

Embodied Cycles: Procedural Reincarnation and Existential Narrative in Immersive VR

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Abstract

How do the circumstances of birth shape the outcomes of effort, and can such existential inequalities be felt rather than merely understood? This practice-based research presents an immersive VR experience translating philosophical reflection on life into embodied interaction. Using Meta Quest 3 hand-tracking, users traverse a boundless oceanic abyss through swimming gestures: ascent demands continuous exertion, while inaction yields gravitational descent—a procedural metaphor in which upward movement embodies perseverance and sinking represents surrender. The ten-minute experience maps onto a human lifespan, with audiovisual feedback responding to users' choices—luminous environments reward sustained effort, while desaturated darkness accompanies decline. Central to the work is a reincarnation system in which one's ending determines the next cycle's starting conditions: a triumphant conclusion initiates an “easier” life with reduced resistance, whereas a descending end produces a “harder” existence requiring greater effort for equivalent progress, rendering systemic inequality tangible. The work positions VR not merely as a visual medium but as a site where meaning emerges through bodily engagement and algorithmic consequence. By embedding existential metaphors within interaction mechanics, environmental narrative, and cyclical structure, this project examines how procedural systems can articulate philosophical propositions through felt experience, inviting users to discover personal meaning through embodied choice.

Keywords: virtual reality, embodied interaction, interactive narrative, consequential design, meaning-making

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Introduction

Within the contemporary social context, the objective conditions and subjective agency of individuals constitute the core tension of modern existence. The prevailing value system broadly presupposes that personal diligence and industrious effort serve as a reliable guarantee for transcending class boundaries and achieving one's aspirations. However, empirical reality reveals that the trajectory of individual life development is not determined solely by personal will and effort, but is profoundly constrained by the social structures and distributions of capital within which individuals are embedded. Sociologist Pierre Bourdieu argues that differential social positions and configurations of capital shape the range of possibilities available to individuals, thereby delimiting, to a considerable degree, the extent to which effort can be translated into tangible outcomes (Bourdieu, 2018). Against this backdrop, a critical question emerges: how do individuals continuously recalibrate their behavior in response to uncontrollable external constraints?

Grounded in this inquiry, the present study employs the virtual reality work *Embodied Cycles* as its primary site of practice. In contrast to the unidirectional spectatorship characteristic of conventional media, the conceptual design of this work requires participants to engage in corporeal performance and interact with the algorithmic logic embedded within the system. Through this engagement, existential propositions — including structural constraints akin to the boundaries of fate and the limits of human effort — are rendered tangible at both the physiological and perceptual levels. The bodily labor enacted in resistance to the coercive force of the system simultaneously constitutes an exercise of somatic agency, serving as an essential condition through which participants forge a substantive connection with the work itself.

Literature Review

Labor and Spatial Metaphor Under Algorithmic Mechanisms

In contemporary digital interactive environments, the underlying algorithms of a system directly determine the correspondence between user behavior and environmental feedback. The interactive mechanisms operating within virtual space are, in essence, a rule-based system constructed through programmatic parameters that strictly govern how physical bodily operations are translated into concrete changes within the digital environment (Zhou, 2026). When algorithms deeply intervene in the rules of generation, code acquires a decisive influence over spatial dynamics and the distribution of numerical values. User bodily input is no longer a straightforward hardware trigger, but rather a process of continuous submission to and adaptation within system logic. The increased physical output demanded in response to programmatic variables — such as forced descent mechanisms — is, in substantive terms, transformed into a form of embodied labor profoundly conditioned by systemic constraints. The experiential dimension generated through bodily action renders the understanding of labor in digital interaction no longer confined to purely cognitive computation, but simultaneously implicates a bidirectional mechanism of influence between the body and its environment.

As the French philosopher Merleau-Ponty (1945/2013) argued in his phenomenological framework, the body constitutes the fundamental medium through which the subject comprehends the world, with human perception and the construction of meaning both grounded in bodily experience. Extending this perspective, Francisco Varela, Evan Thompson, and Eleanor Rosch (2017) advanced the theory of embodied cognition, positing that cognition does not occur solely within the brain, but rather emerges from an inseparable system in which mind,

body, and environment are mutually intertwined. In other words, an individual's comprehension of and response to the digital world is fundamentally shaped by their bodily experience and perceptual structure.

