

The Positive Effects of Video Games on the Human Mind

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Abstract

In order to gain insight into how to create a successful game, a developer should learn about the end user of the product, the player. For this exact reason, there must be a deeper understanding of the effects games can have on the one who plays them. The main question addressed in this paper is “How can the games positively affect the player on a psychological and emotional level?”. This question has been divided into 3 different sub-questions. To answer them, a combination of thematic analysis and literature study was used. Multiple studies have been previously made on the relationship between video games and the human mind, either focusing on the negative or on the positive effects. This paper has a new approach, consisting of dividing the benefits into categories determined by the main reason a player chooses to play games. The main 6 categories were established empirically, and 200 answers were arranged under the category most fitting for each. A total of 14 benefits were found for the previously mentioned categories. Additionally, 5 less noticeable benefits have been included into a new category.

Keywords: Video games, human mind

1 Introduction

For creating a successful game, a developer needs to know more than just how to program it. In order to make a game enjoyable, one needs in-depth knowledge about its audience, the player. Therefore, they must be informed about the influence that playing games can have on a person. This begs the question: How can games positively affect the player on a psychological and emotional level?

Since a game can impact a person in various ways, during game development, one should be aware of how to use different techniques in order to make the player’s experience better. In this day and age, it has become increasingly easy to create a game. Despite the multitude of tools developers are presented with today, many of the newer games lack a certain level of quality that made some of the older games stand out. This proves that there are different elements that make players resonate with games, for reasons much more complex than visual appeal.

To answer the main question (How can games positively affect the player on a psychological and emotional level?), a closer look has to be taken at what this question entails: What are the reasons people play video games? How is the mind of the player affected by video gaming? What are the less noticeable ways in which games affect the mind?

2 Background

The influence of video games on the human mind has been previously studied by numerous researchers in the past. Some of the studies are focused on the positive effects, some on the negatives. This paper uses a new approach on this subject, splitting the beneficial influence of gaming into categories determined by the reasons people choose to play games.

One of the most relevant studies providing information about the benefits of playing video games are found in the article with the same title [1]. It states that *“Both traditional and video games are fundamentally voluntary in nature, they can include competitive and cooperative objectives, players immerse themselves in pretend worlds that are safe contexts in which negative emotions can be worked out, and games allow a sense of control with just enough unpredictability to feel deep satisfaction”*.

Whether if it's watching theater plays, going to the cinema, or playing video games, entertainment determines people to enter a state of satisfaction. Doing it regularly improves one's mental and even physical health. Excitement or relaxation, as well as the multitude of emotions provided by entertainment in any form, will improve an individual's everyday life [2].

Social interaction with other individuals constitutes a vital factor for well-being [3]. Furthermore, studies indicated that socializing can perceptibly improve health [4]. Other researchers state that socializing counters the deterioration of Theory-of-Mind abilities [5].

Medical studies on playing video games prove the following effects: the decrease of withdrawal and depressive type behaviors and the stimulation of excitement and euphoric behaviors [6]. It's been concluded that casual video games are comparable in effect with mindfulness-meditation, helping with decreasing blood pressure and the heart rate, while also provoking “decreases in an individual's reactivity towards a negative emotional stimulus” [7].

Some studies pinpoint further benefits such as the improvement of spatial skills [1], coordination, the improvement of selective attention [8]. What is more, they can improve the efficiency of one's social, cognitive, and motor skills [9].

3 Methods

Multiple methods have been used with the purpose of answering the research questions. These methods are comprised of thematic analysis and literature study.

For answering the first sub-question (What are the reasons people play video games?), a thematic analysis has been conducted. Using Reddit, an internet platform suited to inquire about people's opinions and experiences, data has been collected from a popular, existing entry. The question “Why do you play video games?” is addressed to the average person [10]. Two hundred responses have been selected and arranged into categories. The data has been put into a percentage graph for a better visualization, revealing which are the desired effects of playing games, as well as which of them are favored by the majority.

