Vol. 2 Núm. 1 (2025) - pp.23-33
Multidisciplinary Journal
Ciencia Kawsay

Character Design in Video Games: Visual Recognition through Gestalt and Archetype Theory

El diseño de personajes en videojuegos: reconocimiento visual desde la Gestalt y los arquetipos

Reyes Rodriguez, Joseph Israel
0009-0005-6905-5514
Universidad Politécnica Salesiana
jreyesr7@est.ups.edu.ec
Calupiña Feijoó, Paola Alexandra
Universidad Politécnica Salesiana
pcalupina@ups.edu.ec
Coloma Barragán, César Omar
0000-0002-3420-7961
Universidad Politécnica Salesiana
ccoloma@ups.edu.ec

Received: 31/03/2025
Accepted: 31/05/2025
Published: 06/06/2025

Citation: Reyes Rodriguez, J. I., Calupiña Feijoó, P. A., and Coloma Barragán, C. O. (2025). Character Design in Video Games: Visual Recognition through Gestalt and Archetype Theory. *Ciencia Kawsay, 2*(1), 23-33.

Abstract: This research aims to analyze the cognitive principles underlying the visual recognition of characters in video games. A theoretical-analytical approach is adopted, integrating cognitive psychology, Gestalt theory, and Jungian archetype theory to examine how character design facilitates rapid cognitive processing through formal simplification, contour reinforcement, and the incorporation of archetypal symbols. The findings show that morphological elements constitute the core of identity recognition, while color serves a complementary function oriented toward attentional regulation and emotional induction. Based on the analysis of cases such as Pac-Man, Team Fortress 2, and Overwatch, it is concluded that the cognitive efficacy of character design lies in the application of basic geometric shapes and the strategic insertion of archetypal markers, mechanisms that are modulated by video game genre and perspective conditions. The results provide an operative theoretical framework for character design practice in the industry.

Keywords: perceptual organization principles, visual working memory, archetypal symbols, character identifiability, video game visual design.

Resumen: *La presente investigación tiene como objetivo analizar los principios cognitivos que subyacen al reconocimiento visual de personajes en videojuegos. Se adopta un enfoque teórico-analítico que integra la psicología cognitiva, la teoría de la Gestalt y la teoría de los arquetipos junguianos para examinar cómo el diseño de personajes facilita el procesamiento cognitivo rápido mediante la simplificación formal, el reforzamiento del contorno y la incorporación de símbolos arquetípicos. Los hallazgos evidencian que los elementos morfológicos constituyen el núcleo del reconocimiento de identidad, mientras que el color cumple una función complementaria orientada a la regulación atencional y la inducción emocional. A partir del análisis de casos como Pac-Man, Team Fortress 2 y Overwatch, se concluye que la eficacia cognitiva del diseño de personajes reside en la aplicación de formas geométricas básicas y en la inserción estratégica de marcadores arquetípicos, mecanismos que se encuentran modulados por el género del videojuego y las condiciones de perspectiva. Los resultados proporcionan un marco teórico operativo para la práctica del diseño de personajes en la industria.*

Palabras clave: *principios de organización perceptual, memoria visual de trabajo, símbolos arquetípicos, identificabilidad del personaje, diseño visual de videojuegos.*

INTRODUCTION

Video games have established themselves as an artistic form characteristic of contemporaneity, in which character design plays a mediating role between the player and the virtual world. The character not only operates as a narrative vehicle but also constitutes a source of visual stimuli subjected to cognitive encoding and retrieval processes. Recent research indicates that character recognition and memorization depend on perceptual organization and simplification mechanisms, which are directly linked to the principles of Gestalt theory (Doma *et al.,* 2024) . However, existing literature has privileged technical analysis or aesthetic evaluation of design, relegating the systematic examination of the cognitive processes underlying character identifiability to a secondary position.

