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BEFORE CHOICE: THE VISIBILITY OF EVALUATIVE CRITERIA AND PANOPTIC DISCIPLINE IN CHOICE-BASED GAMES

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ABSTRACT

This study adopts Michel Foucault's panopticism as a theoretical framework to analyze the structural conditions under which choice-based games regulate player judgment. Although visual novels and interactive movie games promise freedom of choice, player choices often converge toward a particular 'correct path.' Whereas previous research has explained this through considerations internal to the player, such as moral identity or reward optimization, this study addresses the system structure that gives rise to such considerations. To this end, it divides the information a game returns to players into two layers: one concerning the outcomes of individual actions, and one concerning the rules by which actions are aggregated and evaluated. In existing games that open both layers, as with status notifications and flowcharts, players are positioned as strategic analysts who exploit disclosed evaluative criteria. This study interprets this not as a failure of the panopticon but as a shift of discipline from the form of surveillance to that of optimization. It then presents 'Butterfly Effect,' a visual novel prototype developed as a contrasting case that inverts the variable of evaluative-criteria visibility. The game informs players of the success or failure of individual judgments while concealing both the hidden 'Suspicion Parameter' in which those judgments accumulate and its evaluative criteria, thereby constructing conditions under which players examine their own decision-making attitudes under an invisible evaluative structure. The study formalizes this process as a four-stage model—architectural setup, mechanism of gaze, psychological internalization, and behavioral outcome—and proposes that the visibility of evaluative criteria is a variable that determines the mode of discipline.

KEYWORDS

Panopticism, Choice-based Games, Interactive Narrative, Feedback Mechanism, Uncertainty in Design

1. INTRODUCTION

Games are a medium through which narratives unfold via player choice. “Choices made during video game gameplay set the stories told in that media apart from other media” (Oliver, 2020). This characteristic is particularly evident in visual novels(hereafter VNs) and interactive movie games, where narrative progression is structured around player choice. Narrative structure in VNs is characterized by overarching ‘branching structures’—the macro-level architecture of divergent narrative paths—as well as discrete structural elements such as endings and individual choice points, which serve as the mechanical nodes through which players interact with and influence the narrative (Camingue et al., 2021). Interactive films have been characterized as a form of digital media that allows audiences to influence the fate of characters and engage interactively during viewing, combining cinematic narrative emphasis with game-like participatory structures (Fang et al., 2020). Visual novels and interactive narrative games can be understood as media that place player choice at the core of interaction, granting players the freedom to determine narrative branches and outcomes.

However, in many choice-based games, this freedom gradually converges toward a restricted form of interaction. As “moral decision-making in the context of video games is often tied directly into the game’s story” (Ferchaud & Oliver, 2019), the engagement and interactivity effects of choice are often attenuated because players perceive a “correct way to play,” frequently assuming that moral decisions are systematically tied to better gameplay rewards (Yin & Xiao, 2022). This phenomenon is empirically supported by Ferchaud and Oliver (2019), whose study revealed that when given a choice, an overwhelming majority of participants opted for the good path, with very few electing to commit immoral actions. This suggests that narrative branching may not always guarantee true autonomy; instead, player behavior tends to be guided by a perceived moral imperative, which can lead them to treat certain choices as incorrect or invalid within the game system.

Choice, therefore, comes to function not as an exploration of experience, but as an object of system learning, through which players infer rules, predict outcomes, and optimize future decisions. Explicit feedback mechanisms encourage players to adjust their behavior according to predefined evaluative criteria. As Whitson (2012) notes, games provide precise real-time feedback that enables players to track progress and determine how to advance, channeling behavior by rewarding actions aligned with system-defined goals while penalizing deviation from them. Kirginas and Gouscos (2018) suggest that the dynamic agency activated by players is inherently dependent on the structural freedom provided by the system, which can often act as a barrier to truly autonomous play. In this way, these systems operate as mechanisms of discipline that regulate the player’s thinking even before a choice is made.

Existing game studies have largely explained this phenomenon through the lenses of morality and meaningfulness (Yin & Xiao, 2022). For instance, Ferchaud and Oliver (2019) found that players’ engagement is deeply tied to their moral identity, noting that an overwhelming majority of players prefer ‘good’ actions to feel more moral and connected to the story. Similarly, studies on ‘morality meters’ suggest that players often rely on visible numerical indicators to make decisions, adopting an instrumental approach to optimize system values rather than engaging in genuine ethical reflection (Ryan et al., 2023). From a more structural perspective, research indicates that game reward systems significantly shape player choices by interacting with other game mechanisms to provide positive player experiences and motivate specific behaviors (Wang & Sun, 2011). Yet such approaches struggle to account for why

players so naturally internalize certain evaluative standards and voluntarily regulate their own behavior within these digital structures. This study revisits the issue from the perspective of power. Whereas existing studies describe what players take into consideration internally, this study addresses the structure of the system that gives rise to such considerations. Accordingly, 'before choice' in this study refers not to temporal precedence but to a structural precedence that defines the possible range of choice.

