

Brie Basma Chabi

March 29 2020

The aesthetic appeal of 2D game designs and
why they are so prominent despite the existence
of 3D and semi-realistic games.

Word Count: 2590

Abstract

Being an avid gamer myself, I have played a variety of video games. I have played video games where it'd be almost difficult to differentiate reality vs digital because of how well designed and how much our technology has advanced in terms of video game developing. Yet for some reason, so many popular games that have been launched as of recently like cuphead or have been launched such as Mario still have a mass following. I want to understand the significance of said 2D designed games and why people still find them appealing to play or look at.

Additionally, I want to showcase my ability to perceive art from a standpoint where complex does not necessarily mean better which will become apparent once I compare 2D to 3D. Through this course, I have learnt that different mediums serve different purposes and therefore something which can be deemed as simpler or easier to produce can actually be contrary.

The 2D game design and aesthetic

I. Introduction

Video games come in a variety of forms and genres. One of the most notable genres or forms of video game design is called *retro gaming* which encompasses a 2D based graphics style. In the past, this was the only way game developers knew how to make games as the technology wasn't readily available to make 3D games. Given the fact that game engines have progressed immensely and with the prominent possibility of creating semi-realistic, 3D open world games such as *The Sims* or *Red Dead Redemption*; 2D games are still being developed and released but most surprisingly immensely successful such as *Cuphead* or *Undertale* which have sold 5 million¹ and 1 million² copies respectfully. To the average person, such success is unusual especially in a world where we strive to experience a more realistic sense of entertainment such as the VR or even 3D cinema. Therefore this research paper will explore the aesthetic appeal of 2D game designs and why they are so prominent despite the existence of 3D and semi-realistic games.

II. 2D vs 3D designs

In order to determine what is the aesthetic appeal of 2D game designs and what are the reasons behind their success in the game industry we need to establish an understanding of what

¹ "Cuphead surpasses 5 million copies sold | VentureBeat." 30 Sep. 2019, <https://venturebeat.com/2019/09/30/cuphead-surpasses-5-million-copies-sold/>. Accessed 23 Mar. 2020.

² "Undertale has sold over 1 million copies now. | Undertale Wiki" 11 Apr. 2016, <https://undertale.fandom.com/wiki/Thread:77224>. Accessed 23 Mar. 2020.

exactly does 2D designs encompass. According to DifferenceBetween.net, the difference between 2D and 3D shapes is:

“A 2D shape is a figure that has only length and height as its dimensions. Because 2D shapes lie on a flat surface, they are also known as plane figures or plane shapes. While they have areas, 2D shapes have no volume. Apart from length and height, a 3D shape also has width or depth as its third dimension.”³

Conclusively, the defining difference between 2D and 3D comes down to depth. 3D objects are viewed as more realistic because every object we interact with in our daily life contains depth. Depth is used to describe thousands of characteristics of an object such as an object’s volume, its surface area, its texture and much more. On the other hand, 2D shapes contain no depth which eliminates all possibilities of any complexity of said object which renders them as simple. Interestingly, this simplicity is one of the biggest appeals of 2D shapes and objects. A great example that showcases this need for simplicity is the modernization of brand logos.⁴



Former Instagram logo had more depth than the new modernized logo.

Many brands have chosen to revert to 2D logos with simple colour schemes. According to HowtoBuildaBrand.org, these designs are clear, easy to recall, recognizable, prompt an

³ "Difference Between 2D and 3D | Difference Between." <http://www.differencebetween.net/language/difference-between-2d-and-3d/>. Accessed 24 Mar. 2020.

⁴ "3 Successful Logo Rebrand Stories - FreeLogoDesign." 11 Feb. 2019, <https://www.freelogodesign.org/blog/2019/02/11/3-successful-logo-rebrand-stories>. Accessed 24 Mar. 2020.

emotional reaction and are convertible across all media.⁵ With that being said, using brand re-designs as an example, it is safe to assume that 2D designs elicit the same emotional response due to their simplicity in video games.

III. More examples of 2D designs

Now that we have established the defining characteristics of 2D designs and shapes, we can explore more examples of 2D designs, aesthetics and art styles in order to establish a commonality which may be present in video game designs.