In the contemporary industry, commercial failures derived from deficient design decisions are increasingly frequent. The case of the shooter video game Concord, published by Sony, is particularly illustrative: its servers were shut down eleven days after commercial launch, and community criticism repeatedly identified the lack of appeal and personality of its characters as one of the contributing factors (Scullion, 2024) . Hiroki Totoki, president of Sony, stated that the company was still in a learning process regarding new intellectual properties and acknowledged the need to incorporate user evaluation mechanisms at earlier stages of development (Scullion, 2024) . This episode suggests that gameplay mechanics, narrative, and content may become subordinated to the impact of character design when the latter fails to activate the player's perceptual mechanisms.

Based on the foregoing, this research poses the following central question: what visual elements determine the recognition efficiency of characters in video games? Likewise, it inquires how the principles of Gestalt theory and Jungian archetype theory operate jointly in the process of character cognition. The study pursues a single objective: to analyze the cognitive principles underlying the visual recognition of characters in video games and the elements that constitute it. This objective articulates the construction of the theoretical framework, the case analysis, and the derivation of conclusions, ensuring the internal coherence of the article.

MATERIALS AND METHODS

This research adopts a theoretical-analytical approach that employs cognitive psychology and Gestalt theory as analytical frameworks to examine recognition mechanisms in video game character design. Representative character cases were selected as units of analysis, following criteria that include their iconic status in video game history or industrial practice, the typicality and analyzability of their design elements, and the public availability of materials documenting their conception process.

The case analysis procedure was structured in four phases. First, the basic geometric components of each character were identified (circle, triangle, square, and their derivations). Subsequently, the application of Gestalt organization principles in contour

design was examined. Then, the function of archetypal markers in the semantic transmission of the character was analyzed. Finally, the contribution of each element to recognition efficiency was evaluated in an integrated manner. It should be noted that the theoretical-analytical nature of the study implies that the findings hold the status of propositions derived from theory and secondary evidence, and not of conclusions validated through primary experimentation (Waddell *et al.*, 2022) .

In order to validate the validity of the theoretical analysis, Pac-Man and the cast of Team Fortress 2 were selected as contrasting cases. Pac-Man represents the paradigm of minimalist geometric composition design, while Team Fortress 2 embodies the strategy of systematic application of archetypal markers. Both cases are complementary in terms of complexity and design logic, which allows for revealing both the common principles and the contextual variations of character recognition. Complementarily, Overwatch was incorporated as a third contemporary contrast case, selected for its belonging to the first-person shooter genre and for its condition as a recent production that allows for examining the validity of the identified principles in a current design context (Supandi *et al.,* 2017). This selection responds to the need to verify whether the proposed cognitive mechanisms operate consistently in differentiated perspective and gameplay rhythm configurations.

2.1 Terminological Note

In order to guarantee the conceptual precision of the analysis, the core terms employed in this research are operatively defined. Visual working memory is understood as the cognitive subsystem responsible for the temporary maintenance and manipulation of visual information in the absence of the corresponding stimulus, whose limited capacity conditions the efficiency of complex stimulus processing (Malhotra *et al*., 2022). The identificative anchor is defined as the minimum set of morphological features whose alteration compromises the perceptual continuity of the character, operating as a stable core of visual identity Malhotra. Archetypal markers designate the visual symbols that activate pre-existing representations in the player's memory, allowing for the immediate semantic transmission of the character's function and traits (Dorado Campayo, 2024).

RESULTS

Geometric Composition and Foundations of Recognition

The analysis of the character Pac-Man reveals the fundamental function of basic geometric composition in character recognition. Said character is composed of two circles, corresponding to the body and the eye, and a triangle that forms the mouth opening, as observed in Figure 1. Its visual complexity is extremely reduced, and nevertheless, it has achieved broad and cross-cultural recognition. This case supports the central thesis of the simplicity principle: the mind processes simple forms with significantly higher efficiency than complex forms (Van Geert *et al.,* 2023) . From the perspective of cognitive load, minimalist geometric composition reduces the demand for visual information encoding, which allows for accelerated recognition and memorization.