To this end, the study adopts Michel Foucault's concept of the 'Panopticism' as a theoretical framework for game analysis. The panopticon describes a structure in which the continuous possibility of evaluation leads subjects to regulate themselves. As interpreted by Cho (2021), Foucault's panopticon does not rely on constant observation, but on an asymmetry of visibility through which individuals internalize surveillance and discipline themselves through self-censorship. By applying this concept, this study shifts attention away from the outcomes of choices and toward what players become conscious of prior to choosing.

Throughout this study, the term 'choice-based games' refers specifically to visual novels and interactive movie games—genres in which player decisions directly determine narrative branching and outcomes. While broader terms such as 'games,' 'game systems,' and 'interactive narratives' are occasionally used for theoretical generalization, the analysis and design proposals presented here are grounded in these specific genres.

In particular, the study critically examines how explicit feedback structures—common in visual novels and interactive movies—externalize power and position players as agents of optimization. In contrast, this study theoretically examines a contrasting design condition in which the possibility of evaluation is maintained while the immediate visualization of outcomes is withheld, as exemplified by the game 'Butterfly Effect'. The purpose of this study is to explore the structural conditions that position players prior to their choices, proposing how panoptic theory can be translated into game design to illuminate the complex relationship between freedom and control.

2. THEORETICAL BACKGROUND

2.1 Visual Novels and Interactive Movie Genres

Visual novels and interactive movie games have developed as choice-based narrative genres centered on player decision-making. In these genres, "the player's actions and decisions have an influence on the events of the story, the dialogue of characters, and other factors of the overall gaming experience" (Yin & Xiao, 2022). Narrative progression in these games is facilitated through diverse mechanics beyond simple dialogue choices. These include narrative progression mechanics such as explicit choice through selection or performance, the discovery of fragmented story segments, and the utilization of in-game systems like resource and time management (Carstensdottir et al., 2019). Within such structures, choices demand responsibility and emotional engagement from players, reinforcing the perception that their decisions meaningfully affect the narrative.

However, as Wolf and Perron (2003) point out, this form of agency is often structured as closed interactivity. Player action is confined within a predetermined framework, where interaction consists of navigating among pre-authored narrative paths rather than generating genuinely new content. The player may know that their freedom is controlled but acts as if it

were not, while the interactive narrative seeks to conceal its scripted nature behind an ideology of freedom (Wolf & Perron, 2003).

This closed structure becomes particularly visible in narrative-driven games that present branching outcomes and multiple endings. While players experience their choices as meaningful, the underlying logic of progression is fixed in advance by the designer. As Carstensdottir et al. (2019) suggest, this process establishes a form of "common ground" between designer and player, wherein players gradually learn to decode the operational logic embedded in the system in order to progress the story. Player agency thus operates not as open-ended authorship, but as successful alignment with the narrative paths already inscribed within the system.

2.2 Games and Experiential Understanding

While game experiences are guided by the game's narrative and structure, they are ultimately constructed through the behavioral choices of each user (Kim & Lee, 2016). In games, players interact with systems where rules function not merely as formal qualities, but as a "context designed to deliver a particular experience" (Salen & Zimmerman, 2004). Through this interaction, they experience not only the final outcomes but also the intricate, contextual processes of judgment and decision-making that lead to them. Therefore, rather than a mere collection of rules, games function as experiential media where the 'alterbiography' is generated through the player's "here and now" interactions with the system's coded structures and entities (Calleja, 2009).

From this viewpoint, games can function as media that allow players to internalize abstract concepts or norms through action. This process of internalization is facilitated by specific structural features of the game system. As Czauderna and Budke (2020) illustrate, techniques such as the curation of possible decisions and the offering of lucid feedback effectively structure the player's practice of decision-making. This feedback mechanism is central to what Whitson (2012) describes as the "quantification of the self," where the collection and analysis of minute data provide "feedback on how to better care for one's self."

When a game focuses too heavily on feedback, it gives the player too much to think about and increases cognitive load (Rogers, 2017). Moreover, because feedback is inherently meant to funnel players' behaviors and actions, feedback that is too prominent may feel limiting and thus reduce players' sense of autonomy (Rogers, 2017). As Whitson (2013) observes, games excel at rendering abstract progress into visible data, using status gauges and progress bars to create a precise real-time feedback loop that effectively governs player behavior. Consequently, players can gradually learn the causal relationships between choices and outcomes through repeated play. Through this process, players implicitly begin to calculate which choices are most rational or beneficial, continuously gathering and evaluating in-game information in order to select actions that promise optimal outcomes (Kim & Lee, 2016). In this process, the interiority of the self is transformed into an actionable database, leading players to treat their decisions as objects of calculation for optimizing performance and outcomes (Whitson, 2013).

In this sense, the learning enabled by game systems can be reinterpreted as a form of disciplinary power. As players subject themselves to this quantification to "know and master the self," they find a certain "pleasure associated with this mastery and control" (Whitson, 2013), leading them to voluntarily align their behavior with the system's gaze even before a choice is made.

2.3 Learning Game Rules and Layers of Feedback

Players discover game rules through play. According to Gee (2003), good games confront players in the initial levels with "problems that are specifically designed to allow players to form good generalizations about what will work well later when they face more complex problems." Andersen et al.'s (2012) experiment with over 45,000 players likewise reports that "players seem to learn more from exploring than from reading text." By repeatedly comparing their attempts with the resulting outcomes in this way, players gradually grasp what the system permits and what it excludes.

