

VAFUG: A Model for Designing Educational Activities Grounded in Game Studies and Aesthetics

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Abstract: This paper introduces VAFUG, a model for designing learning activities that draw on the expressive and affective dimensions of commercial video games. Developed through a Design-Based Research process (DBR), VAFUG offers a set of indicators organized into three analytical components —Visual and Auditory Environment, Fictional Universe, and Core Gameplay— that guide educators through a descriptive phase and a subsequent process of identifying relevant educational questions. The model aims to support the design of dialogical activities that are both sensitive to the emotional and symbolic depth of games and adaptable to diverse classroom settings. This first design cycle covers the initial DBR phases, namely: 1) analysis of practical problems (the lack of analytical models available to educators for examining video games and designing meaningful educational activities); 2) development of solutions (our proposed model, influenced by both Game Studies and Aesthetics); and 3) testing and refinement (through an application of the model to the game *Neva* (Nomada Studio, 2024), a visually and emotionally rich indie title). The application enabled a preliminary validation of the model’s descriptive and heuristic dimensions and allowed for the formulation of early design principles to guide future educational interventions. Preliminary results suggest that VAFUG can facilitate a more deliberate and context-aware incorporation of video games into educational contexts, particularly in relation to civic and socioemotional competences. Moreover, the model encourages a form of pedagogical engagement that recognizes the cultural, artistic, and affective potential of video games as meaningful learning objects. In this sense, VAFUG also contributes to the broader dialogue on how Game Studies and Aesthetics can inform educational innovation.

Keywords: Video games, Education, Game studies, Art, Design-Based research

1. Introduction

This paper presents the design and initial testing of VAFUG, an acronym derived from the three proposed categories: Visual and Auditory Environment, Fictional Universe, and Core Gameplay). VAFUG is a practical analytical model developed through Design-Based Research (DBR), aimed at helping educators critically examine commercial video games and create meaningful educational activities.

Video games offer significant potential to create learning opportunities. Pedagogical efforts have delved into the design of serious games specifically focused on providing valuable educational outcomes. On the other hand, there is a comparatively limited body of research on the educational application of Commercial Off-the-Shelf Games (COTS). As noted in the literature review by Oceja *et al.*, there is a “historical lack of research focusing on these games in comparison with educational games” (2022: 420). The aim of this research is to provide a tool to support educators in evaluating independent commercial video games for use in their pedagogical strategies.

Previous research has focused on establishing connections between the enjoyment and engagement of serious games and the achievement of valuable educational outcomes. One notable example is the LM-GM model developed by Arnab *et al.* Their tool focuses on serious games, identifying numerous learning-relevant mechanics as well as general video game features. Its aim is to identify Serious Game Mechanics, that is, “the game components that translate a pedagogical practice/pattern into concrete game mechanics directly perceivable by a player’s actions” (Arnab *et al.*, 2015: 6). Our model can be considered a complementary work to this tool for two main reasons. First, we explore independent commercial video games that are not necessarily designed for educational use. In addition, we focus on video game components that support the development of Key Competences 5 (Personal, Social and Learning to Learn Competence) and 6 (Citizenship Competence).

VAFUG is also influenced by previous approaches to game analysis synthesized by Kłosiński’s (2022), and stems from theories developed within Game Studies and Aesthetics. For instance, Fernández-Vara’s (2015) textual analysis includes a substantial discussion of the formal elements that structure video games, distinguishing between the rules governing ludic design and the fictional world as related but separate dimensions—a distinction also found in other frameworks (Juul, 2005; Mäyrä, 2008; Navarro-Remesal, 2016). Proceduralist research has also shaped our model. Following Ian Bogost, procedures are, in general terms, “entrenched ways of doing things” (2007: 3). Playing a video game involves using the procedures established by the developers to

“explore the possibility space its rules afford by manipulating the game’s controls” (43). In our proposal, we use a broad concept of the aesthetic qualities of a video game and consider that the “ways of doing things” during gameplay shape emotional experience—for example, the possibility of controlling two characters in the world of ICO (Team ICO, 2001). Recent work also treats specific features of video games, such as difficulty systems (Terrasa, 2021) repetition (Tosca, 2023), and waiting (Lozano, 2022), as aesthetic components, expanding reception studies into domains unique or distinctive to video games. This expanded view is also echoed in the MDA framework (Hunicke *et al.*, 2004), which connects developers’ creative intent with the player’s experience, structured around several aesthetic perceptions. For his part, Pérez Latorre *et al.* (2017) combine proceduralist and semiotic approaches to develop a vocabulary of “semiotic resources” for game analysis. This vocabulary, which operates on multiple levels, also contributes to our model as it may help teachers to propose meaningful conversations.