Figure 1. Pac-Man character

However, geometric simplification alone does not guarantee effective character recognition. The cognition that the player develops regarding Pac-Man is not limited to the formal description of a yellow circle but is articulated with the functional meaning of devourer. This implies that recognition efficiency depends on the balance between formal simplification and semantic transmission. Excessive simplification can lead to the loss of identificative features, while formal complexification increases cognitive load (Liu *et al.,* 2024) . Evidence suggests that the concept of identificative anchor holds operative value in character design, insofar as it identifies the minimum set of features whose preservation guarantees the perceptual continuity of the character (Malhotra *et al.,* 2022) . The visual representation of the simplicity law, presented in Figure 2, illustrates this principle applied to the formal reduction of complex objects.

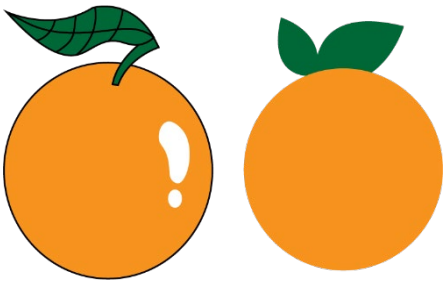


Figure 2. Visual representation of the law of simplicity in Gestalt theory

Contour as the Core of Recognition

Contour recognition constitutes the most critical phase of the character's visual cognitive processing. Studies show that players can accurately identify a character's identity based exclusively on its silhouette, without chromatic or textural information (Voimala, 2023) . This capacity is closely linked to the joint action of the closure and continuity principles, through which the perceptual system completes minor contour absences and follows its continuity to form a complete shape representation. In this way, the contour operates as the primary support on which the other design elements are articulated.

The character design of Team Fortress 2 illustrates a systematic strategy of contour differentiation. The nine characters present marked distinctions in body proportions, postural features, and equipment silhouettes: the broad and massive contour of the heavy

characters, the slender contour of the Scout, the elongated contour of the Sniper's equipment, among others. All of them respond to the need for instantaneous recognition in dynamic combat environments. From the perspective of cognitive processing, this contour differentiation strategy reduces the player's recognition threshold in dynamic situations, allowing the judgment of the character's function to be completed in minimal time intervals. Evidence suggests that contour differentiation constitutes a necessary condition for recognition efficacy in contexts of high attentional demand (Lukashova-Sanz *et al.,* 2021) .

The comparative analysis with Overwatch reveals the modulating effect of video game genre on contour design strategies. In League of Legends, belonging to the MOBA genre, the top-down perspective makes the global shape of the contour constitute the main recognition criterion, while detailed features are invisible from the game angle, which shifts the design focus toward the singularity of the global silhouette. In Overwatch, belonging to the first-person shooter genre, the variable perspective and complex combat environment require chromatic and luminosity contrast to play a greater role in immediate recognition, consistent with evidence that colour and luminance contrasts are strong predictors of stimulus detection in visually complex environments (White *et al.,* 2017) . These findings indicate that, although the cognitive mechanisms of character recognition share a common base across genres, their specific manifestations require adaptation according to the perspective and rhythm of the game.

The principles of grouping, constancy, symmetry, and continuity, represented in Figures 3, 4, 5, and 7, respectively, allow for understanding the perceptual organization underlying the reading of the character's contour. Likewise, the closure principle, illustrated in Figure 6, explains the player's capacity to reconstruct the entirety of the character from incomplete contours.

