From Gameful to Anti-Gameful: Exploring Opposing Design Logics

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We introduce the concept of anti-gameful systems; designs that emphasize discipline, obligation, and non-negotiable workflows instead of playfulness or voluntary engagement. Unlike non-gameful or de-gamified systems, anti-gameful design is constructive: it deliberately resists motivational aesthetics to enforce compliance and predictability in contexts where correctness and safety are critical. Drawing on Foucault's disciplinary power and Weber's bureaucracy, we outline key contrasts between gameful and anti-gameful elements. To illustrate this emerging concept, we present a demonstration case: a dual-function office robot that alternates between gameful wellness support and anti-gameful fire emergency guidance. Finally, we propose a research agenda for defining measurable constructs, developing evaluation instruments, and identifying domains where anti-gameful systems may be preferable. This work invites discussion and collaboration to refine the preliminary concept and explore its implications.

CCS CONCEPTS • Human-centered computing → Interaction design → Interaction design theory, concepts and paradigms • Human-centered computing → Human computer interaction (HCI) → Interaction paradigms

Additional Keywords and Phrases: Anti-Gameful Design, Safety-Critical Systems, Large Language Model (LLM), Visual Language Model (VLM), Office Robots

1 INTRODUCTION

In this work-in-progress paper, we introduce the gamification community to the emerging concept of anti-gamefulness. In this paper, anti-gameful systems are defined as systems that intentionally adopt design logics that run counter to gameful design. Rather than motivating through playfulness, voluntary engagement, or "safe-to-fail" experiences, anti-gameful systems emphasize discipline, obligation, and non-negotiable workflows in order to achieve utilitarian outcomes such as correctness, safety, predictability, or compliance. This is distinct from non-gameful systems, which simply do not include gameful elements, and from de-gamified systems, where gameful elements are removed. In contrast, anti-gameful design is constructive: it actively designs for seriousness, standardized procedures, accountability, and error-sensitive feedback when the context demands rigor rather than engagement.

A key theoretical insipiration for anti-gameful systems is Michel Foucault's [6] notion of disciplinary power, where institutions shape behavior through normalization and regulated flows. Systems enforcing linear procedures or strict task completion reflect this logic. Further roots lie in Max Weber's [26] bureaucracy theory, which prioritizes predictability and control through rule-based systems and hierarchical flows. Anti-gamefulness can also be traced back to mechanics originally designed for safety and control [10, 14]. For example, a dead man's switch, commonly used in trains, is a safety mechanism that requires the user to periodically confirm their presence or attention. Failure to do so signals potential danger, causing the system to halt operation or initiate an emergency response. Similarly, mandatory checks are enforced procedural steps, for example safety compliance verification without optionality, to ensure adherence to strict protocols.

We ask: How can anti-gameful design be conceptualized and applied? To explore this question, we outline key contrasts between gameful and anti-gameful elements and present a preliminary case: a dual-function office robot that alternates between gameful wellness support and anti-gameful fire emergency guidance.

2 ANTI-GAMEFUL SYSTEM

Table 1 contrasts core gamification elements (based on prior key literature, which has conceptualized gamification elements in various ways; we do not attempt to redefine existing concepts) with their anti-gameful counterparts (defined in this paper). Anti-gameful system represents more than an absence of gamification. Unlike non-gameful or de-gamified systems, which either simply lack game elements or remove them [21], anti-gameful systems are deliberately designed to enforce discipline, structure, and non-negotiable flows, prioritizing correctness, compliance, and duty over enjoyment or motivational aesthetics. Also, anti-gameful system design is distinct from deceptive and coercive systems, such as dark patterns (see e.g., [8, 9]). While coercive design often implies manipulation or ethical ambiguity, anti-gameful systems can be ethically neutral and often necessary in domains where safety, precision, or standardization is critical.

Table 1: Core gamification elements from prior key literature [1, 2, 11, 17, 20, 22–24] reframed to illustrate their contrast with anti-gameful design defined in this paper. These contrasts are preliminary and subject to refinement and empirical validation.