However, for such learning to take place, a minimum condition must be met. Salen and Zimmerman (2004) call a game's information structures 'objective information' and the player's understanding of these structures 'perceived information,' holding that the interaction of these two aspects determines the way information operates within the system of a game. What matters, therefore, is not whether information exists within the game, but whether players can perceive that information and use it as a basis for their choices.

Meanwhile, game studies has distinguished between games of perfect information, in which all players have complete knowledge about every element in the game at all times, and games of imperfect information, in which some of the information may be hidden from players during the game. The former "tend to be more analytically competitive games," whereas the latter "add an element of mystery and uncertainty to a game" (Salen & Zimmerman, 2004). However, because this distinction asks whether the game state—such as an opponent's hand—is disclosed, it is not fine-grained enough to explain the information players receive in choice-based games. It is therefore necessary to move beyond the binary of disclosure and concealment and to examine, layer by layer, what is disclosed.

The information a game sends back to the player can be divided into two layers. According to Djaouti et al. (2008), in a videogame the player's choices "are then evaluated by the rules of the 'Compute' part, in order to produce a 'result'. This result is then communicated to the player through 'Output' device(s)." The first layer corresponds to this output: information about whether the action just taken was valid. As Rogers (2017) describes, "A player inputs control, the game evaluates the quality of that control, and information regarding that input is fed back to the player." The second layer is the evaluative rules operating within the Compute part itself—that is, information about how actions are aggregated and by what criteria they are evaluated. Djaouti et al.'s separate category of "Game rules," "watching the state of game elements in order to judge player's performance," also belongs to this layer. Whereas the output result returns to the player with each action, the rules of the Compute part remain inside the system and cannot be verified by the player unless the game deliberately reveals them. Status gauges and flowcharts are devices that open both layers at once, through which players come to know not only what their choices produced but also by what criteria those choices were calculated.

2.4 Foucault and Panopticism

The panopticon was not originally conceived by Foucault, but by Jeremy Bentham, an English philosopher and social theorist in 1785 (Liagkou et al., 2021). It refers to a circular prison intended to enable efficient management and surveillance with minimal cost (Cho, 2021). Foucault (2008) describes the architectural figure of this composition as follows:

> "We know the principle on which it was based; at the periphery, an annular building; at the centre, a tower; this tower is pierced with wide windows that open onto the inner side of the ring; the peripheric building is divided into cells, each of which extends the whole width of the building; they have two windows, one on the inside, corresponding to the windows of the tower; the other, on the outside, allows the light to cross the cell from one end to the other."

By this arrangement, the observer can see the inmates while the inmates cannot confirm the presence of the observer. As Foucault (2019) further notes, "The Panopticon is a machine for dissociating the see/being seen dyad: in the peripheric ring, one is totally seen, without ever seeing; in the central tower, one sees everything without ever being seen." The asymmetry of visibility is not limited to the binary relationship of seeing and being seen; rather, it exerts a profound effect where inmates, under the constant assumption of surveillance, begin to self-censor and internalize discipline, eventually becoming habituated to the operations of disciplinary power (Cho, 2021).

"In the '70s, Foucault studied, deeply, Bentham's concepts, pointing to the Panopticon as a generic model that denotes a way of defining and discussing power relations in terms of their impact on people's everyday life" (Liagkou et al., 2021). For Foucault, the essence of the Panopticon lies not in the actual presence of a watcher, but in the internalization of the awareness that one is constantly visible. As Foucault (2008) argues, this asymmetrical gaze induces a state of conscious and permanent visibility in the inmate, ensuring the automatic functioning of power and rendering its actual physical exercise unnecessary through its internal perfection.

Consequently, panoptic power operates through self-surveillance rather than direct physical coercion. By inscribing the power relation within himself, the individual "becomes the principle of his own subjection" (Foucault, 2008). Thus, individuals adjust their behavior and speech by assuming a potential judgment, even without clearly identifying the evaluative criteria. In this process, the Panopticon becomes an experiential structure where individuals transform into subjects who monitor themselves, rendering the exercise of power continuous, automatic, and independent of any specific person (Foucault, 2008).

3. INTERACTIVE NARRATIVE GAMES AND THE PANOPTICON

3.1 Choice Structures in Existing Interactive Narrative Games

Representative examples of interactive narrative games include 'Until Dawn' (Supermassive Games, 2015), 'The Walking Dead' (Telltale Games, 2012), and 'Detroit: Become Human' (Quantic Dream, 2018). These games adopt structures in which accumulated player choices influence narrative progression and endings, with choice functioning as a central mechanism for narrative intervention. 'Until Dawn', developed by Supermassive Games, employs horror conventions such as abjection, moral judgement, and suspense, while systematically visualizing key player choices and the consequences of decisions and mistakes to intensify participatory engagement (Fawcett, 2020). Like many interactive dramas, Telltale's 'The Walking Dead' employs a game event tree that directs players along a branching narrative, resulting in a highly scripted structure (Moallem & Raffe, 2020). 'Detroit: Become Human' is often categorized as

an action-adventure or interactive movie–style game, characterized by a branching narrative structure in which endings are determined by the player's choices, supported by relatively simple control mechanics and choice-based interactions (Park, 2022).