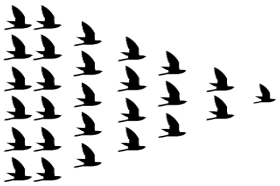


Figure 3. Visual representation of the law of grouping in Gestalt theory

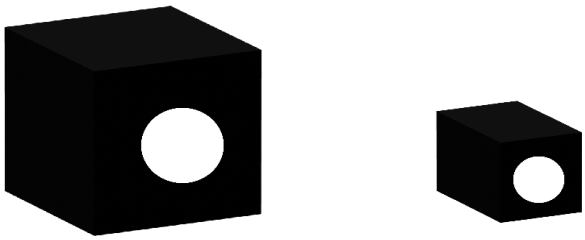


Figure 4. Visual representation of the law of constancy in Gestalt theory

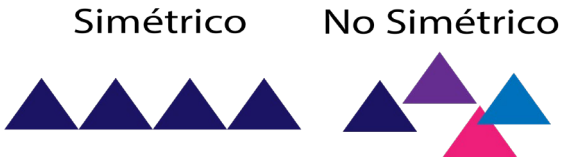


Figure 5. Visual representation of the law of symmetry in Gestalt theory

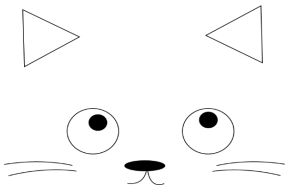


Figure 6. Visual representation of the law of closure in Gestalt theory

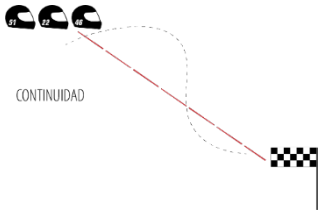


Figure 7. Visual representation of the law of continuity in Gestalt theory

Semantic Function of Archetypal Markers

The central function of archetypal markers in character design consists of communicating the character's functional position and characterological orientation with minimal cognitive cost. The analysis of the Team Fortress 2 cast shows that the design of each character incorporates explicit functional markers: the Medic's first-aid cross, the Engineer's wrench and work attire, the Soldier's bullet symbol, as observed in figure 8 and 9. These markers activate the player's pre-existing cognition regarding the corresponding archetypes, so that the judgment of the character's function does not require textual explanations or tutorial instructions. The Jungian theory of the collective unconscious provides the conceptual foundation for understanding this efficacy: archetypes operate as innate images with symbolic value that, when activated by visual design, elicit immediate cognitive and emotional responses (Dorado Campayo, 2024) .

Figure 8. Medic and Soldier characters from Team Fortress 2



Note: Short film Expiration Date, Cook y Walker (2014)

Figure 9. Engineer character from Team Fortress 2



Note: Valve (2007)

The use of archetypes follows a principle of efficiency. Compared to building character recognition through narrative development or behavioral display, the insertion of archetypal markers allows semantic transmission to be completed at first visual contact. This advantage is especially critical in competitive games, since the player must quickly evaluate the opponent's function and threat level. From the perspective of cognitive psychology, archetypal markers operate as cognitive shortcuts that compress complex information about social roles into visual units susceptible to immediate interpretation (Giuliana, 2022) . Consequently, their efficacy depends on the correspondence between the symbol employed and the archetype pre-existing in the player's memory. The law of experience, represented in Figure 10, cognitively grounds this association mechanism between visual stimuli and prior representations.

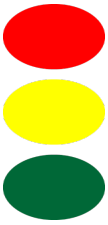


Figure 10. Visual representation of the law of experience in Gestalt theory

However, the efficacy of archetypal markers is modulated by cultural context and player experience. Differences in the cultural background of the player community can affect the interpretation of specific symbols (Campos *et al.,* 2019) . Likewise, excessive dependence on archetypes can lead to homogenization of character design, which undermines the visual identifiability of the video game. Therefore, the application of archetypes requires a balance between communicative efficiency and design singularity, so that semantic transmission is achieved without sacrificing the distinctiveness of the character.

Function of Color in Recognition

The function of color in character recognition requires precise delimitation. The analysis indicates that color primarily fulfills a function of emotional induction and visual attention regulation, rather than serving as the identity foundation of the character.

Empirical evidence shows that, when contour features remain constant, chromatic variation exerts a limited influence on recognition accuracy (Reppa *et al.*, 2020) . This finding is consistent with the explanation of the simplicity principle: color constitutes an informative dimension susceptible to simplified processing by the perceptual system, and its cognitive weight is inferior to that of morphological structure.