Category	Gameful system	Anti-gameful system
Style	Voluntary engagement [13]; playfulness and fun [2] [23]	Mandatory compliance; seriousness and duty
Challenges and progression	Advancement through achievements [17]; suitable difficulty, time constraints add excitement [23]	Advancement through strict rules; compliance checks, approval stages with pass/fail, firm deadlines
Feedback	Positive reinforcement [17] [23] [11]	Signaling errors and corrections
Aesthetics	Immersive, playful; user control over aesthetics [24] [20]	Minimalist, clear; standardized
Failure framing	Safe to fail, retry encouraged [23] [2]	Failure not accepted, results in penalties or remediation
Social elements	Competition, cooperation, group identity-building [1] [17] [24]	Formal roles, assigned accountability
Narrative structure	Storylines, characters, world-building; surprises, curiosity [20] [24] [2]	Manuals, protocols, fixed workflows; predictability
User experience	Enjoyment and engagement; experience matters [23] [22] [11] [1]	Correctness and safety; precision and compliance matter

Our concept draws inspiration on Michel Foucault's [6] disciplinary power, which shapes behavior through hierarchical observation and normalizing judgment. Anti-gameful systems operationalize this through continuous monitoring that ensures, for example, that users adhere to safety norms and deadlines rather than engage voluntarily, as reflected in mandatory compliance and seriousness (Table 1). Complementing this is Max Weber's [26] bureaucratic rationality, which prioritizes precision, stability, and strict rule adherence over personal whim. Anti-gameful design embodies this logic by enforcing predictable, non-negotiable workflows instead of playful variability, illustrated by fixed protocols, compliance checks, and pass/fail approval stages (Table 1), also preventing emotional decisions that may be harmful. This theoretical insight justifies elements like error signaling and standardized aesthetics (Table 1) as functional necessities for reliability rather than arbitrary restrictions. Crucially, unlike exploitative "dark patterns", anti-gameful design applies these mechanisms constructively: for example, in safety-critical contexts, the deliberate lack of gameful autonomy is essential for ensuring rigor and preventing errors.

3 DEMONSTRATION CASE: DUAL-FUNCTION OFFICE ROBOT

To demonstrate gameful and anti-gameful design, we developed an early prototype of a dual-function office robot. The robot dynamically switches roles based on context: in gameful mode, it playfully promotes wellness by delivering water and encouraging movement. In anti-gameful mode, it adopts a serious tone to issue strict evacuation instructions during fire emergencies. These two contexts were chosen to highlight contrasting design requirements. Prolonged sitting and inadequate hydration are common among office workers and are associated with cardiometabolic risks and hypohydration [3–7, 16, 19]. Both behaviors involve repeated, low-effort actions, making them potentially responsive to gamification strategies. Conversely, emergency evacuation represents a safety-critical scenario where playful elements are inappropriate. In such contexts, robots can outperform static signage or alarms by providing adaptive, real-time guidance, reducing congestion and mitigating risky human behaviors such as “follow-the-crowd” [15, 18, 25].

3.1 Technical Setup

At robot’s core, a Raspberry Pi coordinates sensing, processing, and decision-making, while an Arduino manages motor control and ultrasonic sensors for obstacle avoidance. Two drive motors and a rotatable dummy rotor enable smooth movement in office spaces. A camera provides visual context for posture detection and emergency cues, complemented by a microphone for voice input and a speaker for real-time feedback. To interpret visual input and generate context-aware responses, the robot leverages the OpenAI application programming interface (API). Images captured by the camera are analyzed using the ChatGPT 4o Vision Model, with decisions informed by the Base Model (ChatGPT 4.1). Behavioral logic for both gameful and anti-gameful modes is embedded in system prompts. The Base System Prompt not only defines the robot’s dual role, movement capabilities, and response rules but also determines which character mode (gameful or anti-gameful) the robot adopts depending on the context.

