# A quantitative study on the effects of crowdfunding on the quality of indie video games

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**ABSTRACT,**
***With more and more indie games being developed and released every year, it becomes increasingly difficult for developers to secure funding for their projects. For this reason, in recent years, crowdfunding websites like Kickstarter have grown. These platforms allow developers to secure funding directly from potential fans and customers. The backers of these crowdfunding projects play a key role not only in the funding of these games but also in the development of them. However, does this involvement increase the quality of the final product? To answer this question, we analyzed the user and critic review scores of 158 crowdfunded and non-crowdfunded indie video games to see the effects of crowdfunding on indie game quality.***

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***During the preparation of this work, the author used Grammarly in order to refine the spelling and grammar. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the content of the work.***

**Keywords**
Crowdfunding, Indie games, Steam, user reviews, critic reviews, indie games growth

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# 1. INTRODUCTION

Over the past decades, the video game market has grown from a relatively small industry within the wider entertainment sector to a massive industry. The industry in 2024 is worth around $187.7 billion with forecasted growth to $231 billion in 2027, on top of that the industry currently has roughly 3.4 billion users (Newzoo, 2024). With this intense growth has also come the opportunity for more independent game development. These so called "indie" games have become increasingly popular over recent years by being able to captivate audiences with innovative ideas (Forbes, 2023).

Another major reason for the increase in indie games popularity is the "Steam" platform. Originally released in 2003 by video game developers Valve, it has since grown massively and it's currently the market leader when it comes to the digital distribution of video games on desktop. Within the U.S. Steam controls 75% of the market (Demandsage, 2025). Steam mainly consists of two parts: the Steam store and the Steam community. The former is a digital storefront where users can buy and download video games while the latter gives users the ability to interact with other users and developers. As part of the community aspect, users can review games they've bought, communicate with others through the forums and get relevant information about their games such as updates or other announcements (Lin et al., 2017). These features combined with a history of pro-consumer policy for example, banning games that include obligatory in-game advertisements (Yahoo, 2025) has gained them the trust from so many users and cemented Steam as the market leader. With the great influence over the industry that this position brings, Steam has created a platform where everyone is able to publish their games for millions to enjoy them. Particularly indie game developers have benefitted from this massively; by not being required to partner with a publisher these developers are able to save costs. On top of that, the Steam store also helps independent developers through the use of an algorithm that gives users new game recommendations. This causes users to see a variety of new games they would've otherwise never encountered. The algorithm ensures that indie game developers can compete for visibility even with relatively tiny marketing budgets. These factors combined result in Steam being the primary platform for indie games and this is evident from the fact that 98.9% of newly released games on Steam are considered indie games and they make up a majority of games sold (Statista, 2024). Currently indie games account for some of the highest user rated games on the platform with three out of the top five being considered indie[1] (SteamDB, 2025).

While Steam has been a great help as a platform for developers to release their games on it doesn't fix another major problem that still plagues indie games from succeeding which is securing funding. For 38% of developers funding their games was their primary obstacle according to a 2018 survey (GamesIndustry.biz, 2018) Unlike major studios who have large cash reserves independent developers often are newcomers to the scene and can't rely on existing funds. Because of that, independent developers have looked for alternative ways of funding and in this regard an increasingly popular form of sourcing funds is crowdfunding. When it comes to video game crowdfunding outside of the standard donation-based crowdfunding a popular method is reward-based crowdfunding (Szopik-Depczyńska et al., 2020). This fundraising method includes the backer contributing to a project without expecting any monetary returns instead, backers are compensated in other ways usually through pre-orders, services or recognition (Zhao & Ryu, 2020). The reason for this method's popularity in the video game sector is that a copy of the game is included as a reward for the backers on top of a bunch of extra rewards, this is very attractive for backers since this way they would be paying for a full release with extra rewards and on top of most likely get to contribute to the development of the game. For video game developers looking to use crowdfunding, the platform Kickstarter has cemented itself as the primary destination. Since the platform was founded in 2009 its users have raised over $8.5 billion dollars in total with over $2.6 billion dollars going to video games making it the platform's biggest category (Kickstarter, 2025). One of the biggest success stories of Kickstarter has been *Kingdom Come: Deliverance* which started on the crowdfunding platform in early 2014 and quickly reached its goal. Since then, the game has sold over 5 million copies[2], has a critic rating of 7.6[3] and a successful sequel has been made[4]. However, not all crowdfunding projects are this lucky as only 25,78%[5] of video game projects successfully reached their desired goal (Kickstarter, 2025).

In the modern-day entertainment landscape people are often overwhelmed with choices. With over 15 thousand games being released on Steam in 2024 alone, this is also true for the video game industry (Statista, 2025). Thus, consumers need a good way to figure out what games are worth their time and money. The most widespread way to assess most forms of media is by viewing the reviews. The Steam platform makes this very intuitive as user review averages are one of the main things featured on each games page. This alongside critic reviews is one of the main ways gamers decide if it is worth purchasing a game.