Thus, the model has two objectives: (1) to assist teachers— who frequently are not specialists in Game Studies—in analyzing video games with rigor and depth; and (2) to create sets of questions that foster meaningful conversations with their students.

Central to this project is bridging theoretical depth and practical applicability. Rather than offering educators abstract analytical tools, the model encourages teachers to create their own questions and activities, particularly for leveraging the emotional and aesthetic potential of video games. This approach is informed not only by the aforementioned theoretical approaches but also by the authors’ prior experience in designing classroom activities, especially focused on socioemotional and civic competences through projects such as *Playing Emotions* (<https://www.educacionresponsable.org/recursos/playing-emotions/>), *Ecoindie* (<https://ecoindiegames.upf.edu/>) and, currently being implemented, *PLAYCOMP* (<https://playcomp.es/>).

This proposal represents the first design cycle within a DBR process, namely 1) analysis of practical problems (lack of analytical models available to educators for examining video games and designing meaningful educational activities), 2) development of solutions (our proposed model which is influenced both by analysis models from game studies and aesthetics), and 3) testing and refinement (through and application of the model to the game *Neva* (Nomada Studio, 2024).

Although the project remains ongoing, initial findings suggest the model is effective, adaptable, and valuable for educators seeking to rigorously and creatively integrate commercial video games into their teaching practices.

2. Methods

Rooted in the principles of DBR, the development of this model follows an iterative process to generate actionable design principles and improve educational practice (Hoadley & Campos, 2022; McKenney & Reeves, 2018).

According to McKenney and Reeves, DBR consists of four iterative phases. First, analyzing practical problems, which involves identifying an educational challenge based on prior research and collaboration with stakeholders. Second, developing theory-informed solutions, including models, frameworks, or tools to address the problem. Third, iteratively evaluating and refining the solution through implementation and empirical feedback. Finally, producing design principles to inform future innovations. Currently, we have completed the first three phases, and the model still needs to be implemented and evaluated in real settings before generating design principles and beginning a new cycle.

The following lines summarize the steps taken to create the initial version of the model and to test it with the video game *Neva*:

- *Problem definition.* Lack of analytical models available to educators for examining video games and designing meaningful educational activities. Teachers need support to critically integrate commercial video games into the classroom, addressing the gap between academic theory and teaching practice.
- *Development of theoretically informed solutions.* The model structures the analysis of video games into three components (audiovisual, fictional, and procedural), drawing on established Game Studies frameworks and Aesthetics.
- *Evaluation and testing of the model.* The research team is currently discussing the model’s suitability and testing it through the analysis of selected video games. It will next be implemented in educational settings to gather teacher feedback.
- *Design principles.* Insights from researchers and teachers will be used to generate design principles, guiding further refinements and initiating the next DBR cycle.

3. Results

3.1 General Model

The model presents three components (visual and auditory environment, fictional universe, and core gameplay) and two indicators for each. First, we want teachers to reflect on each of the components, describing how it applies to a particular game; then, the aim is to help them design questions and activities to work with their students.

We provide the following indicators as suggestions to help educators focus the design of learning activities:

- **Artistic Style:** aesthetic features that define the visual and audio composition of the game. Examples: the cartoon-style imitation in *Cuphead* (Studio MDHR, 2017); HD-2D graphics resembling a diorama in *Octopath Traveler* (Square Enix/Acquire, 2018); the dynamic soundscape of *Hellblade: Senua's Sacrifice* (Ninja Theory, 2017), which uses binaural audio and inner voices to convey the protagonist's psychosis and intensify the player's emotional immersion.
- **Symbolic Elements / Allegorical Motifs:** objects, characters, or props that play a prominent expressive role and can be associated with special symbolic meanings. Examples: Bowser's castle at the end of *Super Mario Bros.* (Nintendo, 1985) levels, or the mountain that marks the path in *Journey* (Thatgamecompany, 2012).
- **Narrative World:** fictional elements that give depth and internal coherence to the game's universe, such as the background lore in RPG-style video games.
- **Plot:** the sequence of events emerging from the narrative world in which the player takes an active part, and which result in significant changes to the game's fictional consistency. Example: the adventures of Link in the *Legend of Zelda* franchise (Nintendo, 1986–present).
- **Procedural Mechanics:** gameplay characteristics that shape the player's experience. Examples: in *Papers, Please* (3909 LCC, 2013), the daily addition of arbitrary rules intensifies the player's sense of stress or frustration; in *Braid* (Number None, 2008), the ability to rewind time to undo actions reconfigures the flow of gameplay.
- **Platform-Related Features:** limitations of the platform on which the game is played. Examples: hardware or engine constraints—such as the fog used in the first *Silent Hill* (Konami, 1999); differences when playing on mobile, handheld, or desktop systems; use of peripherals.