Within the context of virtual reality, this perspective has been further developed into the concept of “embodied interaction,” which holds that bodily movement is not merely a technical operation, but also a critical pathway through which users understand and respond to the system (Dourish, 2001). However, when an algorithm deliberately distorts the correspondence between action and feedback, profound perceptual conflict ensues. According to Cavedon-Taylor (2021), human spatial experience relies deeply upon the dynamic interrelation between bodily movement and visual experience — that is, the anticipatory structure of the sensorimotor system with respect to environmental feedback. When this naturally occurring sensorimotor expectation is deliberately disrupted or dismantled by algorithms within digital space, users are compelled to substantially increase their physical output in order to maintain their existing equilibrium. At this threshold, the system mechanism effectively strips participants of their sense of control, and the excessive labor expended in the effort to sustain one's state is, through the heightened sense of embodiment afforded by virtual reality, directly translated into intense physical and psychological experience.

As a further extension of this discussion, the embodied labor involved in resisting systemic constraints is deeply grounded in universally shared image schemata. The spatial metaphor theory of Lakoff and Johnson (1999) demonstrates that abstract human thought is fundamentally derived from spatially oriented bodily experience: “upward” universally connotes positivity, vitality, and agency, while “downward” implies negativity, loss of control, and powerlessness. When these cognitively embedded spatial metaphors are transposed into the interactive design of digital environments, the vertical axis of virtual space gradually assumes symbolic significance with respect to changes in status and degrees of control, rather than functioning as a mere physical coordinate. As the system continuously introduces downward variables through algorithmic means, the user's sense of control within the interaction becomes increasingly constrained, and the additional bodily operations required to maintain elevation are progressively transformed into a form of embodied action that perpetually responds to systemic mechanisms.

Procedural Rhetoric and Interactive Narrative

The term *procedural rhetoric* was introduced by Ian Bogost (2007) in his work *Persuasive Games*. This concept proposes that digital media are capable of expressing perspectives and constructing meaning through the operation of rules and procedures, rather than relying solely on text, imagery, or conventional narrative forms. The persuasive force of procedural rhetoric derives from the fact that participants must engage in actual practice to comprehend the perspective expressed through the system's rules; as users take action and confront the consequences of their choices during the interactive process, their understanding of the argument is grounded in first-person experience (Bogost, 2007). Within this framework, procedural mechanisms constitute a system design underpinned by algorithmic computation, shaping the conditions of action and feedback outcomes available to users within digital space through dynamically generated environmental variables and interactive rules. The distinctive capacity of digital media lies in its ability to construct discourse and convey meaning through “rules” and “computational processes,” rather than relying solely on visual representation or textual narrative — a development that resonates with the ontological turn in contemporary

visual rhetoric, wherein the core of digital imagery has shifted from traditional symbolic form to the underlying data structures and software logic that drive it (Chiu, 2014).

Furthermore, the critical potential of procedural rhetoric is not merely manifest in the empowerment of participants, but is more frequently expressed through the “restriction of agency” or the “construction of futile behavioral loops,” as metaphors for the irresistible structural oppression encountered in the real world. When a system is deliberately designed around a computational logic that renders effort and reward fundamentally asymmetrical, the sense of futility itself becomes a powerfully persuasive procedural argument. When computational rules serve as the medium of meaning-making, interactive narrative accordingly constitutes the experiential domain in which procedural rhetoric finds its practical realization.

Janet H. Murray (2017), in *Hamlet on the Holodeck*, identifies new possibilities that digital media bring to narrative form. Three concepts — “agency,” “immersion,” and “transformation” — are regarded as the key aesthetic dimensions constituting interactive narrative experience. “Agency” confers upon users the capacity to take meaningful action and to personally experience its consequences; “immersion” constructs a sensory and psychological sense of presence; and “transformation” implies that users are capable of achieving cognitive transformation and the reconstruction of meaning through the course of interaction. Accordingly, when highly constraining procedural mechanisms intervene in the interactive structure, what was originally conceived as an empowering interactive experience may undergo a fundamental shift: “agency” is compressed under the influence of algorithmic logic, confining users' actions to operations aimed at sustaining system states; “immersion” is likewise transformed from sensory engagement into an experience that amplifies anxiety and the sense of losing control; and “transformation” no longer points straightforwardly toward the active exploration of meaning, but becomes a process of continuous adjustment and adaptation within the parameters imposed by system rules.

