citizens who participate in the process of knowledge construction and spatial awareness through geovisualization and interaction with data and dynamic maps. The central idea of the is the 3 G's is to develop intuitive perception through the exploration and manipulation of geo-visual data, and apply a multicriteria analysis with the production of several possible scenarios for the project intervention. Table 1 presents the articulation between the 3 G's, focusing on the first three Geodesign models, which refers to the preparation of the public participation for the Geodesign workshop, and are the basis for structuring the Geodesign Gamification Methodological Roadmap in the next item.

Table 1: 3G's: Geodesign, Geovisualization and Geogames

Geodesign	Geovisualização	Geogames
Representation	Inform	Preparatory Games
Process	Explore	Exploratory Games
Evaluation	Analyze	Evaluation Games

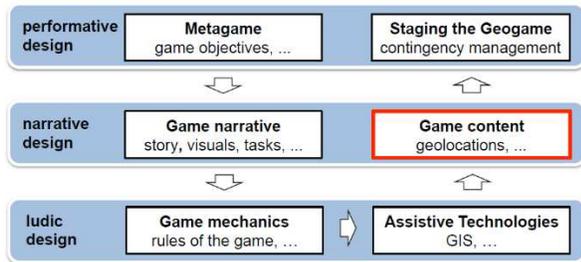


Figure 6: Process of a geogame design (Schlieder, 2014)

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