## 1.1 Research objective

### *1.1.1 Research Question*

The aim of this thesis is to figure out if there is a difference in quality between differently funded indie games. More specifically, the objective is to analyze if there is a statistical difference between the review scores, from users and critics, in two different genres of indie games funded through crowdfunding platforms like Kickstarter and indie games funded through other means. To achieve this objective, the following research question has been formulated: *"**Does crowdfunding result in higher quality video games?**"*

### *1.1.2 Scope and limitations*

This thesis will focus on the following video game genre roguelikes/roguelites. The reason for choosing roguelikes/roguelites is that it is a prevalent genre within crowdfunding platforms like Kickstarter and it is also a genre primarily developed by indie developers. The focus on quality through the means of review scores has been chosen since gamers often use review scores to decide if they should purchase a game.

[1] Different sources have slightly different lists this, however, doesn't change the statement.

[2] Paul James, "Kingdom Come: Deliverance Passes 5 Million Sales Milestone", *Gameranx,* June 29, 2022, https://gameranx.com/updates/id/323172/article/kingdom-come-deliverance-passes-5-million-sales-milestone/.

[3] The critic review score comes from Metacritic a site that creates an aggregate based of off reviews from critics.

[4] Wesley Yin-Poole, "Kingdom Come: Deliverance 2 Shows No Sign of Slowing Down, Sells 2 Million Copies in Less Than 2 Weeks", *IGN,* February 17, 2025, https://www.ign.com/articles/kingdom-come-deliverance-2-shows-no-sign-of-slowing-down-sells-2-million-copies-in-less-than-2-weeks.

[5] Calculated by taking the # of successful projects divided by the # of total projects minus currently active and upcoming projects.

Hyemin (2016) analyzed the correlation between user review scores and critic scores and noted that when it came to indie games they did correlate. Meanwhile, Hoffman (2021) shows that higher critic review scores correlate with more sales. If crowdfunding results in higher review scores, this could then lead to more units being sold, which is an important metric for success.

There are also some limitations. Crowdfunding is still a relatively new source of funding. This leads to less possible data in order to get a good analysis. Kickstarter, as of April 2025, has 5.307 projects under the gaming category that reached their funding goal (Kickstarter, 2025) meanwhile, Steam released roughly 15.400 games in 2024 alone (Statista, 2025). Another limitation when it comes to the quality of data is that a large number of crowdfunding projects fail therefore the ones that do eventually release could potentially already be of a higher quality.

### *1.1.3 Academic relevance*

There has already been a lot of research into the indie game sector and the increasing popularity of crowdfunding within the wider video game industry. Crogan (2018) for example, contributes the rise of indie games to the developers often making their games for more than just profits, they also try to push boundaries that traditional developers don't. When it comes to crowdfunding Planells (2015) delves into the effects that backers have on the development of the game and the differences from the standard model. While there is already a good amount of research on the rise of indie games the sector still lacks research on the impact crowdfunding has on indie games success. This is something this thesis will focus on. By analyzing if there is a difference, the literature could gain insight into potential implications for developers who are trying to find a suitable funding source and if early consumer involvement into a project translates to later game quality and perception.

## 2. LITERATURE REVIEW AND HYPOTHESIS

When it comes to the literature for this thesis there are a few important topics. Firstly, there is the growth of the indie game industry which focuses on two aspects, namely the intrinsic reasons and the Steam platform. Another significant topic is crowdfunding and more specifically, why independent developers use it and how it benefits them in their game development. Lastly, there is a section about user reviews which focuses on how the user reviews have become an essential part of post-launch game development.

## 2.1 The growth of Indie gaming

### *2.1.1 Intrinsic reasons for growth*

The rise of Indie gaming over recent years can be attributed to many factors and varying authors have researched potential reasons for it. Crogan (2018) starts off by mentioning the financial crash of 2008 as an important moment in the rise of indie games as it heavily reduced the sales of video game consoles. This wouldn't, however, lead to a lower demand for video games. Indie developers suddenly weren't tied to producing for the console market and could instead focus on the growing PC market and especially the, at the time, massive growth in smartphones. This resulted in massive growth for the indie sector of game production.

Crogan also mentions the possibility of diversification in the forms of video games. Due to the increasing variety of developers who in turn are exploring new ideas for their projects. This idea is reinforced by Styhre & Remneland-Wikhamn (2021) who interviewed 70 indie game developers. They mention that the personal experiences and identities of the developers are embedded into the video game and that's a reason why they are so unique. On top of that, due to the often-limited resources available for developers they are forced to come up with new ideas and solutions. There has also been research done into the specific elements within an indie game players tend to focus on. According to Y'ng Ng et al. (2025), the motivational and creative elements of an indie game have the largest effect on players' emotional investment and engagement into the game.