One of the most notable art styles is known as vintage art. According to Grace Fussel from tutplus, *“Vintage designs encompass a whole range of styles, which span decades and design genres.”*⁶ These visual styles and genres such as steampunk, bauhaus and pop art are all 2D art styles. Yet interestingly, this isn’t their most significant similarity. The biggest defining feature of vintage 2D art is its ability to induce nostalgia. According to *Nostalgia and Its Value to Design Strategy: Some Fundamental Considerations*, a paper presented at the Proceedings of the Tsinghua-DMI International Design Management Symposium:

“Cognitive theorists believe that emotions have a strong influence on human behavior, that is, people will be attracted by the objects that evoke positive emotions and forced



Bauhaus only features 2D geometric shapes with simple colour schemes.

⁵ "Brand Design: 8 Reasons to Keep Logos Simple | How to" 12 Aug. 2014, <https://howtobuildabrand.org/branding/8-benefits-simple-logo-design/>. Accessed 24 Mar. 2020.

⁶ "A Guide to Vintage Design Styles." 12 Sep. 2016, <https://design.tutsplus.com/articles/the-potted-guide-to-vintage-design-styles--cms-26986>. Accessed 24 Mar. 2020.

*away from those things that evoke negative emotions. Nostalgia, like other positive emotions, when it is evoked by certain stimulus (e.g. products, brands), **will incite people to approach (e.g. to purchase or to interact with) it.***"⁷

It can be deduced from this source that the nostalgia induced from many 2D designs and art styles plays an important role in the prominence of 2D designs nowadays. In 2D game designs, the 2D art style elicits a strong emotional response from the consumer which attracts them to retro games. This is a direct connection to the study of image perception in the course as how we perceive or react to an image or art work directly affects how we interact with it.

IV. Nostalgia and old video games designs

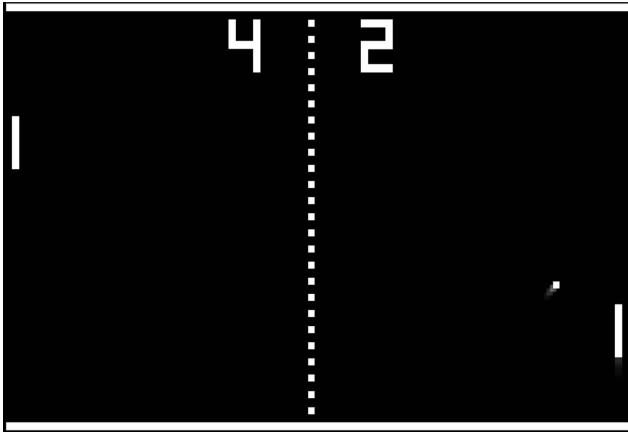
As mentioned in the previous section, nostalgia evoked by video games elicits a very strong emotional response from consumers in the gaming industry. Notable games such as *Mario* and *Pong* are household names and are perfect examples of why 2D games evoke such strong emotional response. *Pong* was created by Nolan in 1972⁸, the game had a simple colour scheme of black and white initially. Yet the most iconic feature of pong was its functionality as there was not much to the game other than a moving paddle and ball, yet the game was highly addictive. Therefore not only was the game simple, but the design itself was even more simple because it only featured a set of rectangles and a circle.

The simplicity of Pong is not only why it's so iconic, but also explains why it induces nostalgia. A lot of games now a day are very complex and large as their game engines can

⁷ "Introduction To Retro Design: Chip Off the Old Block - Icons8"
<https://icons8.com/articles/retro-design/>. Accessed 24 Mar. 2020.

⁸ "The game Pong was created by Nolan - CodyCross Answers." 31 Mar. 2017,
http://codycrossanswers.com/the-game-pong-was-created-by-nolan-_-in-1972/. Accessed 24 Mar. 2020.

perform an array of commands which almost replicate the actions of the real world. This creates



a market need for games that are reminiscent of “simpler times” where games with complex game engines did not exist. As the book titled *The Innovators* describes it, “Atari had hit upon one of the most important engineering challenges of the computer age: creating user interfaces that were radically simple and intuitive.”⁹

Additionally, the simplicity of *Pong* inducing nostalgia is a very important point as it ties two conclusive points mentioned in this paper about 2D designs in general:

1. 2D designs are simple, memorable, recognizable and clear.
2. 2D styles elicits nostalgia which attracts consumers.