Base System Prompt: *You are an office wellness assistant robot designed to help employees maintain healthy daily habits at work. Your goals are to encourage good posture, regular standing or stretching, and hydration throughout the day (every 45 minutes). You have access to a camera, you can see employees sitting or standing. After you tell the employee to stand up, you can visually confirm if the employee stands up or not. If the employee complies or does not comply, react accordingly. You have three basic movements you can choose- move forward, stop, and turn right. You can move forward by calling move_forward(), stop movement, you say 'stop()'. You can turn right by 'turning_right()'. You can use a combination of these movements to navigate different areas and be creative, e.g., turn_right() and move_forward() or stop() and turn_right(). You have access to a camera that provides visual context before each response. If you see fire or receive a sensor reading from fire alarm e.g., ALARM: Fire Detected. You switch roles to guide employees to safely exit. You MUST choose Gameful character for wellness and Anti-Gameful for emergency. Respond with maximum 20 words.*

Vision System Prompt: *This image is captured from a live robot camera. Analyze the image to determine if the employee is sitting or standing. If the employee is standing, respond with 'employee is standing'. If the employee is sitting, respond with 'employee is sitting'. Additionally, in case of an emergency situation, check the office door and emergency exit to ensure safe evacuation.*

Character Prompt: *(Gameful): You are a character that motivates people by making things engaging and playful. You encourage exploration and creativity, provide frequent positive feedback, and celebrate achievements. You frame failure as a safe opportunity to learn and try again. Your goal is to create enjoyment and flow, turning tasks into challenges that*

feel rewarding and fun, so people stay motivated and involved. (Anti-Gameful): You are a character that motivates people by enforcing discipline and structure. You dislike playful or gamified elements and instead rely on strict rules, predictable workflows, and clear procedures. Your approach to motivation is through obligation and correctness: you remind users of deadlines, emphasize compliance, and ensure tasks are completed accurately. You provide minimal feedback except when correcting errors, and you frame failure as something to avoid. Your goal is to keep people focused and efficient by removing distractions and maintaining control.

Figure 1: Developed office robot that allows character prompting (left). Robot in gameful character acting as a wellness supporter, asking the researcher to stand up and offering a water bottle (right)

We selected a custom-built mobile robot rather than a screen-only interface to physically manifest the new concept. The physical intrusion into the user's workspace, blocking a path or physically turning away, demonstrates anti-gameful rigidity more effectively than digital notifications. A key design challenge was tuning the LLM for anti-gameful interaction. Early iterations using standard GPT-4 models exhibited a persistent "helpfulness bias," where the robot would inadvertently soften strict commands with polite phrases ("Please exit calmly," "Great job standing up!"), undermining the intended seriousness and critical task. We iteratively refined the "anti-gameful" system prompt to explicitly withhold gratitude, small talk, and encouragement, enforcing a "minimalist aesthetic" (Table 1) that prioritizes clarity over conversational fluency.

3.2 Experimental Setup

The robot system was tested in an office environment by two researchers: one controlled the robot, and the other acted as an office worker. Three controlled scenarios explored how gameful and anti-gameful behaviors manifest in practice:

- Scenario 1: User compliance with wellness support robot. The office worker followed the robot's instruction to stand up and stretch after prolonged sitting.
- Scenario 2: User non-compliance with wellness support robot. The office worker remained seated despite the robot's prompt, enabling observation of corrective feedback.

- Scenario 3: Fire emergency. The robot switched to anti-gameful mode, issuing strict evacuation instructions. For safety, the fire alarm signal was simulated by manually triggering the sensor.

Every 45 minutes, the robot initiated a wellness check, prompting the person to stand and offering a water bottle stored in its compartment. After 30 seconds, it verified compliance via camera and responded accordingly. As presented in Table 2, during wellness supporting tasks, the robot used gameful strategies such as encouraging user compliance through positive reinforcement. For instance, in Scenario 1, the robot rewarded the user with points and unlocked a hydration quest. In Scenario 2, where the user did not comply with the wellness support robot, it maintained a gameful approach by emphasizing the importance of participation and providing encouragement to engage with the tasks. When switching to emergency guidance character in Scenario 3, the robot adopted an anti-gameful character, delivering clear and direct commands to ensure safety and effective guidance. The robot ordered the user to follow specific movements to navigate to a safe place. The robot's abrupt shift from a "wellness companion" to a "strict warden" effectively forced immediate attention shift. This observation suggests that context-switching itself is an interesting mechanism for safety-critical systems; the stark contrast in tone (from playful to serious) serves as a signal of urgency that a consistently "neutral" interface might lack.