The results acquired previously serve as reference points for the next step. Using the existing research available in different published works, such as books and articles, data has been gathered regarding the desired benefits that have been previously listed. The information consists of the positive impacts they have on the human mind and

one's emotional state of being. The results have been viewed in a table that is comprised by the desired elements and the way they influence the brain in a beneficial way.

With the utilization of literature study, further information has been acquired in regard to the impact of games that is not noticeable by the average person. The information that was concluded by said studies has been collected together and regarded under the category of further benefits. The new information will be added to the table, in order to better visualize all the encountered benefits that have been found.

4 Results

In order to acquire information about the positive impact of games on players, average players were enquired about what makes playing games appealing. Further research has been made for understanding how these reasons affect the brain, using available articles and books. Additional literature has been used to gather information about the less noticeable effects of playing games.

4.1 Why do people play video games?

The raw data was obtained from an online inquiry regarding the reason the respondents play games [10]. From the total of 947 answers, 200 responses have been selected, based on their popularity which is dictated by the number of upvotes. The answers that convey a similar reason to one another have been grouped together under one category, using an excel sheet (Appendix 1). The categories have been determined empirically based on the provided answers, as described in Table 1.

Table 1 - Description of categories

Category Name	Description
Escapism	<ul style="list-style-type: none"> • <i>"An activity, a form of entertainment, etc. that helps you avoid or forget unpleasant or boring things"</i> (Oxford, Oxford Learner's Dictionaries, 2021) • Living a preferred fictional reality
Entertainment	<ul style="list-style-type: none"> • Answers that compared video games to books, movies, theater plays, and other such works of fiction • Intrigued by plot and characters • Exclusively related to the story aspect of the gameplay
Accomplishment	<ul style="list-style-type: none"> • The rewarding feeling of achievement
Fun	<ul style="list-style-type: none"> • <i>"Light-hearted pleasure, enjoyment, or amusement; boisterous joviality or merrymaking; entertainment"</i> (Oxford, 2021) • It also includes unspecified positive feelings
Socializing	<ul style="list-style-type: none"> • Staying in touch with people • Making new connections
Stress relief	<ul style="list-style-type: none"> • Lowering one's level of stress • Initially, under the escapism category, it evolved into its own category

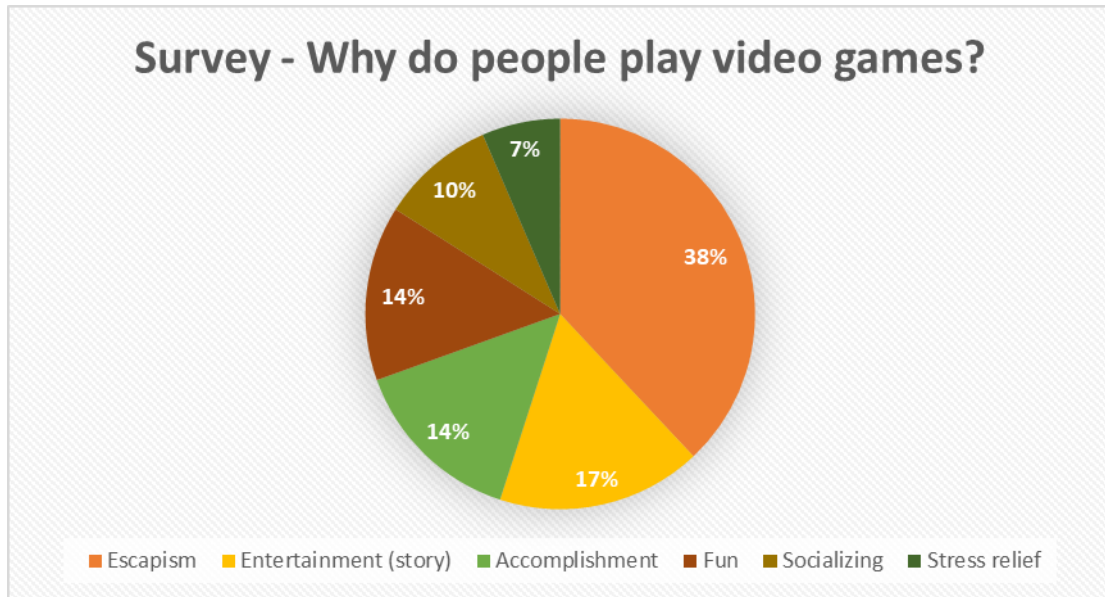


Figure 1 - Survey results

To avoid duplicate recording of the same user, the name associated with the answer has been used. However, since some of the accounts have been deleted, some of the entries in the excel sheet have the same value: “[deleted]”. (Appendix 1)