The emotional mobilization function of color holds relevant value in character design. The contrast between warm and cool ranges allows for reinforcing faction distinction, while luminosity contrast increases the character's visual prominence in complex backgrounds (Peña *et al*., 2019) . Likewise, the interaction between color and form merits attention: the combination of rounded forms with soft colors tends to produce perceptual impressions of safety and sympathy, while the association of angular forms with dark ranges tends to elicit sensations of threat (Acevedo, 2023) . These associations, however, hold a propositional character and require further experimental validation for empirical confirmation. From the perspective of design practice, chromatic strategy must be subordinated to the principle of contour recognition priority. Under conditions of limited resources, ensuring sufficient contour differentiation precedes detailed chromatic regulation, since the processing of morphological information precedes the integration of chromatic information, and contour recognition failure cannot be compensated through chromatic optimization. The figure-ground law, represented in Figure 11, explains the perceptual separation between the character and its environment based on established limits and contrasts.



Figure 11. Visual representation of the figure-ground law in Gestalt theory.

However, the efficacy of archetypal markers is modulated by cultural context and player experience. Differences in the cultural background of the player community can affect the interpretation of specific symbols (Campos *et al.*, 2019) . Likewise, excessive dependence on archetypes can lead to homogenization of character design, which undermines the visual identifiability of the video game. Therefore, the application of archetypes requires a balance between communicative efficiency and design singularity, so that semantic transmission is achieved without sacrificing the distinctiveness of the character.

Limitations of the Study

The interpretation of the findings presented requires considering the limitations derived from the adopted methodological design. First, the theoretical-analytical nature of the study restricts the strength of causal inferences, since the proposed relationships between morphological, chromatic, and recognition variables are derived from theoretical

articulation and secondary evidence, and not from controlled experimental manipulation (Waddell *et al*., 2022) . Second, the case selection, although justified by criteria of representativeness and contrast, does not exhaust the diversity of genres, platforms, and design traditions present in the industry. Third, the empirical evidence available on character recognition presents methodological variations that hinder direct comparison between studies. These limitations do not invalidate the derived propositions but do delimit their scope and point to the need for further experimental validation.

CONCLUSIONS

This research examined the recognition mechanisms in video game character design from the perspective of cognitive psychology. The findings allow for sustaining that the cognitive efficiency of character recognition is grounded in morphological structure, since the simplicity and closure principles of Gestalt theory operate jointly in the formal processing of the character. Consequently, basic geometric composition constitutes the perceptual anchor that enables rapid recognition, while archetypal markers assume the function of semantic transmission by compressing the character's functional and characterological information into cognitive units susceptible to immediate interpretation.

Contour differentiation constitutes the core of the recognition strategy. The analysis shows that the stable preservation of nuclear morphological features is a prior condition for maintaining the character's identity, while chromatic variation and detail adjustment hold a margin of operation subordinated to identificative continuity. Likewise, it is established that video game genre and perspective conditions exert a modulating effect on the specific manifestations of the recognition strategy: the top-down perspective reinforces the importance of the global contour, while the rapid first-person perspective places chromatic contrast at the forefront of perceptual processing.

The conclusions presented hold direct implications for design practice, whose hierarchization is established according to the level of available support. At the highest level of support, it is determined that character design must prioritize the efficacy of morphological recognition, optimizing color and detail once sufficient contour differentiation is ensured. At an intermediate level of support, it is established that the use of archetypal markers must attend to both communicative efficiency and cultural adaptability, avoiding excessive abstraction or cultural specificity that may hinder recognition. Finally, at a propositional level, the convenience is raised for future studies to employ experimental methods to verify the independent effects of morphological and chromatic variables on recognition efficiency, as well as to examine the modulating effect of player experience level and the cultural limits of archetypal marker cognition.

REFERENCES

Acevedo, J. A. R. (2023). Análisis del diseño de personajes de videojuegos Triple A (2018-2020). *Tesis de Doctorado En Diseño,* (55). https://dspace.palermo.edu/ojs/index.php/tdd/article/view/13355.

Campos Gomez, S. M., & Falcon Rojas, M. L. (2019). Impacto de los videojuegos en la formación de una subcultura entre los jóvenes de Lima Metropolitana 2019. https://alicia.concytec.gob.pe/vufind/Record/UTPD_30dc973a18546f00a6941e260d7d46ff

Cook, J. y Walker, R. (2014). *Expiration Date* [Cortometraje]. Valve. https://www.imdb.com/es-es/title/tt3810734/.