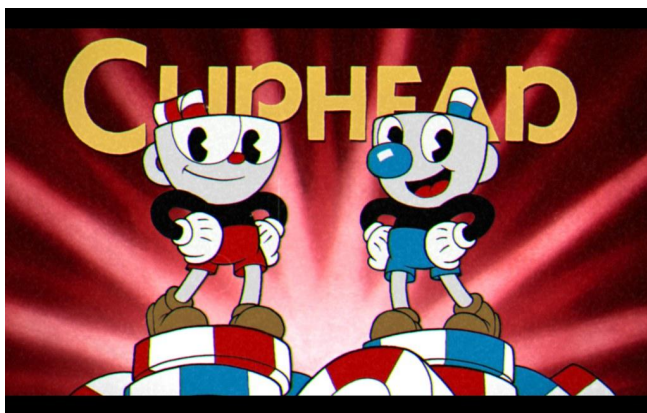
As a result, the prominence of 2D games could be due to the fact that it caters to the other end of the spectrum in the gaming industry where 3D games are associated with complexity, difficulty and are more large in size (timely to complete) while 2D games are the exact opposite being more simpler on both the eyes and the gaming experience. Therefore, a lot of companies and game developers are continuously adopting 2D styles given the fact that nostalgia and simplicity are one of the driving factors that attracts these consumers.

V. *Aspects of 2D and 3D combined: Cuphead a mini case study*

⁹ "The Innovators: How a Group of Hackers, Geniuses, and Geeks"
<https://books.google.com/books?id=aFapBAAAOBAJ&pg=PA212&lpg=PA212&dq=Atari+had+hit+upon+one+of+the+most+important+engineering+challenges+of+the+computer+age:+creating+user+interfaces+that+were+radically+simple+and+intuitive.&source=bl&ots=w2gpnOihm5&sig=ACfU3U3pYU0PSKaD6xyue-uStcXUUnuq5cO&hl=en>. Accessed 25 Mar. 2020.

This section will serve as a mini case study to focus more deeply on the differences between 2D and 3D game designs and what happens when you merge their advantages as one. Since this research paper is focusing on the prominence of 2D games despite the impressive existence of complex 3D games, the analysis of complex games in the realm of 2D designs must be conducted in order to formulate a fair conclusion. In order to do this, the 2017 game *Cuphead* will serve as a demonstration point.

Cuphead is a highly successful and addictive game as mentioned prior. Upon first impression, the game looks simple. It's a 2D designed game which has historical references to the design period of the 1930's with characterization that looks similar to that of Popeye and Betty Boop.



Thus, this game explicitly serves to induce nostalgia through its 2D design. However, what about its complexity? We have established that 2D art forms and designs mostly serve as connotations of simplicity. Interestingly, this game is very paradoxical in a sense that it is

¹⁰ "Cuphead on Steam." 29 Sep. 2017, <https://store.steampowered.com/app/268910/Cuphead/>. Accessed 26 Mar. 2020.

¹¹ "Cuphead: Don't Deal With The Devil | Available on Xbox One" <http://www.cupheadgame.com/>. Accessed 26 Mar. 2020.

notoriously hard if not the hardest game on the market¹², which is extremely uncommon for a 2D game. This paradoxicality is what makes this game very successful and unique. It purposely and cleverly combines both the appeal of 2D designs and the complexity of 3D games as one. Nick D'Orazio of InvenGlobal describes this as:

*“When playing Cuphead, it's easy to sense a clear purity of vision that emanates from every aspect of the game's presentation. Everything in the games universe feels like it has been purposefully placed and considered. Nothing feels out of touch with the larger narrative or aesthetic Cuphead introduces within the first five minutes of gameplay.”*¹³

As a result, while it may be safe to conclude that the appeal of 2D designs are purely for simplistic reasons, games like *Cuphead* prove the exact opposite such that 2D designs may resonate with consumers beyond the appeal of simplicity but merely for aesthetic purposes such the reminiscence of old age cartoons and designs which are globally adored.

VI. Relatability and 2D game designs.

Another appealing aspect of 2D game designs is how consumers can relate to not only the game itself but the game development process. 2D game designs are also widely commonly featured in indie games, which is a game genre that mostly consists of independent game developers. It is very costly to create complex 3D games as opposed to 2D games. As described by The Financial Post:

¹² "It Turns Out That 'Cuphead' Is Really Difficult - Forbes." 29 Sep. 2017, <https://www.forbes.com/sites/mitchwallace/2017/09/29/it-turns-out-that-cuphead-is-really-difficult/>. Accessed 26 Mar. 2020.

