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Exomatriz: A fabulative simulation game about land, culture, resources and beetles

Keywords: agroecosystem, serious games, simulation, agent model, agriculture, ecology, traditional, cultural, narrative, education, fabulation

Research Question: How can narrative-fabulation design, and game design, contribute to an understanding of agent dynamics within agroecosystem matrices in the context of traditional food production in Mexico?

Hypothesis: The discipline of Narrative Design in games can be expanded to encompass a fabulative world-building approach to soft-fantasy ‘serious games’ with an educational aim. And can aid in the dissemination of scientific knowledge of agro-ecological systems known as ‘matrices’ in a cultural context of traditional farming practices in Mexico.

Research-narrative statement: Growing populations, urbanized development and industrial farming models encroach on traditional agricultural practices in the municipality of Zaachila (Oaxaca, Mexico). Both the avoidance of food shortages, and the preservation of the biodiversity that we depend on for survival are crucial objectives of our age. Researchers have found that the presence and behavior of beetle populations (Coleoptera) in agroecosystems is a good indicator of ‘matrix health’ across both of those domains of concern.

Exomatriz is a top-down 2D simulation type game with soft-fantasy narrative elements that bridges the gap between science communication of how systems of variables in agroecosystems function, and the socio-cultural implications of human choice and non-human agency in an allegorical fabulative fictional setting.

Significance, context, knowledge contribution brought by the project:

Computational models of agent dynamics are often employed in the field of agroecology to destrate complex interactions and make scientific predictions about the influence of human action on the landscape. Furthermore, simplified models with a focused number of variables and in isolated contexts for pedagogical purposes, using data visualization software aimed at scientific research such as the platform NetLogo employed by Luis G. in their ongoing workshops (de la Fuente Ramirez , 12). and the more complex model created by Lorena Castro to illustrate the agroecological dynamics of the municipality of Zachila in Oaxaca, Mexico (Castro Campero, 15).

Exomatriz is meant to exist as an extension of the pedagogical purpose of the traditional computational models used in the field of agroecology to also encompass a wider scope of audience resonance. That is, to employ the tools of Narrative Design and Game Design in conjunction with field research observation and data to enable a ‘collaborative world building’ approach to art-science interactive narrative experiences.

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Detailed description of the projects (possible outcomes, what is aimed, etc...)
The aim of this research creation project is to explore the dynamic game production process in an art-science context and produce a working prototype of a simulation-type game based on the agroecological matrix modeling results of Lorena Castro's research project in Zaachila.

Describe your methodology (what you are going to mobilize to make your project, this can comprise the tools, the calendar, the steps, the back and forth with itterature etc...)
The art production methods employed in this project combine iterative game design techniques and collaborative world building emergent from the interplay of a variety of digital interactive design disciplines as described by Katlin Tremblay in Collaborative Worldbuilding For Videogames.

- Using the Unity game engine for iterative prototyping.
    - Data Oriented and Object Oriented design techniques.
    - Entity behavior descriptions and data flow charts.
    - Communication with ecologysts involved in the project, playtesting and ideation/ design evaluation workshops thugout development.
- Employing 2d vector graphics with a stylistic focus on abstract iconography rather than realistic representation of the landscape.
- Fictionalized setting, fabulation design as an extension of Narrative Design.
    - Chapter based gameplay objectives.
    - Significant choices.

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