### *2.1.2 STEAM PLATFORM*

The rise of indie gaming on desktop can partially be attributed to the Steam distribution platform. In 2024 15.422[6] games were released on Steam out of which 98.9%[7] were considered indie games. Clarke & Wang (2020) mention in their book how the Steam platform doesn't favour major publishers and gives indie games an equal placement on their storefront. This combined with Steam's massive user base allows indie games to truly shine. One interviewed developer in the book mentions how Steam is central to their sales and marketing strategy and mentions how before Steam there wasn't really a platform where indie games could reach a wide audience. Styhre (2020) in his book also interviewed a multitude of indie developers who share the previous sentiments about the importance of the Steam platform to indie game developers. Another important feature of the Steam platform is the availability of early access. This allows developers to release their games even if they aren't fully finished. Giving a chance for players to give valuable feedback, which in turn helps developers to earn money while continuing to work on their game The growth of indie games on the Steam platform is also visible in the statistics.

## 2.2 Crowdfunding through Kickstarter

When it comes to crowdfunding Kickstarter is the primary destination for most video game developers. In 2024 26 million dollars were pledged to video game projects and 441 projects were successfully funded (Kickstarter, 2025). Crowdfunding is still a relatively new form of funding however, with the high costs involved in developing a video game many indie developers have attempted to pursue crowdfunding to secure additional funding (Styhre 2020). However, due to limited regulation crowdfunding often isn't used as the primary source of funding for developers: *"In the end, crowdfunding remains a complementary funding model for most indie developers as the model is unpredictable and thus costly to manage …"* (Styhre, 2020, p.175).

One thing that crowdfunding does allow for is more user involvement in the development process. Planells (2015) talks about how the creation of the 'prosumer-investors'. This is a group of people who used to only buy video games, however, with crowdfunding platforms like Kickstarter these buyers invest into the game and partially help develop the game. This idea is reinforced by Styhre (2020) who argues that the influence investors have on the final products is a key advantage of

[6] https://www.statista.com/statistics/552623/number-games-released-steam/

[7] https://www.statista.com/statistics/1535485/steamsteam-annual-indie-game-share/

crowdfunding. This is reinforced by the findings of Bessière et al., (2020) who mention one of the key advantages of crowdfunding is the acquisition of cognitive resources which help companies explore future development opportunities. By doing interviews with indie developers Clarke & Wang (2020) noticed some of the benefits crowdfunding can have, is that it allows developers who have no connections within the industry to still have a way to secure funding. On top of that Kickstarter campaigns often help increase the visibility of projects, making them a good form of marketing.

### *2.2.1 Differences between Steam and Kickstarter*

Steam and Kickstarter are both important in the modern-day indie gaming scene, however, they are very distinct and have some important differences. For starters, Kickstarter is a platform designed for crowdfunding which allows backers to fund games from conceptual stages through beta versions. Meanwhile, Steam is very much a distribution platform and not a crowdfunding platform. Developers are able to publish playable versions of their games on the platform and use revenue generated by purchases to further their development all the way to an eventual full release on the platform. The two platforms also differ in their way of giving feedback. The main difference is that when it comes to crowdfunded projects there is a more direct line of communication and therefore feedback with the developers. Meanwhile on Steam users are only able to communicate with developers through reviews and commenting on the game's forum.

## 2.3 The importance of user reviews

User reviews have gained increased importance in the digital age. Players now can directly voice their opinions about a game. Particularly through Steam players can directly review the games they own, and these have become increasingly important. Tong (2021) analyzed if user reviews accurately reflect problems within a game. Through his research he discovered that user reviews and feedback were able to accurately reflect common issues players were having. This became a useful tool for developers to find out what players were frustrated about in order to fix it. Hyemin (2016) analyzed the correlation between user reviews and critic reviews and noted that in most cases there was no correlation between the two however, when it came to casual and indie games the user score and critic score did align. This shows that when it comes to indie games user reviews are able to accurately determine the quality of the game.

## 2.4 Hypothesis

When it comes to the research question: ***"Does crowdfunding result in higher quality video games?"*** there are many potential variables that could impact the success of a crowdfunded game compared to an alternative. Firstly, crowdfunding acts like a test for success. Since only about a quarter of video game projects on Kickstarter reach their goal, these games have already proven to at least be intriguing enough for backers to spend their money on. Secondly, the impact of direct feedback for crowdfunding developers could be of vital importance for improving their game before an eventual release. These two factors lead to the following hypothesis

***"Indie games funded through crowdfunding will, on average, have higher review scores than non-crowdfunded indie games."***

## 2.5 Exploratory research

Although video game reviews are widely consumed by players to find new games to play, academic research on the trends of user and critic reviews on crowdfunded games remains scarce. Volckmann (2023) analysed consumer and critic perception of game releases between 2002 and 2022, he found that when it came to PC games user scores slightly declined while critic scores stayed relatively the same. However, this study didn't specifically look at crowdfunding. Since 2002 crowdfunding has gone from basically not existing within the gaming industry to having created some of the most highly rated games in recent times. Therefore, this thesis will also analyse how user scores for crowdfunded games have developed over time compared to non-crowdfunded games.