¹³ "Cuphead is a feverishly addicting adventure with true" 30 Sep. 2017, <https://www.invenglobal.com/articles/3076/cuphead-is-a-feverishly-addicting-adventure-with-true-universal-appeal>. Accessed 26 Mar. 2020.

“The rise of the indie gaming scene featuring small developers not tethered to the demands of multi-million dollar budgets and mainstream publishers, has also helped popularized retro gaming, particularly when it comes to reminding people how visually appealing pixelated graphics can be.”¹⁴

As seen in many industries such as the music or the film industry. People who opt to watch or listen to independent film-makers or artists do so in order to expose themselves to less mainstream forms of media and help support independent creators. In the gaming industry, one of the biggest indicators of independent creators is the prevalence of 2D art styles in their games.

Given the financial limitations of independent developers in comparison to big industry game developers, they face the challenge of selling stories or creating worlds only using 2D. A good example to showcase this is showing the difference of *The Legend of Zelda* and *Mario* when it was first released in comparison to now as Nintendo financially grew:

¹⁴ "Retro video game collecting: An industry built on nostalgia but" 15 Jul. 2014, <https://business.financialpost.com/technology/gaming/retro-video-game-collecting-an-industry-built-on-nostalgia-but-plagued-by-high-prices>. Accessed 29 Mar. 2020.



Old Zelda game, 1986¹⁵



Zelda now, 2019¹⁶

¹⁵ "Legend of Zelda, The (NES) - online game | RetroGames.cz." 5 Jun. 2012, https://www.retrogames.cz/play_068-NES.php?language=EN. Accessed 26 Mar. 2020.

¹⁶ "The Legend of Zelda: Breath of the Wild for Nintendo Switch" <https://www.nintendo.com/games/detail/the-legend-of-zelda-breath-of-the-wild-switch/>. Accessed 26 Mar. 2020.

As it can be observed, there is a huge difference in the map of the playable world almost to the extent that the current game of Zelda is very realistic. Despite the progression in design, it's interesting to note that both the former and 2D map and the current 3D map take place in the exact world and feature the same characters and despite the limitations of the 2D design, all these elements are identifiable. According to Retrojunk:

*"What you see is a creative interpretation, an artist's rendering of this world - or any world - using the technological limitations of the day. There is a distinct beauty in that which the mind alone is responsible, and such beauty can be found from within a cartridge."*¹⁷

Therefore, not only are 2D designs more relatable to consumers in a sense that the development of indie or 2D games is more accessible to the average person but there is a beauty behind the limitations behind 2D designs such that we are able to identify objects or characters merely by pixels because of the innovation and creativity of the developer behind the art.

VII. Escapism and 2D games

Video games can serve as a form of escapism for the consumer as many people who play video games enter into virtual fantasy worlds. Escapism in video games can also serve as a reason to escape the daily occurrences of life whether for therapeutic or entertainment reasons. As 3D games become more realistic, this can create an issue for those looking for an escape in video games as the graphics simulate everyday appearances. However, since 2D games don't have the depth to be categorized as realistic, it is a better option for those looking for the full fantasy experience while playing games. According to USGamer.net:

¹⁷ "Aesthetic or Nostalgia? | Retro Junk Article."
<https://www.retrojunk.com/article/show/4730/aesthetic-or-nostalgia>. Accessed 27 Mar. 2020.

“Brjann Sigurgeirsson of Image & Form sees the emotional benefits of 2D artwork as well. "2D has the added benefit of not being 'real'," he tells me, "that gives us complete freedom to create unusual settings and characters. Since they are cartoonish, there is never a discussion of things not looking 'the way they should' - or even that our stories are 'unrealistic'." ”¹⁸

2D games are unique in a sense that unlike modern or 3D games that try to emulate real life as much as possible, 2D games give both the consumer and developer the freedom to focus more on fantasy related stories and explore more freedom in bending the rules or physics of reality.

Additionally, there exists a phenomena in which people might actually feel uneasy or anxious when digitized characters or objects are too lifelike. This phenomenon is also known as the Uncanny Valley. The concept which was introduced by Masahiro Mori at the Tokyo Institute of Technology¹⁹ describes that there is a certain point where digitized realism becomes unsettling and therefore ascending into the uncanny valley which evokes a sense of strangeness. This can be completely avoided through the utilization of 2D art styles in game designs in which fantasy strictly stays fantasy.