Such games typically share several features. First, the outcomes of player choices are visualized at the level of events. Specific choices lead to clear narrative consequences such as character survival, relationship changes, or scene transitions, allowing players to easily recognize the effects of their decisions.

Second, these games utilize explicit interface elements to provide real-time evaluative feedback, as shown in the various status and notification systems of major titles. For instance, 'Until Dawn' monitors the shifting interpersonal affinity between characters—driven by player-led betrayals or rescues—through the dedicated status screen depicted in Figure 1(a). 'The Walking Dead' employs on-screen notifications to signal when an NPC remembers a player's choice, a mechanism illustrated in Figure 1(b). 'Detroit: Become Human' further reinforces this transparency by displaying relationship updates in the upper-right corner as shown in Figure 1(c), which triggers whenever a player adopts a supportive or oppositional stance.



(a) Until Dawn (b) The Walking Dead (c) Detroit: Become Human

Figure 1. Character relationship status screen in 'Until Dawn' (Supermassive Games, 2015) (a), Choice-based narrative foreshadowing in 'The Walking Dead' (Telltale Games, 2012) (b), Relationship change notification in 'Detroit: Become Human' (Quantic Dream, 2018) (c)

Third, the inclusion of complex branching trees and flowcharts allows players to decode the causal relationships between choices and outcomes through repeated play. A representative example is found in 'Until Dawn', which explicitly tracks the consequences of player actions through the 'Butterfly Effect' system. This mechanism, as depicted in Figure 2(a), provides an organized summary of interconnected events triggered by the player's past decisions on a dedicated screen. 'Detroit: Become Human' presents a comprehensive flowchart at the conclusion of each chapter to reveal the exact narrative path taken. By displaying locked alternative paths alongside the player's chosen route, the flowchart shown in Figure 2(b) clearly illustrates where and how narrative branches diverged. While these systems validate player agency, they simultaneously render the underlying system logic entirely transparent.



(a) Until Dawn (b) Detroit: Become Human

Figure 2. Visualization of event-based causal relationships in 'Until Dawn' (Supermassive Games, 2015) (a), Flowchart displayed after chapter completion in 'Detroit: Become Human' (Quantic Dream, 2018) (b)

3.2 Interactive Narrative Games and Panoptic Perspective

From a panoptic perspective, existing interactive narrative games establish a structural environment that facilitates the surveillance and regulation of the player. These games align with the foundational conditions of panopticism by fostering an awareness that player actions are constantly recorded and evaluated. Titles such as 'Until Dawn', 'The Walking Dead', and 'Detroit: Become Human' repeatedly remind players that their choices are stored as data, mirroring the power of documentation. As Foucault (2008) illustrates, this disciplinary mechanism functions as a compact model "in which all events are recorded, in which an uninterrupted work of writing links the centre and periphery." In the context of interactive games, this "uninterrupted work of writing" is manifested through the continuous data-tracking of player interactions, where even the slightest movements are supervised and fixed into a record.

This constant visibility prompts a psychological shift where the external gaze of the game system is gradually internalized by the player. Following Foucault's (2008) description of a system "which use instruments that render visible, record, differentiate and compare," interactive games employ interfaces like status screens and logs of outcome changes resulting from choices to compel players to constantly reflect on their actions. As Foucault (2008) defines the essence of panoptic effect, the player as a subject "inscribes in himself the power relation in which he simultaneously plays both roles; he becomes the principle of his own subjection." Rather than simply playing, they begin to morally self-censor and regulate their behavior in anticipation of the potential consequences of their choices. This signifies that the player, under the persistent pressure of an evaluative eye that they have accepted as a constant presence, comes to voluntarily regulate their own thought processes even before a choice is made.

However, a critical discrepancy arises between these games and true panopticism due to the excessive transparency of their evaluative criteria. Due to the asymmetry of visibility (Cho, 2021) inherent in the structure of the Panopticon, the subject cannot know the exact moment or the criteria of their evaluation. In contrast, existing games over-visualize the system through explicit status bars, relationship notifications, and comprehensive flowcharts. According to Manokha (2018), the core of the panoptic mechanism relies on the "omnipresence of the inspector ensured by his total invisibility." In other words, for a system to truly discipline the subject's mind, the evaluative gaze must remain hidden so that the watched assumes they are being observed at all times. By over-exposing these metrics, however, interactive games allow

the “inspector” (the game system) to become visible, thereby breaking the illusion of omnipresent surveillance.

As shown in the flowchart of ‘Detroit: Become Human’ (Figure 2(b)), exposing the entire narrative architecture dissolves the “sustained uncertainty” essential for psychological discipline. When the rules of judgment are laid bare, players cease to internalize the gaze and instead adopt the position of an “external analyst.” As Whitson (2013) notes, such quantified interfaces reduce players to calculable objects who prioritize modifying their behavior based on visible data over internal moral work. Consequently, players’ judgment takes the form not of internal examination but of strategic optimization, and choices are made not by internalizing the criteria but by exploiting them.