# 3. METHODOLOGY

For this thesis the difference in review scores between indie games funded through crowdfunding on Kickstarter and indie games funded through other means will be analyzed using a variety of tests.

## 3.1 Data collection

The data used for the analysis came from two datasets. The first dataset focused on finding which games were crowdfunded. This dataset was obtained from webrobots.io, which is an automated web-scraper which collects information from Kickstarter like project name, number of backers, amount funded, start date and the projects description. This dataset went from 2015 to 2024 and using it really sped up the time it took to find suitable crowdfunding projects.

The second dataset would focus on the information about the games including: title, release date, genre, tags, user reviews and critic reviews. The review data from both the users and critics are considered the dependent variables and these are represented numerically on a scale from 1 to 100. This data would come from the Steam platform and specifically through online websites like SteamDB and Steamspy which include all the available data about every game on the platform. This includes things like game title, genre, sub-genre, user reviews and critic reviews. The exact dataset used for this part came from the youtuber NewbieIndieGameDev who in October 2024 data scraped the entire SteamDB website.

When it comes to video game critics there are many different possible organizations and individuals who claim to be critics. It would be difficult to select which specific critics are valid enough to be used. 'Metacritic' scores were used to handle this issue. Metacritic is a website that combines reviews from multiple different video game critics in order to create an aggregate score for any specific game. This score is what most players also use to see how positively critics thought about a game and this score is also directly visible on the Steam store when users try to buy a game.

### *3.1.1 Cleaning up data*

The datasets that were used still had to be manually cleaned up in order to become usable. Firstly, within the larger Steam database the games that were both tagged as 'indie' and had the genre of roguelike or roguelite were isolated. Secondly, to find out which games were crowdfunded R was used to look through the dataset from werobots.io and find all Kickstarter projects that mentioned roguelike or roguelite. The names of these projects were then used to isolate those games from the larger Steam dataset. This was manually to ensure that no

problems would arise from slight changes in naming between the Kickstarter project and released Steam game. These were then put into their own group, this would be called the crowdfunding group. Lastly, to compare with the crowdfunding group a set number of games, equaling the number of games within the crowdfunding, was randomly selected from the remaining Steam games and turned into its own group, this represented the non-crowdfunding games.

## 3.2 Analysis

Once the data for both the non-crowdfunding and crowdfunding games sets was imported into R the first step in the analysis was to create an overview of the scores. Using R combined with the dplyr library a summary of the data was made which showed an overview of the differences between the crowdfunded group and the non-crowdfunded group this included information such as the mean, the standard deviation, maximum, minimum and median review scores for both user reviews as well as critic reviews. Afterwards a t-test was used in order to find out if these differences were statistically significant. These results would show the core differences, if any existed, between the crowdfunded group and the other games on top of that some other things were analyzed. A correlation analysis was performed between the user and critic scores for both groups to see if the high backer involvement in crowdfunding games would have an impact on the correlation between user and critic reviews. Lastly, an analysis about review scores based on release date was made. This was done by using a visual trend line and would reveal if for example crowdfunded games have gotten better over time.

## 3.3 Research validity

Some of the things done during the analysis could be seen as controversial. Firstly, the use of Steam user reviews. The way a user can review a game on the platform is very simplified by only allowing a positive or negative rating. A potential downside of this system is that it could in theory create a problem where it would be hard to differentiate a good game from a great game. However, it usually balances itself out since a larger part of the population enjoys a great game compared to a good game. The Steam method also has some upsides. The main one is the sheer size that is simply not available anywhere else. However, equally important is that it solves a common problem with user reviews and that is that it removes extreme results. If everyone voted truthfully one would expect user reviews to form a normal distribution but what one often sees on platforms that allow users to score media is a mostly normal curve with a large uptick in the extreme votes a 10 or 1 for example. This is very evident on websites like IMDB where users can vote on television shows and films (see appendix 1). This creates a problem since the average score for anything becomes skewed towards one of the extremes. Steam solves this problem by not allowing users to vote for one of the extremes.