The number of responses that belong to each category have been recorded and put into a graph, showing the percentages of each, as shown in Fig. 1.

4.2 How is the mind of the player affected by video gaming?

Based on the reasons gathered previously, further research has been made using articles and books, in order to elaborate on the ones whose effects are not directly stated nor apparent. For the reasons that refer directly to experiencing certain feelings or improving one’s mood, additional literature has been used to identify further benefits and supplemental information. The results have been inserted into a table, displaying the benefits alongside each of the six reasons.

A summary of the information gathered from the various papers mentioned in the background section has been introduced into a table for a better visualization (Table 2).

Table 2 – Main benefits of playing games

Reason to play	Benefit
Escapism	<ul style="list-style-type: none"> • Induces a sense of control • Allows people to work out negative emotions in safe contexts • Can offer a feeling of deep satisfaction
Entertainment	<ul style="list-style-type: none"> • Enriches a person’s daily life by inducing a range of emotions • Maintains or even improves problem solving and enhances perceptual skills
Accomplishment	<ul style="list-style-type: none"> • Represents one of the pillars of well-being, as illustrated by Seligman’s PERMA model [13]
Fun	<ul style="list-style-type: none"> • Lowers instances of withdrawal and depressive type behaviors • Stimulates excitement and euphoric behaviors

Socializing	<ul style="list-style-type: none"> • Constitute one of the most important factors necessary for living a happy life • Improves physical and mental health • Counters the deterioration of Theory-of-Mind abilities that are caused by ageing
Stress relief	<ul style="list-style-type: none"> • Reduced blood pressure • Reduced heart rate • Allows one to cope better when faced with negative emotional stimulus

4.3 What are the less noticeable ways in which games affect the mind?

Using the research provided by already existing literature, information has been sought regarding the benefits of video games that are not apparent to the average player. The main benefits, summarized by a statement, have been inserted into a table for the sake of consistency.

The articles from which the additional benefits of playing games were gathered are also presented in the Background section.

Table 3 – Additional benefits of playing games

Further benefits	<ul style="list-style-type: none"> • Improves spatial skills (playing shooting games) • Enhances a person's coordination • Improves selective attention • Improves reading speed and accuracy • Increases efficiency of social, cognitive and motor skills
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5 Discussion and Conclusion

The main aim of this paper was determining the positive effects of video games on the human mind. This has been attempted by answering three sub-questions regarding the reason people play games, the benefits that are offered by these motivators, and information about less noticeable positive effects of playing games. For the research, different methods have been used.

Thematic analysis has been applied to a Reddit forum of 947 responses, selecting 200 relevant answers which were later classified into 6 clusters. In the background section some similar studies are presented, whose results were used in sections 4.2 and 4.3 as literature study.

The answer to the first sub-question can be described by Figure 1.

It can be concluded that the main reason the player chooses to spend their time playing is Escapism, with 38%. The next one is Entertainment (17%), closely followed by Accomplishment (14%) and Fun (14%). The last two are Socializing (10%) and Stress-relief (7%). The fact that the percentage of people that chose Escapism is more than 5 times bigger than the ones who chose stress-relief might seem counterintuitive. However, it is important to consider the possibility that some respondents regarded stress-relief as an element naturally provided by Escapism, Fun, or Socializing. Similarly, it is possible some people might regard Fun as an extension

of Entertainment. Nevertheless, these categories have been kept separate because of the way the answers were structured: some clearly specified solely liking the Fun aspect, while others acknowledging an entertaining story is not always fun.