However, this does not mean that existing games have failed to implement the panopticon. Even in games whose evaluative criteria are disclosed, players are still subject to the discipline of the system. What changes is the mode of discipline. When the criteria are hidden, players examine themselves under the pressure of being evaluated; when the criteria are disclosed, they optimize their outcomes in accordance with those criteria. In neither case can players choose freely outside the system. What matters, therefore, is not whether discipline exists but how it operates, and what determines this is the visibility of evaluative criteria.

4. GAME DESIGN: BUTTERFLY EFFECT

4.1 Game Overview



Figure 3. Title screen of ‘Butterfly Effect’

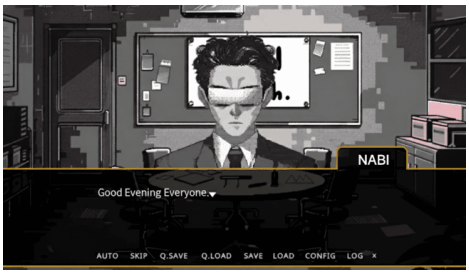

Figure 4. In-game screen of ‘Butterfly Effect’

This chapter examines ‘Butterfly Effect,’ a prototype developed as a contrasting case that inverts the variable of evaluative-criteria visibility. It does not stem from a claim that invisible structures are more desirable. Rather, ‘Butterfly Effect’ is a device for revealing, in a form players can experience, the workings of discipline that remain concealed beneath the guise of optimization in conventional games.

‘Butterfly Effect’ (Shim, 2024) is a visual novel set within the context of group counseling sessions. Developed using Unity and the UTAGE4(Unity Text Adventure Game Engine Version 4) dialogue system, the prototype consists of six primary dialogue scenes with 24 choice points. These choices lead to five endings: four determined by the range of the accumulated ‘Suspicion Parameter,’ and one special ending reached only through a specific pattern of choices. The parameter also determines which final choices become available to the player. This process will be analyzed in detail in the following section regarding its design principles.

4.2 Game Progression Structure

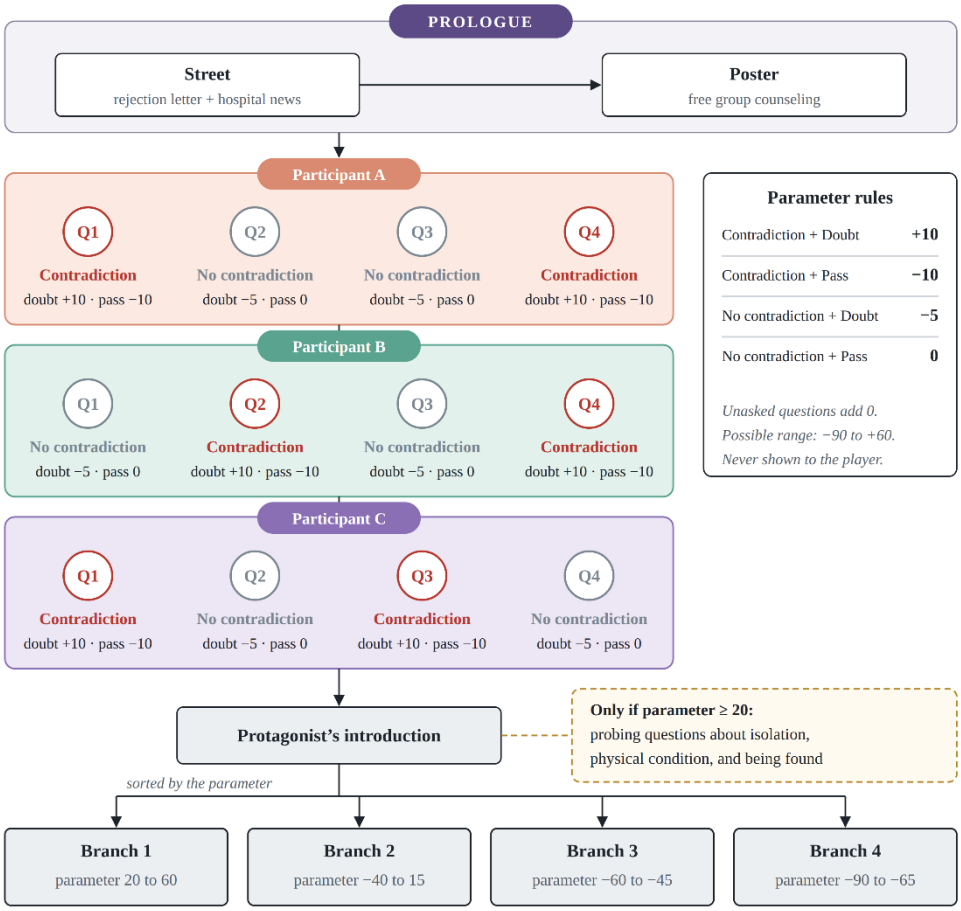

Figure 5. Progression structure and Suspicion Parameter system of 'Butterfly Effect'

The progression of 'Butterfly Effect' consists of four phases. In this section, the three participants are referred to as A, B, and C in order of appearance.