Metacritic could also be seen as an inappropriate source of critic data. This is because Metacritic uses a weighted scoring system where different critics get different weights added to their scores meaning a game with a 10 from one critic and a 1 from another could still have a 'MetaScore' of 7[8]. However, the website is still widely trusted and used by users and there currently doesn't really exist a better alternative for a combined critic average therefore it was still used in this research.

Lastly, webrobots.io which was used to gather a list of Kickstarter games within the roguelike genre has certain problems. While the project does data scrape Kickstarter once a month it is limited by Kickstarter to only a certain number of projects. This limits the number of older projects that are included in their data scrapes. To counteract this the datasets from all data scrapes between 2015 and 2024 were used and compiled into one big dataset. The reason for not using any newer data was because most of the relevant projects wouldn't have been finished/released yet.

# 4. RESULTS

Before any analysis was able to be done the datasets had to be refined. After going through the datasets from werobots.io a total of 270 unique Kickstarter projects within the Roguelike/roguelite genre were found. Out of these 102 had been released on Steam and 79 had more than 25 reviews and thus were used for the analysis (see appendix 3). To compare these games a second group was made containing 79 randomly selected non crowdfunded games from the Steam database that had both the indie and roguelike/roguelite tags (see appendix 4).

### *4.1.1 Descriptive statistics*

The first step in the analysis was to get a simple overview of the data which included the mean, standard deviation, median, minimum and maximum for both user reviews and critic reviews of both groups. (see appendix 2) The results show that median user reviews are roughly 3 percentage points higher for the games that weren't crowdfunded meanwhile the average critic reviews slightly favor the crowdfunded games by about 2 percentage points. The standard deviations were fairly similar between the groups.

## 4.2 Mean difference review scores

The core of the analysis was to see if there was a statistically significant difference in mean user and critic review scores. To accomplish this a t-test was performed for the user scores. The resulting t-value of the test was roughly -0.61 showing that the difference in mean user scores between the two groups was only -0.61 standard errors apart. When combined with the p-value (0.444) this showcased that the small difference between the two groups was not statistically significant. To ensure the accuracy of this result Cohen's d was also measured which came out to -0.098 which meant that this was a very small effect size. These two tests combined showed that the difference in user review scores between the Kickstarter and non-crowdfunded games was minor and not significant.

To analyze the critic review scores the Wilcoxon rank-sum test was used. The Wilcoxon rank-sum test was preferred over the t-test because of the small sample size of the critic scores (n = 20). This test showed that the median critic review scores were around 2 points lower for the Kickstarter games which is very minor on a scale from 1 to 100. In addition, with a p-value of 0.588 this was not significant, meaning there was a high chance of randomly get this result.

[8] https://metacritichelp.zendesk.com/hc/en-us/articles/14478499933079-How-do-you-compute-METASCORES

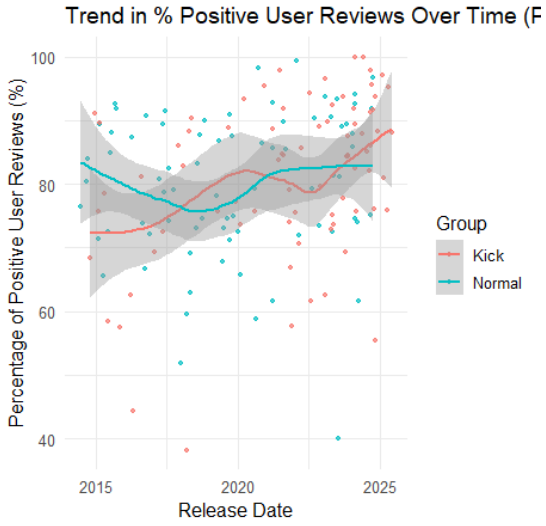
## 4.3 Correlation analysis

The correlation between user and critic review scores was tested in order to see whether user and critic opinion aligns. If the correlation is weak that would showcase a disconnect between the user and critic expectations.

The correlation analysis between user and critic reviews was performed using the Spearman's rank correlation test. This test was preferred over the Pearson correlation test because of the low sample size of the critic reviews (n = 20). The group consisting of non-crowdfunded games had a decently high rho score (0.5972866) and a low p-value (0.005). Meanwhile, the Kickstarter group had a high rho score (0.84) and a very low p-value (3.476165e-06). The rho score in this test goes from -1 to 1 with the more extreme values showing high correlation. The results for both groups indicated a significant positive monotonic relationship which means that higher user reviews scores would correspond with higher critic scores. This combined with both tests having a p-value below 0.05 showed that this level of correlation between the user and critic reviews is most likely not a coincidence.