This model provides a structured two-step method for designing educational activities. First, the suggested indicators should be described to single out those expressive elements in a particular video game. The aim is not necessarily to provide an exhaustive description of each indicator (for instance, one might question whether a game like Tetris has a plot), but rather to focus attention on layers of meaning related to the game's aesthetic and emotional impact and to explore their potential educational relevance and applications. The content generated during that stage can be then used to formulate guiding questions to promote dialogical learnings.

3.2 Application to *Neva*

The following table shows the application of the model to *Neva*.

Table 1: VAFUG Model applied to *Neva*

	Visual and Auditory Environment	
Indicator	Artistic Style	Symbolic Elements/ Allegorical motifs
Description	A highly expressive artistic proposal that employs a combination of visual and auditory elements to create an emotionally engaging environment. The hand-drawn, watercolor-style settings are meticulous in their depiction of natural landscapes, conveying a strong sense of atmosphere. Fluid animations enhance the visual experience. The soundtrack is seamlessly integrated into the game's atmosphere, contributing to the pacing and emphasizing both dramatic tension and the overcoming of challenges.	The relationship between Alma and Neva (and later Bruma) symbolizes growth and the overcoming of obstacles through mutual care and resilience. It serves as a metaphor for the destruction of nature and its potential for regeneration.
Guiding Questions for teachers/students debates	How do the visuals and music work together to create an emotional atmosphere? In what ways do color and sound help	What do you think Neva represents for Alma? Do you find any similarities between Neva's story and your own personal

	Fictional Universe	
Indicator	Storyworld	Storyline
Description	The settings are primarily focused on natural environments, though they feature decayed architectural elements that may conceal mechanisms essential for progression. Dark, shadowy tones are used to symbolize malevolent forces and the degradation of the natural world. Upon defeating opponents, the landscape regains its lost color, symbolizing life and hope. This contrast is employed to emphasize the tension between destruction and vitality.	The story follows the journey of a young woman, Alma, after the death of a companion—a wolf-like creature—whose cub, Neva, she must adopt. The narrative unfolds without dialogue, focusing on the emotional growth and development of the characters as they cope with loss and navigate a world in constant decline.
Guiding Questions for teachers/students debates	How do the game's environments reflect the characters' emotional states? Can you identify any parallels between the world depicted in the game and current environmental issues?	What decisions does the protagonist make that demonstrate personal growth? How does the relationship between Alma and Neva evolve throughout the story? Is there a moment in the narrative that made you reflect on your own emotions?

	Core Gameplay	
Indicator	Procedural Mechanics	Hardware Constraints
Description	2D platforming environment. Fluid character movement. Simple mechanics. Progression requires solving puzzles or overcoming obstacles. Players must manage the secondary character (Neva) to overcome certain challenges. The challenges presented may include the completion of combat sequences.	Its graphic style requires substantial processing capacity to maintain visual fluidity and sharpness. However, its artistic design allows it to adapt to different resolutions without losing its expressive quality.
Guiding Questions for teachers/students debates	How did it make you feel to have to care for and collaborate with another character in order to progress? What personal skills do you think are engaged through these game mechanics?	Why is visual sharpness important in a game like Neva, and how does the artistic style help maintain expressiveness even at different resolutions?

4. Discussion and Conclusions

The preliminary testing of the VAFUG model demonstrates its potential as a bridge between analytical frameworks in Game Studies and Aesthetics and the practical demands of educational design. By proposing a model based in the visual and auditory environment, the fictional universe and the core gameplay, it enables educators to generate meaningful questions for critically reflecting on games. This dual emphasis—on theoretical richness and classroom feasibility—responds to a longstanding gap in game-based learning. The use of *Neva* as a test case seems to indicate the model's adaptability for designing activities aligned with socioemotional and civic competences.

The model should be considered a foundational prototype. While the first phases indicate promise, future cycles of implementation in diverse educational contexts are essential to validate its robustness. The model's success hinges on its capacity to evolve through sustained collaboration with educators and students, generating insights that will refine both the analytical framework and its pedagogical applications. In this regard, the VAFUG model not only contributes to the design of educational activities but also proposes a methodological pathway for integrating Game Studies and Aesthetics into the broader discourse of educational innovation.

Acknowledgements

Grant PID2023-148476OA-I00 funded by MICIU/AEI /10.13039/501100011033 and ERDF/EU.

Ethics declaration: This research did not involve human participants or sensitive data and therefore did not require ethical clearance.

Disclosure of AI involvement: The authors used GPT-4o (OpenAI) to support the translation of portions of the manuscript from Spanish to English. All translated content was reviewed, edited and approved by the authors.

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