The next question was answered using an extensive literature study, from which 14 emotional and psychological benefits have been found. The selection of articles has been aided by the usage of keywords taken from the 6 previously mentioned categories. Combining the results of the first two answers, by arranging the benefits into the 6 categories, it can be concluded that the main benefits sought by players are: a sense of control, working out negative emotions in safe contexts, and feelings of deep satisfaction.

Answering the last question that was focused on the less noticeable benefits of playing games, 5 further positive effects have been found. It is to be noted that these 5 benefits are of psychological nature rather than most of the previous effects which impact one's emotional state.

Finally, the answer to the main question: *“How can the games positively affect the player on a psychological and emotional level?”* can be concluded by combining the results of all 3 sub-questions. Ultimately, 19 benefits of playing video games have been gathered, each grouped into 6 main categories and a secondary one.

The research has some limitations given by the subjective nature of choosing the categories in which the answers were grouped in. What is more, there was a lack of information about respondents, such as gender, age, or occupation. Additionally, the information was taken exclusively from people whose answer was written, which are possibly of a more extroverted nature, as opposed to the ones that might simply upvote the answers they identify with most. Contrastingly, these answers were taken from a website that is mostly used by introverts. Therefore, there is a possibility of the results being biased.

Further direction of research can consist of studying the way in which the gameplay might trigger those desired, beneficial responses in people.

Appendix 1 – List of respondents

Accomplishment	Escapism	Fun	Entertainment	Socializing	Stress relief
Comeh	[deleted]	[deleterd]	[deleted]	protossFTW	[deleted]
AGuyReadingThisSit	Gud84	P4TTYCAKES	DrBibby	TJ_McWeaksauce	sanryu
mortiphago	Modnar947	MasterKenobiWan	MONKEY_RAPIST	octaffe	LegendsEcho
[deleted]	uanaa	NintendoLegend	Germanicus118	Golden-psyco	HobbleWobble
NoobsMcGee	GameStunts	R88SHUN	Poem_for_your_sprog	xytyson	bulletr0k
lethargicwalrus	Aulio	shadowstorm213	gmalsparty	PhilipJayFry1077	datboigucci
[deleted]	magichatman	rynnrad	CountPikmin	Scratch203	fidhean
VestedTomb	dellitefuldespot	Reubarbarian	Biomancer	jimbobhas	Weeperblast
UndeadPixels	anakinastronaut	TKAAZ	NOT_ACTUALLYRELEVANT	canada432	xnerdyxrealistx
[deleted]	[deleted]	[deleted]	AnAdorableKitty	JaydenLZW	ska_robot
K_a_M_l	RadioActyve	DTX120	Mellyrox	Soirgriffe	[deleted]
bokchoykn	goldenratio1111	fohx8er	xxfay6	LBKewee	shittyspellir
jaysars	Fred_the_Dead	[deleted]	[deleted]	shrimpbizkit	slavkody
rednexican	raptor_theo	officialdovahkiin	gstatty	TheDogWhistle	
bda9563	GKit11	EllisDee_4Doyin	talikfy	marc11	
PhotographerMan	tallandlanky	colinward774	ziem0n	I_Upvote_cool_things	
ZombieDestroyerGu	b24stmode	[deleted]	kilroydacad	multalica	
niako	CupcakeFan	StreetSpirit127	JaydenLZW	_Gingy	
Share_Needles	LinksMilkBottle	smikims	zakadak	Jonstrosity	
workthr_owaway	bigtittedredhead	[deleted]	temroT		
angevelon	Sterculus	hiphopsicles	exorbitantwealth		
[deleted]	bax101	Smokee_Robinson	fractal7		
orangegluon	DudeOverdosed	OnADock	dudewhoisnotfunny		
FamilyFeedbag	MinisterOfTheDog	td27	JesterScott		
Bjinandtonic	cursed_deity	Portgas	PeeTer_Tape		
[deleted]	ecstaticplatypus	caizer68	JokerFaces2		
sound_of_water	Organs	DryImpact	[deleted]		
giegerwasright	Farcaster	stipulation	RockTripod		
jqpeub	ORyanB8	CarsCarsCars1995	BagOnuts		
	Badika881		Cid0807		
	MrGunpowder		classy_stegasaurus		
	CGRampage		RandomPerson964		
	[deleted]		MrAwes0m3		
	KidVandal		ninoffmaniak		
	mcwillt6				
	krulltheking				
	racoona463				
	SkinnyGibby				
	1dr				
	guysneedlovetoo				
	bonedeat				
	[deleted]				
	BlazikenTrees				
	FlyBoyChoy				
	bulletr0k				
	[deleted]				
	dallDave				
	fukyosadface				
	bobthecookie				
	vocalizationmachine				
	Robiart				
	theCronikah				
	bears2cl				
	sqwarlock				
	gottalovefood				
	DABEAST4824				
	Impetigo				
	Wheres_the_mayo				
	Pawly_Der				
	TheyCallMeChill				
	ClutchHunter				
	[deleted]				
	I_Nick				
	Smack23j				
	welluhthisisawkward				
	RosieJo				
	thescakal				
	JackieCogan				
	sonkan91				
	Yunalesca_236				
	Saisei				
	_JESUS_CHRYSLER_				
	Ry_Guy19				
	Baldemyr				
	th3dave				
	Albetrois				