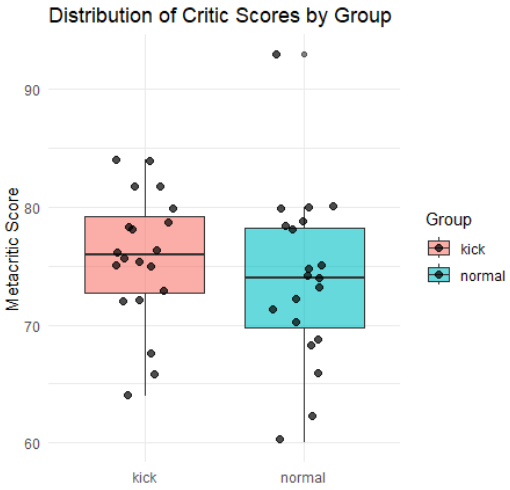
## 4.4 Visualization

The last part of the analysis focused on creating a visualization of the data. This is important as it will showcase how the user review scores for crowdfunded games have changed over time. This was not done for the critic reviews due to a low sample size making results unreliable. The first figure below shows a visual trend line of the user review scores. There has been a slight upwards trend in review scores for both groups.




*(figure 1. Visual trend line of user review scores between crowdfunded group (red) and non-crowdfunded group (blue))*

In the second figure below, the distribution of the critic scores is clearly visible which also shows how the scores for the non-crowdfunded games vary more than those of the Kickstarter games.




*(figure 2. Boxplot showcasing distribution of critic score for both groups, crowdfunded group (red) and non-crowdfunded group (blue))*

# 5. DISCUSSION

The core of this research was to find out if there are any significant differences in quality between games that were crowdfunded and games that were funded through alternative means. To accomplish this analysis multiple tests were conducted.

## 5.1 Results implications

### *5.1.1 Crowdfunding not impactful on indie game's quality*

The first test that was performed was a t-test on the user reviews. The results of this test showed that there was no statistical difference between the Kickstarter games and the non-crowdfunded games in terms of user review scores. A Wilcoxon rank-sum test was also performed to test the critic review scores this also showed no significant difference. These results go against the hypothesis which stated: ***"Indie games funded through crowdfunding will, on average, have higher review scores than non-crowdfunded indie games."*** And therefore, based on this data it is not possible to come to a conclusion.

This would go against the earlier mentioned findings of Styhre (2020), who argued that one of the main advantages of crowdfunding is the influence backers have on the final product. One potential explanation for this is that user review scores, unlike critic scores are able to change over time thus, as non-crowdfunded games get feedback from users post-release they will get updated and the user review scores will reflect those updates.

### *5.1.2 Indie games as a unique example of high correlation in review scores.*

The second test that was performed was a correlation analysis on both groups to see how well the user reviews correlated with the critic reviews. For both groups, it was clear that higher user reviews do correlate with higher critic reviews. This result aligns with Hyemin's study from 2016 where he also analyzed the correlation between user reviews and critic reviews. While for most types of games no correlation was found, when it came to indie games there was indeed a correlation between the user and critic review scores.

A potential reason for this divide between indie games and the rest of the industry is that users and critics alike have different expectations from indie titles than other games. There could for example be a greater focus on innovation or originality when users and critics alike review an indie game. Another reason could be that indie games tend to target more specific audiences which could result in a more uniform opinion about the game.

### *5.1.3 Increased popularity with no similar increase in review scores*

The last part of the research was to look at the change in user review scores over time. To do this, a visual trend line was made (see appendix 5). This showed that user review scores have stayed quite steady over time for both groups with only a minor upwards trend. This is quite an interesting result seeing as the popularity of indie games has risen drastically in the same amount of time. This indicates that the boost in popularity isn't due to an increased quality from indie games.

One possibility is that consumers have gotten less satisfied with the more established developers and are looking for alternatives, therefore boosting the popularity of indie games while the quality of those games haven't necessarily improved.

## 5.2 Limitations & future research

### *5.2.1 Sample size*

The major restraint of this research was undoubtedly the sample size. Although Kickstarter offers a large library of video game projects it is important to reduce the number of potential variables to perform a robust analysis therefore, this research only focused on roguelike/roguelite games. While this did limit the number of projects that could be analyzed it helped to provide the most accurate results.

For future research, a potential alternative could be to incorporate a wider variety of genres for crowdfunding games and compare them to an equally expansive set of Steam games. Another alternative could be to completely disregard genres in an analysis, this would greatly expand the sample size to the point where the impact a genre could have would be minimal.

### *5.2.2 Game development timeline*

Another limitation of this research that had a more indirect impact is the long time it takes for indie games to be developed. Since they are usually only made by individuals or small teams the development timeline is a lot longer than with larger scale development teams. This leads to most recent Kickstarter projects being unusable for this specific research since those games have simply not been released yet. This also causes problems for the literature as a whole since data about the developments of crowdfunding and other indie games lagging behind the industry.