¹⁸ "For the Love of 2D Games: Why Developers Still Make Them" 11 Oct. 2014, <https://www.usgamer.net/articles/for-the-love-of-2d>. Accessed 26 Mar. 2020.

¹⁹ "The Uncanny Valley: Existence and Explanations | Request PDF." https://www.researchgate.net/publication/287797484_The_Uncanny_Valley_Existence_and_Explanations. Accessed 26 Mar. 2020.

VIII. Conclusion

In conclusion, the aesthetic appeal of 2D game designs and why they are so prominent despite the existence of 3D and semi-realistic games is due to simplicity, nostalgia, relatability and escapism. 2D designs in general evoke a sense of nostalgia due to its historical nature in many art forms, genres and styles besides video games and people in general are very responsive to nostalgia. Additionally, the geometric form of 2D art styles and its lack of depth signify simplicity which is not usually obtained in 3D and modern games with complex game engines, therefore the need for simplicity is being catered to with the development of 2D games as demonstrated by Pong. 2D games are also more relatable to the consumer as they're commonly developed and designed by independent developers with a limited budget, therefore they are appealing to those looking for other options beyond mainstream games and game development. Lastly, since 2D games and 2D designs don't tend to replicate real life or the physics and rules of the real world like 3D games strive to do, they are better at emulating fantasy worlds and thus compliments the purpose of video games being an escape by strictly featuring graphics that only exist in the realm of fantasy

Bibliography:

- "For The Love Of 2D Games: Why Developers Still Make Them". *Usgamer.Net*, 2020, <https://www.usgamer.net/articles/for-the-love-of-2d>.
- "Aesthetic Or Nostalgia? | Retro Junk Article". *Retrojunk.Com*, <https://www.retrojunk.com/article/show/4730/aesthetic-or-nostalgia>.
- Niedenthal, Simon. *Digra.Org*, <http://www.digra.org/wp-content/uploads/digital-library/09287.17350.pdf>.
- "Pixel Art Games Aren't Retro, They're The Future". *The Verge*, <https://www.theverge.com/2014/7/3/5865849/pixel-art-is-here-to-stay>.
- Roettl, Johanna, and Ralf Terlutter. "The Same Video Game In 2D, 3D Or Virtual Reality – How Does Technology Impact Game Evaluation And Brand Placements?". *PLOS ONE*, vol 13, no. 7, 2018, p. e0200724. *Public Library Of Science (Plos)*, doi:10.1371/journal.pone.0200724.
- Suominen, Jaakko. "The past as the future? Nostalgia and retrogaming in digital culture." Proceedings of perthDAC2007. The 7th International Digital Arts and Cultures Conference. The Future of Digital Media Culture. Vol. 15. 2008.
- Garda, Maria B. "Nostalgia in Retro Game Design." DiGRA Conference. 2013.
- "Introduction To Retro Design: Chip Off The Old Block - Icons8 Blog". *Icons8 Blog*, 2016, <https://icons8.com/articles/retro-design/>.
- "Why Is Cuphead So Popular?". *Softonic*, 2017, <https://en.softonic.com/articles/why-is-cuphead-the-most-popular-video-game-right-now>.
- Blindell. "Brand Design: 8 Reasons To Keep Logos Simple | How To Build A Brand". *How To Build A Brand*, 2014, <https://howtobuildabrand.org/branding/8-benefits-simple-logo-design/>.
- Fussell, Grace. "A Guide To Vintage Design Styles". *Design & Illustration Envato Tuts+*, <https://design.tutsplus.com/articles/the-potted-guide-to-vintage-design-styles--cms-26986>.

Inc., Postmedia. "Retro Video Game Collecting: An Industry Built On Nostalgia But Plagued By High Prices". *Financial Post*,
<https://business.financialpost.com/technology/gaming/retro-video-game-collecting-an-industry-built-on-nostalgia-but-plagued-by-high-prices>.

Isaacson, Walter. "The Entrepreneurial Genius Of Pong". *Slate Magazine*, 2014,
<https://slate.com/technology/2014/10/the-invention-of-pong-how-nolan-bushnell-launched-the-video-game-industry.html>.

Jr., Tom. "'Super Mario Bros.' Debuted 33 Years Ago — Here's How Mario Accidentally Became A Gaming Superstar". *CNBC*, 2018,
<https://www.cnn.com/2018/09/13/super-mario-bros-how-shigeru-miyamoto-created-mario-for-nintendo.html>.