Phase 1 (Listening and Interrogation). The three participants, A, B, and C, introduce themselves in turn. After each participant's introduction, the player can ask that participant up to four questions and repeatedly chooses either to express doubt about each answer or to accept it as given. Of the four questions, two lead to answers that contradict earlier statements, while the other two contain no contradiction. The player may move on to the next participant at any point.

Phase 2 (Reversed Interrogation). After the player has listened to all three participants, the protagonist tells her own story, and this time the participants question the protagonist. This is the point at which the accumulated Suspicion Parameter first exerts a visible effect. Only when the parameter falls within a high range (20 or above; see Figure 5) do the participants

additionally raise probing questions about whether the protagonist is isolated, her physical condition, and the likelihood of her being found in an emergency.

Phase 3 (Establishment of Branch Conditions). At this point, the Suspicion Parameter settles on one of four event branches, each placing the player in a different situation: a locked door, repeated urging to stay longer, or requests to join the group and consent to the collection of personal information. In most branches, the player must then decide whether to leave or to stay. The player experiences this choice as their own decision, yet the very list of options available to them has already been determined by the accumulation of earlier judgments.

Phase 4 (Ending). Each branch is associated with its corresponding ending, yielding four endings determined by the parameter. The special ending is the exception: it is reached only when the player repeatedly stays when urged to remain but refuses each request to join, up to the final request. Because this ending depends on a particular sequence of choices rather than on the parameter itself, it is excluded from the discussion that follows.

What is notable in this structure is that the outcome is determined not by a single choice but by the combination of two layers. What the player recognizes and performs is the explicit choice in Phase 3, but what defines the range of those options is the Suspicion Parameter, accumulated invisibly throughout Phase 1. Players know what they are choosing, but not what they have become able to choose.

4.3 Game Scenario

The player takes on the role of Jiyoung, a young adult with a terminally ill mother who is worn out by repeated failures in job hunting, and who joins a free group counseling session after coming across a poster by chance. Although the gathering claims to offer mutual support, it is gradually revealed to be a site of quasi-religious recruitment disguised as counseling. Jiyoung sits with three participants, listens to each of their stories, and, for each of the four questions per character, repeatedly chooses either to express doubt or to let it pass.

A tutorial presented before the main game guides players through the procedure of finding and pointing out contradictions in characters' statements. Suspicious statements are displayed in gray text, and when the player correctly points out a contradiction, the earlier statement is shown again in red text.

The three NPCs do not accurately remember what they have said, and when the player shows interest and asks questions, they say something different from what they said before. When pressed on this, they become angry or evade the question suspiciously.

A says that her husband was reported for giving unfair overtime orders, but when the player asks about the circumstances, she changes her account, saying the report was for sexual harassment. While worrying about her mother-in-law's surgery costs, she then says that her mother-in-law suffers from dementia, creating another inconsistency.

B says that he went straight into employment after graduating from high school, but in response to the player's question, he states that he met his ex-wife when they were university students, overturning his own narrative. He reveals that after the divorce he was forced into a semi-basement apartment where he lives alone, yet also says that he is staying with relatives who help him.

C's claim to have broken up with a boyfriend a month ago overlaps with the statement that this boyfriend accompanied C to a wedding as recently as last week, and C's confession of having dreamed of becoming a surgeon as a child conflicts with the earlier remark about fainting at the sight of blood.

4.4 Core System: The Suspicion Parameter

The core system of *Butterfly Effect* is the 'Suspicion Parameter,' which accumulates player responses internally. While player choices affect this parameter, its value is never directly displayed through the UI, nor are the criteria for its increase or decrease explicitly disclosed. As a result, players cannot clearly determine how their choices are being recorded, nor can they assess the correctness of their decisions through numerical feedback. The 'Suspicion Parameter' thus functions not as a score or reward mechanism, but as an invisible evaluative structure beyond the player's direct perception.

Although this Parameter influences the game's ending, its operation is neither linear nor simple. Both excessively high and excessively low values lead to negative outcomes, and no explicit threshold or correct range is presented to the player. By obscuring the 'Suspicion Parameter', 'Butterfly Effect' reproduces a power that is "visible and unverifiable" (Foucault, 2008). This design maintains a state of sustained uncertainty, ensuring that the player remains under the constant pressure of an invisible evaluator without ever being able to confirm the precise criteria of their judgment. This ending structure positions the 'Suspicion Parameter' not as a target for optimization, but as an unstable criterion that continuously forces players to reconsider the balance of their decision-making attitudes.

4.5 Changes in Character Responses and Narrative Expression

Players repeatedly choose to doubt or accept character statements, which gradually shifts how characters treat the protagonist. Instead of explicit conflicts, these changes manifest through subtle narrative cues—such as dialogue tone and questioning patterns. Once the 'Suspicion Parameter' reaches a threshold, characters begin to insert intrusive probes into daily routines under the guise of concern.

The characters maintain a friendly demeanor, yet an implicit gaze of assessment persists throughout the dialogue. Crucially, the system refrains from explaining the causal links behind these shifts, relying instead on nuanced interactions to instill a persistent sense of ongoing evaluation. This creates an environment where players feel the weight of an invisible gaze even without direct feedback. Consequently, players remain in a state of self-reflexive tension, perceiving character responses not as discrete events but as a pervasive shift in the system's evaluative attitude.