Within digital interactive environments, the exercise of power frequently does not manifest in the form of explicit prohibitions or commands, but is instead embedded within the rules of system architecture and algorithmic operation (Galloway, 2004). Alexander Galloway (2004) argues that control within digital networks is achieved not through coercive directives, but through protocol — that is, through the ensemble of rules governing system operation — allowing power to permeate digital space in a form that is decentralized yet ubiquitous. Once system mechanisms are configured as irreversible procedural variables, the algorithm comes to govern the operation of rules within that interactive environment. Under such conditions, the actions and choices available to users must be carried out within the predetermined parameters of the system, and their agency is correspondingly curtailed. Consequently, when the environmental laws of virtual reality are no longer a static backdrop, but continuously evolve in accordance with temporal progression and interactive data, the procedural operation of the system assumes an increasingly dominant role within digital space. In other words, within highly autonomous procedural mechanisms, algorithms not only influence environmental change, but also determine to a considerable extent the physical rules and distribution of numerical values within virtual space, thereby constituting a structurally asymmetrical relationship between users and the system.

Methodology

Creative Concept

The present study takes the virtual reality work *Embodied Cycles* as its site of creative practice. The conceptual foundation of this work originates from a critical observation of the existential conditions characterizing contemporary society. The work employs the oceanic abyss as a central metaphor, symbolizing the invisible yet persistently operative forces of structural power. Participants are situated within an unbounded vertical virtual space, in which they must continuously perform upward and downward swimming gestures with their arms in order to maintain their altitude. Concurrently, the system's algorithmic mechanism imposes a compulsory descent logic, compelling participants to perpetually resist the system's procedural pressure through sustained physical output. Through this design, sociological observations and critique are concretely translated into an immersive virtual reality experience.

Grounded in the aforementioned creative concept, this study adopts a practice-based research methodology. Specifically, the design intent of this work is to critically reflect upon and deconstruct the singular narrative that treats “effort as an inevitable guarantor of success.” To this end, the system establishes three difficulty modes — Easy, Normal, and Hard — each configured with distinct physical parameters to simulate the differential impact that varying conditions of action may exert upon outcomes. In the Easy mode, users require relatively few arm movements to ascend, and the rate of environmental descent is comparatively slow. In the Hard mode, by contrast, even substantial increases in physical output yield only marginal upward movement, while the rate of descent is markedly accelerated. Through this tripartite parametric differentiation, the work transforms the inequity of action conditions into a perceptible interactive mechanism, responding to Bogost's conception of procedural rhetoric. In doing so, it enables participants to experientially apprehend the structural disparities embedded within the system's rules through first-person embodied labor — through the actual process of operation and its resultant feedback — rather than arriving at such understanding through purely conceptual cognition.

System Architecture and Procedural Rhetoric Design

This study employs Unity as its development engine. The design of the system architecture is not oriented primarily toward achieving visual realism, but rather toward the construction of interactive rules and computational mechanisms as the means of realizing the concept of procedural rhetoric as proposed by Ian Bogost (2007).

At the level of spatial construction, the work employs an unbounded deep-sea vertical environment as its primary spatial domain. Horizontal spatial references are deliberately eliminated, rendering the vertical axis the sole directional dimension perceptible to participants, thereby intensifying the symbolic tension between “upward” and “downward.” In terms of algorithmic design, the system embeds an invisible yet continuously operative “downward sinking force,” constituting an incessant structural pressure. Should participants cease physical output, they will begin to descend steadily after only a few seconds of inactivity, compelling them to maintain uninterrupted bodily labor in order to resist the system's logic. Within the framework of procedural rhetoric, the physical simulation of forced descent operates as a form of what Galloway (2004) designates as “algorithmic power,” metaphorically evoking the inescapable pressure of class descent embedded within social structures. By exerting influence over environmental states through continuously computed rule mechanisms, the system

requires participants to engage in persistent bodily operations to sustain their position — a condition that corresponds to the social structural situation in which individuals must continually invest effort simply to maintain their existing circumstances.

In order to engage critically with the reality of a profound asymmetry between effort and reward, and to challenge the myth that individual effort can readily overcome class constraints, the system establishes three distinct physical parameter configurations — Easy, Normal, and Hard. Each mode adjusts the parametric relationship between “labor conversion rate (upward thrust)” and “structural gravity (sinking force),” such that participants encounter differentiated conditions of interaction throughout the experience:

1. **Easy Mode:** The system assigns a higher upward thrust multiplier and reduces the baseline sinking force. Participants readily experience a sense of efficacy akin to “reaping what one sows,” metaphorically representing a state of advantageous social capital.
2. **Normal Mode:** Thrust and sinking force are held in a state of tension, requiring participants to maintain a consistent frequency of physical output in order to resist the system's default tendency to pull them toward the abyss — reflecting the normative condition of labor for the majority of individuals within social structures.
3. **Hard Mode:** The system substantially diminishes the upward thrust generated by arm movement and raises the sinking force to its maximum level. Under these conditions, even considerable physical exertion yields only negligible upward movement, and participants may be unable to arrest their descent altogether.