6 References

- [1] I. Granic, A. Lobel și R. C. M. E. Engels, „The Benefits of Playing Video Games”, *American Psychologist*, Vol. 69, No. 1, DOI: 10.1037/a0034857, p. 66 –78, 2014.
- [2] J. Goldstein, „Applied Entertainment: Positive Uses of Entertainment Media,” în *Handbook of Digital Games and Entertainment Technologies.*, Singapore, Springer, 2017.
- [3] M. L. Kringelbach și K. C. Berridge, „The Neuroscience of Happiness and Pleasure,” *Soc Res (New York)*. 77(2), p. 659–678, 2010.
- [4] H. R. Walen și M. I. Lachman, „Social support and strain from partner, family, and friends: Costs and benefits for men and women in adulthood,” *Journal of Social and Personal Relationships* 17(1), pp. 5-30, 2000.
- [5] Pearlman-Avni, Shiri, Ron, Noa, Ezekiel și Smadar, „Ageing and theory of mind abilities: The benefits of social interaction,” *Educational Gerontology*, 2018.
- [6] C. Russoniello și K. O’Brien, „The effectiveness of casual video games in improving mood and decreasing stress,” *Journal of Cyber Therapy and Rehabilitation* 2(1), pp. 53-66, 2009.
- [7] V. Desai, A. Gupta, L. Andersen, B. Ronnestrand și M. Wong, „Stress-Reducing Effects of Playing a Casual Video Game among Undergraduate Students,” *Trends in Psychology* volume 29, p. 563–579, 2021.
- [8] J. W. Karle, S. Watter și J. M. Shedden, „Task switching in video game players: Benefits of selective attention but not resistance to proactive interference,” *Acta Psychologica*, pp. 70-78, 2010.
- [9] S. Franceschini, S. Bertoni, M. Lulli, T. Pievani și A. Facoetti, „Short-Term Effects of Video-Games on Cognitive Enhancement: the Role of Positive Emotions,” *Journal of Cognitive Enhancement*, 2021.
- [10] Oxford, 10 2021. [Interactiv]. Available: <https://www.oxfordlearnersdictionaries.com/definition/english/escapism>.
- [11] Oxford, „Wikipedia - Fun,” 10 2021. [Interactiv]. Available: https://en.wikipedia.org/wiki/Fun#cite_note-def-1.
- [12] M. E. Seligman, *Flourish: A Visionary New Understanding of Happiness and Well-Being*, Simon & Schuster, 2012.
- [13] Reddit, „Reddit,” 22 10 2021. [Interactiv]. Available: https://www.reddit.com/r/AskReddit/comments/1701uj/why_do_you_play_video_games/.
- [14] Oxford, 23 10 2021. [Interactiv]. Available: https://www.oxfordlearnersdictionaries.com/definition/english/fun_1.