4.6 The Game Structure as a Panoptic Mechanism

This study proposes a structural model to explain how game systems regulate player judgment, categorized into four distinct stages of panoptic discipline. Stage 1 (Architectural Setup): The game establishes a hidden disciplinary structure by embedding internal evaluation criteria and invisible parameters, creating a state of information asymmetry. Stage 2 (Mechanism of Gaze): The system exercises "unverifiable monitoring." While it provides visible cues that the

player is being watched, it deliberately obscures the actual evaluation results. Stage 3 (Psychological Internalization): This structural opacity leads to a "trap of constant uncertainty." Deprived of explicit feedback, players begin to internalize the system's evaluative perspective to alleviate anxiety. Stage 4 (Behavioral Outcome): Finally, players reach a state of self-censorship and regulation. Disciplinary power achieves its automatic functioning as players filter their own thoughts and align their judgment with perceived system norms even before a choice is made.

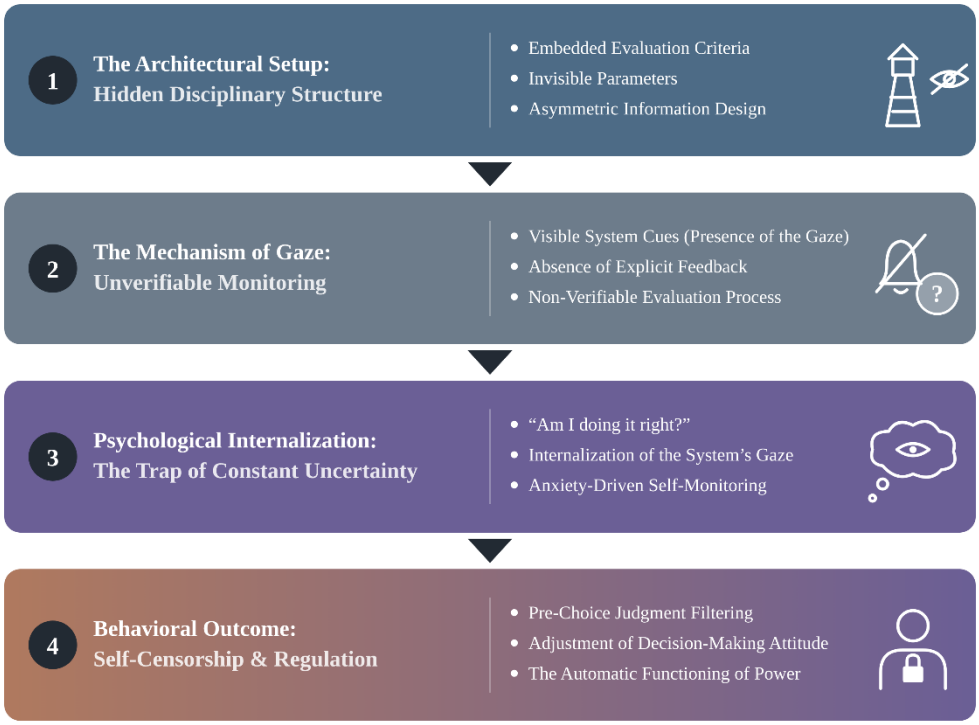

Figure 6. Panoptic mechanism in game design: a four-stage model of internalized discipline

Each stage of the proposed model corresponds to the design of 'Butterfly Effect' as follows. In this prototype, the "Suspicion Parameter" operates as an invisible monitoring gaze. By withholding immediate score-based feedback, 'Butterfly Effect' shifts the player's focus from strategic calculation to interpreting subtle narrative cues, such as shifts in character tone.

Consequences do not manifest as discrete events or explicit conflicts; rather, they appear as a shift in the characters' tone and questioning patterns. For instance, when suspicion reaches a certain threshold, characters maintain a friendly demeanor but begin to insert intrusive probes into the player's daily routine under the guise of concern. Because the game provides no explanation for these shifts, players are forced to navigate a state of sustained uncertainty. Ultimately, this design creates conditions in which players do not simply learn game rules, but instead come to constantly scrutinize and adjust their own decision-making attitudes in response to an invisible, evaluative gaze.