Table 1

Specific Parameter Configurations and Metaphorical Correspondences Across Difficulty Modes

Parameter	Easy Mode	Normal Mode	Hard Mode
Gravitational Intensity	Low	Medium	High
Ascent Efficiency	High	Medium	Low
Descent Speed	Slow	Moderate	Fast
Metaphorical Meaning	Privileged family background	Middle-class family background	Disadvantaged family background

Source: Author

The differential conditions of action corresponding to the three parameter configurations respond to Bourdieu's (2018) observation regarding the structural influence of capital accumulation conditions upon the possibilities available to individuals: an individual's social position does not constitute a neutral point of departure, but rather fundamentally determines the scope and ceiling within which effort may be converted into outcomes.

Beyond the spatial and physical dimensions of systemic pressure, the work further aligns the temporal structure of the experience with the arc of the human life course. The total interactive experience is set at approximately ten minutes, with this duration symbolically representing the complete life cycle from birth to old age. The system employs linear temporal progression as its foundational structure, divided into five principal stages: Birth (the initial stage), Childhood, Youth, Middle Age, and Old Age, each lasting approximately two minutes. The system differentiates the visual vocabulary and atmospheric qualities of the environment

according to the participant's current life stage and their present state (ascending or descending), thereby generating a staged perceptual and narrative rhythm. The design of the work's conclusion employs a reincarnation-based evaluation mechanism and initialization for the subsequent life cycle. Rather than measuring effort solely by operational frequency (such as the number of arm strokes), the system calculates an achievement value based on the final altitude maintained by the participant within the vertical space at the conclusion of their experience, which in turn influences the initial difficulty setting of the subsequent cycle.

Interactive Mechanisms and Embodied Experience Design

This work employs hand-tracking technology as its input interface, eliminating the need for participants to hold controllers and allowing their hands to function directly as the bodily medium through which they interact with the system. Participants drive vertical movement within the virtual space by simulating upward and downward swimming strokes, establishing a direct perceptual correspondence between bodily movement and spatial position. The system captures in real time the dynamic frequency and spatial amplitude of participants' arm movements, converting these inputs into upward thrust parameters such that the physical expenditure of bodily effort corresponds directly to displacement within virtual space — constituting the core embodied labor mechanism of the work. This interactive mechanism, which demands continuous physical output, deliberately produces a persistent discrepancy between sensorimotor expectation and system feedback. This constitutes a concrete design-level realization of the perceptual conflict mechanism described by Cavedon-Taylor (2021): the fatigue and loss of control experienced by participants at the physiological level are directly translated, through the heightened embodiment afforded by virtual reality, into a bodily cognition of structural oppression. Within this framework, the “immersion” discussed by Murray (2017) is inverted from its conventional association with sensory engagement and pleasure into an experiential domain that amplifies anxiety and the sense of futility.

Furthermore, in order to simulate the uncontrollable variables inherent in social mobility, the experiential environment of the work incorporates dynamic fluid resistance — that is, sudden structural interference — signifying that the conversion rate of physical output is not constant, but is subject to intervention by the system's state. This further intensifies participants' sense of helplessness in their confrontation with algorithmic power, enabling them, through the perpetual repetition of procedural labor, to deeply apprehend the inescapability of structural oppression as an enduring condition of existence.

Discussion and Future Directions

The present work has, to date, completed foundational immersive scene construction within the Unity engine, including the establishment of a visual language for the deep-sea vertical space and the preliminary integration of the hand-tracking input interface. The algorithmic parameter design of the forced descent mechanism and the numerical configurations of the three difficulty modes remain in a process of continuous iterative development. In accordance with the methodology of practice-based research, adjustments are made throughout the development process through iterative testing and feedback, so as to maintain alignment between the technical implementation and the conceptual propositions that the procedural rhetoric seeks to convey. At the current stage, analysis is conducted primarily on the basis of reflective interpretation generated during the creative process; systematic user experience data have not yet been incorporated, and this constitutes a central dimension to be addressed in subsequent research.