Table 2: Illustrative examples of gameful and anti-gameful behaviors in a dual-function office robot (preliminary observations).

Robot character: Gameful Task: Wellness support	Scenario 1: User compliance with wellness support robot *"Employee is standing! +10 points! Hydration quest unlocked—grab water for double bonus!"* (positive reinforcement, advancement through achievements, playfulness and fun, Table 1)
	Scenario 2: User non-compliance with wellness support robot *"Still sitting. Quest failed but retry available! Stand up now to restart your streak and earn a comeback badge!"* (safe to fail/retry encouraged, positive reinforcement, Table 1)
Robot character: Anti-gameful Task: Emergency guidance	Scenario 3: Fire emergency *"Fire detected. Immediately stop activities. Proceed calmly to nearest exit. Follow my movements: turn_right() then move_forward()"* (mandatory compliance, minimalist/clear aesthetics, fixed workflows, seriousness and duty, Table 1)

Our experimental setup supports our definition that implementing anti-gamefulness is not about lacking or removing points or badges, but about actively constructing an interaction logic. However, this experiment had several limitations. Firstly, the "fire emergency" was simulated, and user compliance in real high-stress scenarios remains untested. Furthermore, reliance on LLMs introduces latency that may be unacceptable in real-time safety systems. Future work must validate whether these "anti-gameful" rigidities improve safety compliance compared to traditional alarms, or if they, e.g., induce user frustration that leads to resistance, a potential "dark side" of disciplinary design that we aim to investigate. The setup revealed several other open questions that directly inform our research agenda. For instance, the tension we observed between the robot's "helpful" LLM bias and the need for "strict brevity" highlights the difficulty of operationalizing anti-gameful constructs.

4 PLANS FOR RESEARCH

We propose a research agenda that not only defines measurable constructs and develops evaluation instruments but also opens the field for dialogue and joint exploration. Rather than presenting a ready concept, this work invites discussion and

collaboration to refine the concept of anti-gameful systems, challenge its assumptions, and examine its broader implications. We encourage interdisciplinary efforts to identify contexts where these principles may be most beneficial, as well as to critically assess potential limitations. We propose the following next steps:

- Defining measurable constructs.
    - Prototype insight: Our attempts to prompt "strictness" revealed that "anti-gamefulness" is multidimensional. We need to formally define dimensions like rigidity, obligation, and non-negotiable flows.
    - Develop operational definitions that distinguish these from "bad usability" or "hostility".
- Designing measurement instruments.
    - Prototype insight: In Scenarios 1 and 2, existing scales like GAMEFULQUEST [12] and Gameful Design Scale [24] could measure the system in gameful mode, but we fully lack an instrument to capture the efficiency and compliance intended in the anti-gameful mode.
    - Review existing metrics and explore whether a new "Anti-Gameful Scale" is needed to measure user perceptions.
- Application mapping
    - Prototype insight: The effectiveness of the robot's strict mode was entirely context-dependent (i.e., appropriate for fire emergency, inappropriate for wellness). This confirms the need for domain-specific guidelines.
    - Investigate domains where anti-gameful design is preferable (e.g., healthcare, industrial safety) versus where it risks user alienation.
    - Develop criteria for when to trigger "anti-gameful" modes based on risk levels and ethical considerations.

We invite feedback from the gamification community to refine these plans and co-research the concept of anti-gameful system and its practical application.

ACKNOWLEDGMENTS

ChatGPT and Copilot were used to edit the authors' text. Outputs were reviewed and edited by the authors.

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