A more direct impact that limited this research is the ability for developers to continuously update their games post-release. One of the key advantages of crowdfunding is the involvement of backers during the development stage and providing important user feedback. However, as previously mentioned nowadays non crowdfunding projects can get the same level of user feedback once they release their games. This could limit the potential impact of the early-stage involvement of backers in the results of this study. For future research a potential solution could be to only look at the review scores a game receives within a certain period post-release in order to more accurately test for the effect of early-stage involvement of backer on crowdfunding projects.

### *5.2.3 Other platforms*

This research focused only on PC indie games however, there are many other platforms that developers make games for, and this also includes crowdfunding projects. These different platforms all come with different user-bases that have different expectations from their games.

For future research it would be very interesting to see if there are any major differences in how video game crowdfunding works when developing for a platform other than desktop and the potential effects of crowdfunded games on those platforms.

# 6. CONCLUSION

The core of this research was to find out if there were any differences in quality between crowdfunded and non-crowdfunded games. To accomplish this an analysis was done on both user and critic reviews for games within the roguelike/roguelite genre. The results of which showed that there is no significant difference between quality in terms of user and critic review scores between crowdfunded and non-crowdfunded games. On top of this exploratory research was conducted to find out if there has been a trend in review scores for crowdfunded games compared to non-crowdfunded games. By displaying the user review scores in a visual trend line, it became clear that while there was a very slight upwards trend this was not isolated to the crowdfunded games. These results would indicate that crowdfunding isn't necessary to create a great game. However, as crowdfunding continues to become more influential within the indie game landscape it becomes increasingly important to understand how it influences developers and shapes the games they create.

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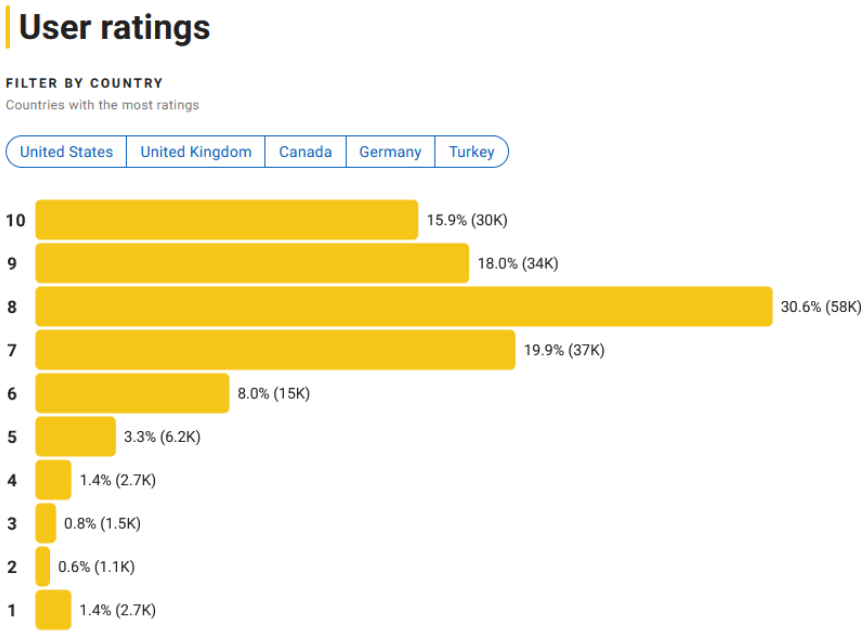
# 8. APPENDIX

1. User scores of a randomly selected movie on IMDB showcasing a clear increase in the extreme ratings.




2. Table showing the results of both groups

| | | Crowdfunded games | Non-Crowdfunded games | Test statistic |
|---|---|---|---|---|
| User review (n=79) | Mean | 81.35484 | 80.17666 | t=-0.61311 |
| | Median | 84.46602 | 81.25 | (p = .5407) |
| | sd | 12.695343 | 11.425804 | |
| Critic reviews (n=20) | Mean | 75.75 | 73.85 | difference in location = -2 |
| | Median | 76 | 74 | (p = .2435) |
| | sd | 5.542895 | 7.336104 | |

3. Crowdfunding group

| App_Id | Name | Release_date | Positive | Negative | Total | Metacritic |
|---|---|---|---|---|---|---|
| 1972410 | Siege of Dungeon | 11/11/2023 | 246.00 | 45.00 | 291.00 | NA |
| 1428770 | Kingdom Gun | 28/07/2022 | 48.00 | 30.00 | 78.00 | NA |
| 1824580 | Dungeon Drafters | 27/04/2023 | 531.00 | 176.00 | 707.00 | 75 |
| 1069050 | Little Dungeon Stories | 06/12/2019 | 85.00 | 25.00 | 110.00 | NA |
| 1076200 | Roguebook | 17/06/2021 | 3,055.00 | 589.00 | 3,644.00 | 78 |
| 530930 | Soulblight | 15/03/2018 | 66.00 | 107.00 | 173.00 | NA |
| 718590 | Dark Devotion | 25/04/2019 | 1,717.00 | 549.00 | 2,266.00 | 72 |
| 1730080 | Beyond the Long Night | 17/04/2023 | 124.00 | 46.00 | 170.00 | 76 |
| 1970580 | Backpack Hero | 14/11/2023 | 6,751.00 | 951.00 | 7,702.00 | 76 |
| 1566200 | Tape to Tape | 03/05/2023 | 2,738.00 | 225.00 | 2,963.00 | NA |