On the whole, the present study has established the core interactive mechanisms, system architecture, and procedural rhetoric logic of the work. Upon the completion of the interactive prototype, this research will adopt a phenomenologically oriented qualitative evaluation methodology, employing semi-structured interviews to gather first-person experiential accounts from participants, with the aim of investigating their embodied perceptual experiences within the virtual reality interaction. The evaluation will concentrate on two principal dimensions of embodied perception. The first concerns whether, across the three difficulty modes, the physical fatigue generated by embodied labor is effectively translated into psychological resonance with structural oppression, thereby producing an experiential understanding of systemic coercion — and in so doing, to verify the practical efficacy of Cavedon-Taylor's (2021) perceptual conflict mechanism at the level of design. The second concerns the narrative internalization of spatial metaphor: specifically, whether participants are able, in the absence of any textual narration, to comprehend the existential conditions and hierarchical implications embedded within the work solely through the sustained spatial displacement of ascent and descent, experienced from a first-person immersive perspective — thereby examining the potential applicability of Lakoff and Johnson's (1999) spatial metaphor theory within the context of immersive interactive design.

Conclusion

The present study employs the virtual reality work *Embodied Cycles: Procedural Rhetoric and Survival Narrative in Immersive VR* as its primary site of practice, integrating Bourdieu's (2018) theory of social structure, Bogost's (2007) framework of procedural rhetoric, and the perspective of embodied cognition to propose a design approach capable of communicating social issues through interactive mechanisms. In doing so, the study seeks to deconstruct the singular narrative that treats effort as an inevitable guarantor of success, and to illuminate the structural constraints that operate beneath the surface of individual action.

At the level of design, the analytical findings of this study demonstrate that through the implementation of a forced descent mechanism and a differentiated physical parameter configuration, algorithmic rules themselves may serve as a discursive medium for critiquing structural inequality within society, enabling participants to perceive, through the course of their interaction, the asymmetrical relationship between effort and reward. The spatial dynamics of ascent and descent within the vertical environment function as a spatialized metaphor for social mobility and class positioning, offering a design methodology through which abstract social structures may be translated into embodied experience. The immersive experience is likewise deliberately constructed as an unstable and constrained interactive situation, inverting what Murray (2017) conceives of as “immersion” into an amplificatory domain of anxiety and futility.

At the theoretical level, the present study responds to and extends the applicability of Bogost's (2007) concept of procedural rhetoric within immersive interactive environments, arguing that the generation of meaning may emerge from the dynamic relationship between bodily action and system rules. The study further affirms the practical viability of embodied cognition theory and spatial metaphor theory within the context of virtual reality interactive design. As an ongoing practice-based research project, future work will employ phenomenological evaluation to further verify the efficacy of the proposed design framework, and to explore both the potential and the limitations of immersive interactive media as an instrument of social critique.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The authors declare that Claude, an AI assistant developed by Anthropic, was used in the writing process to assist with language refinement, structural organization, and translation between Chinese and English. The core creative concepts, design decisions, interaction mechanisms, and research directions are originally conceived by the authors. The AI assistance was limited to improving clarity, coherence, and academic expression of the manuscript.

References

- Bogost, I. (2007). *Persuasive games* (Vol. 5). Cambridge, MA: MIT Press.
- Bourdieu, P. (2018). The forms of capital. In *The sociology of economic life* (pp. 78-92). Routledge.
- Cavedon-Taylor, D. (2021). Sensorimotor expectations and the visual field. *Synthese*, 198(Suppl 17), 3991-4006.
- Chiu, C. Y. (2014). *Shì jué xìng de chāo yuè yǔ yǔ yì de fù fǎng: Shù wèi shí dài shì jué yǔ yì de chū tàn xìng yán jiù* [Beyond the visuality and revisit of rhetoric: A preliminary study on visual rhetoric in the digital age]. *Chinese Journal of Communication Research*, 26, 107-135. <https://doi.org/10.6195/cjcr.2014.26.04>
- Chou, H. C. (2026). *Xū nǐ shí jìng zhōng de dàn gōng fū lùn* [On the praxis of “blandness” in virtual reality] [Doctoral dissertation, National Yang Ming Chiao Tung University]. National Yang Ming Chiao Tung University Institutional Repository. <https://thesis.lib.nycu.edu.tw/items/5587fde8-674c-4ee4-8fa9-62c004adaa6d/full>
- Dourish, P. (2001). *Where the action is: the foundations of embodied interaction*. MIT press.
- Galloway, A. R. (2004). *Protocol: How control exists after decentralization*. MIT Press.
- Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. Basic Books.
- Merleau-Ponty, M., Landes, D., Carman, T., & Lefort, C. (2013). *Phenomenology of perception*. Routledge.
- Schön, D. A. (2017). *The reflective practitioner: How professionals think in action*. Routledge.
- Varela, F. J., Thompson, E., & Rosch, E. (2017). *The embodied mind, revised edition: Cognitive science and human experience*. MIT press.

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