Doma, G. Y., & Çatak, G. (2024). *FROM ATTENTION TO INTERACTION: A TAXONOMY FOR VISUAL PERCEPTION IN VIDEO GAMES*. 25th International Conference on Intelligent Games and Simulation, EUROSIS-ETI, 47–51. https://hdl.handle.net/20.500.14719/7448.

Dorado Campayo, N. (2024). Arquetipos y estereotipos: análisis del diseño de personajes vinculados a los roles dentro de los videojuegos. [Tesis doctoral, Universidad Complutense de Madrid]. https://dialnet.unirioja.es/servlet/tesis?codigo=347832.

Giuliana, G. T. (2022). What is So Special About Contemporary CG Faces? Semiotics of MetaHumans. *Topoi, 41*(4), 821–834. https://doi.org/10.1007/S11245-022-09814-0.

Liu, W., Cao, Y., Liang, X., Proctor, R. W., & Duffy, V. G. (2024). Facing a Trend of Icon Simplicity: Evidence from Event-Related Potentials. International *Journal of Human–Computer Interaction, 40*(4), 945–955. https://doi.org/10.1080/10447318.2023.2169978.

Lukashova-Sanz, O., Wahl, S., Wallis, T. S. A., & Rifai, K. (2021). The Impact of Shape-Based Cue Discriminability on Attentional Performance. *Vision, 5*(2). https://doi.org/10.3390/VISION5020018.

Malhotra, G., Dujmović, M., & Bowers, J. S. (2022). Feature blindness: A challenge for understanding and modelling visual object recognition. *PLOS Computational Biology, 18*(5), e1009572. https://doi.org/10.1371/JOURNAL.PCBI.1009572.

Peña, J., Ghaznavi, J., Brody, N., Prada, R., Martinho, C., Santos, P. A., Damas, H., & Dimas, J. (2019). Effects of Human vs. Computer-Controlled Characters and Social Identity Cues on Enjoyment: Mediation Effects of Presence, Similarity, and Group Identification. *Journal of Media Psychology, 31*(1), 35–47. https://doi.org/10.1027/1864-1105/A000218.

Reppa, I., Williams, K. E., Greville, W. J., & Saunders, J. (2020). The relative contribution of shape and colour to object memory. *Memory and Cognition, 48*(8), 1504–1521. https://doi.org/10.3758/s13421-020-01058-w.

Scullion Chris. (2024). Concord Failure Addressed By Sony's Hiroki Totoki. https://www.psu.com/news/concord-failure-addressed-by-sonys-hiroki-totoki.

Supandi, F. P., Mansoor, A. T., & Ramadina, S. P. (2017). Kajian Desain Karakter Dalam Game Overwatch dalam Kerangka Metode Perancangan Manga Matrix. *Wimba : Jurnal Komunikasi Visual, 8*(1). https://doi.org/10.5614/JKVW.2017.8.1.5.

Valve. (2007). Team Fortress 2. Valve Corporation. https://store.steampowered.com/app/440/Team_Fortress_2/.

Van Geert, E., & Wagemans, J. (2023). Prägnanz in visual perception. *Psychonomic Bulletin & Review, 31*(2), 541. https://doi.org/10.3758/S13423-023-02344-9.

Voimala, J. (2023). Creating a Video Game Character Design Workflow: a literature review on the theories and methods used by professionals in video game character design. [Tesis de grado, Jamk University of Applied Sciences]. https://urn.fi/URN:NBN:fi:amk-2023052915171

Waddell, T. F., Elizabeth Moss, C., Holz, A., & Ivory, J. D. (2022a). Character Portrayals in Digital Games: A Systematic Review of More than Three Decades of Existing Research. *Journal of Broadcasting & Electronic Media, 66*(4), 647–673. https://doi.org/10.1080/08838151.2022.2100376.

White, T. E., Rojas, B., Mappes, J., Rautiala, P., & Kemp, D. J. (2017). Colour and luminance contrasts predict the human detection of natural stimuli in complex visual environments. *Biology Letters, 13*(9). https://doi.org/10.1098/RSBL.2017.0375/50506.