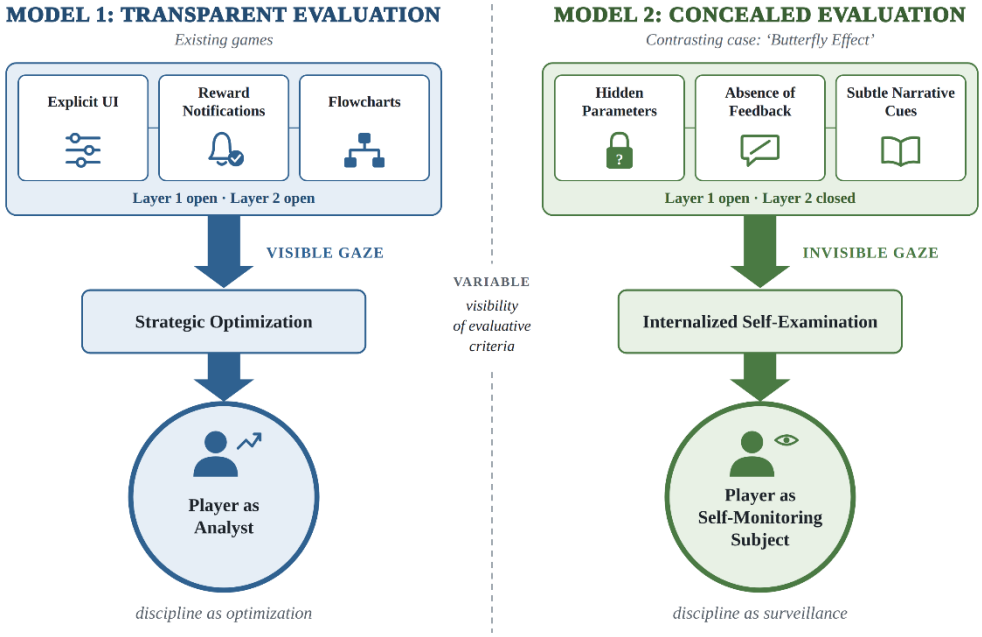

Figure 7. Structural comparison between existing interactive games and 'Butterfly Effect'

4.7 Players' Recognition of Game Rules

As discussed in Section 2.3, for a disciplinary structure to operate, players must at least recognize the fact that their actions are being evaluated. 'Butterfly Effect' deliberately satisfies this minimum condition. The tutorial at the beginning of the game explicitly guides players through the procedure of finding and pointing out contradictions in characters' statements and has them demonstrate this rule themselves. In the main game as well, when a player's objection is correct, the contradictory line presented earlier is shown again through on-screen effects and color highlighting. Without such devices, players would be unable to recognize the game's system of judgment itself and could not progress.

However, this feedback conveys only one thing: whether the objection just made was consistent with the facts. How much that objection is reflected in the Suspicion Parameter, where the accumulated parameter currently stands, and which range leads to which outcome are never presented.

In this way, 'Butterfly Effect' announces the existence of rules while withholding their content. Players know that they are being evaluated but not by what criteria, and they can confirm the success or failure of individual actions but cannot see the trajectory those actions form as they accumulate.

In light of the two layers distinguished in Section 2.3, this game opens the first layer while keeping the second closed. This is not a complete blocking of information but a selective distribution of it, and it is precisely this asymmetry that the panopticon requires.

5. CONCLUSION

5.1 Summary and Research Significance

This study investigated the structural power dynamics of choice-based games, focusing on how game systems function as a disciplinary gaze that shapes player judgment. The research began by identifying a convergence of choice in interactive narratives, where players tend to prioritize finding a predetermined correct path. By applying a panoptic perspective, this study reinterpreted this phenomenon as a process of subjectification, where players internalize the system's gaze and begin to self-censor their decisions.

A key finding of this research is that existing interactive games often render their evaluative criteria highly visible through explicit feedback—such as status notifications and flowcharts. On this basis, this study identified the withholding of immediate feedback and the maintenance of structural uncertainty as conditions that sustain the invisibility of the gaze. Specifically, the research formulated a four-stage model of panoptic discipline—ranging from architectural setup to behavioral outcome—to provide a structured overview of how player uncertainty transitions into internalized self-regulation.

The significance of this study lies in offering a new perspective to interpret player decision-making through the lens of panopticism. Rather than focusing solely on quantifiable data, this research shows that the sustained uncertainty of evaluation leads to the internalization of power relations—that is, that the visibility of evaluative criteria is a variable that determines the mode of discipline. Ultimately, by identifying the structural conditions under which players become the principle of their own subjection, this study shifts the focus of analysis of interactive choice from branching outcomes to the internalized regulation of decision-making attitudes.

However, this study does not judge which design is correct. What it proposes is a structural model that describes the operation of this variable, and the decision as to whether and how to apply it to actual design is left to creators.

5.2 Limitations and Future Work

Despite these structural proposals, this study has several limitations. First, the analysis and design primarily address visual novels and interactive narrative genres. Whether this panoptic structure can be directly applied to other genres or requires significant adaptation remains beyond the current scope. Second, as this study focuses on the structural conditions of power and pre-decision cognition, it does not comprehensively address affective responses such as enjoyment or immersion.

Most importantly, while the prototype was implemented and a four-stage model of panoptic discipline was formulated through this research, this study did not empirically validate the psychological effects on players through surveys or interviews. Accordingly, the objective was not to verify specific behavioral changes, but to identify the structural conditions under which such effects may emerge—specifically, how internalized surveillance operates through information asymmetry. Future research should employ the developed prototype to investigate how players internally construct evaluative criteria in the absence of explicit feedback. Specifically, future studies will employ post-play surveys to examine how players perceive and internalize the evaluative gaze under different feedback conditions. By comparing self-reported levels of decisional uncertainty, self-censorship, and perceived autonomy between players who

experience conventional transparent-feedback structures and those who engage with the panoptic design of 'Butterfly Effect,' the research aims to provide initial empirical grounding for the proposed framework. Through such empirical investigation, comparative studies between conventional "transparent" structures and the proposed "panoptic" structures will further clarify how different design conditions shape player judgment, self-regulation, and the internalization of power.

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