| | | | | | | |
|---|---|---|---|---|---|---|
| 727130 | Between the Stars | 07/03/2024 | 1,663.00 | 534.00 | 2,197.00 | NA |
| 811320 | Jupiter Hell | 05/08/2021 | 1,697.00 | 150.00 | 1,847.00 | 78 |
| 928990 | Undungeon | 18/11/2021 | 237.00 | 117.00 | 354.00 | 66 |
| 2060550 | Fabular: Prologue | 08/07/2022 | 67.00 | 4.00 | 71.00 | NA |
| 1479140 | AK-xolotl: Together | 14/09/2023 | 723.00 | 207.00 | 930.00 | 75 |
| 1655990 | Mortal Rite | 07/11/2024 | 41.00 | 33.00 | 74.00 | NA |
| 2096620 | Death or Treat | 11/05/2023 | 67.00 | 24.00 | 91.00 | NA |
| 2102320 | MISTROGUE: Mist and the Living Dungeons | 26/10/2023 | 143.00 | 63.00 | 206.00 | NA |
| 2071430 | Roots of Yggdrasil | 06/09/2024 | 234.00 | 22.00 | 256.00 | NA |
| 2471090 | Gah! | 04/09/2024 | 47.00 | 1.00 | 48.00 | NA |
| 1639080 | Sandwalkers | 08/04/2025 | 309.00 | 98.00 | 407.00 | NA |
| 2074000 | One Eleven | 02/11/2023 | 87.00 | 16.00 | 103.00 | NA |
| 1843470 | Dungeon Dreams 2 | 09/02/2024 | 170.00 | 15.00 | 185.00 | NA |
| 2135150 | Elin | 01/11/2024 | 6,188.00 | 415.00 | 6,603.00 | NA |
| 1832240 | The Feathered Serpent | 11/06/2024 | 42.00 | 0.00 | 42.00 | NA |
| 2920980 | An Amazing Wizard: Prologue | 27/09/2024 | 44.00 | 2.00 | 46.00 | NA |
| 1536620 | Galactic Glitch | 03/06/2025 | 395.00 | 53.00 | 448.00 | NA |
| 361130 | Card Dungeon | 02/06/2015 | 31.00 | 22.00 | 53.00 | NA |
| 1494450 | Oakenfold | 17/11/2022 | 41.00 | 5.00 | 46.00 | NA |
| 1714240 | Soul Stalker | 24/10/2024 | 64.00 | 20.00 | 84.00 | NA |
| 1815570 | Aces and Adventures | 23/02/2023 | 2,808.00 | 320.00 | 3,128.00 | 84 |
| 2140100 | Whisker Squadron: Survivor | 21/02/2025 | 337.00 | 79.00 | 416.00 | NA |
| 2540800 | Dreamsweeper | 24/07/2024 | 23.00 | 4.00 | 27.00 | NA |
| 2437330 | Novus Orbis | 10/02/2025 | 35.00 | 1.00 | 36.00 | NA |
| 1731410 | Monastery | 14/09/2023 | 30.00 | 2.00 | 32.00 | NA |
| 1331340 | Break the Loop | 16/05/2024 | 51.00 | 7.00 | 58.00 | NA |
| 3205630 | Arcane Ascent | 04/12/2024 | 15.00 | 2.00 | 17.00 | NA |
| 1334500 | RP7: Spin Your Own Encounter | 12/09/2024 | 68.00 | 11.00 | 79.00 | NA |
| 2793380 | Starground | 19/08/2024 | 92.00 | 20.00 | 112.00 | NA |
| 2291700 | Tarnished Blood 🩸 [Tactic RPG] | 02/10/2024 | 78.00 | 7.00 | 85.00 | NA |
| 1193590 | Abomi Nation | 28/07/2021 | 106.00 | 19.00 | 125.00 | NA |
| 1269710 | Kainga: Seeds of Civilization | 06/12/2022 | 574.00 | 146.00 | 720.00 | NA |
| 1839760 | Cursed Crew | 26/02/2024 | 68.00 | 8.00 | 76.00 | NA |
| 1766390 | FORWARD: Escape the Fold - Ultimate Edition | 29/03/2022 | 531.00 | 88.00 | 619.00 | NA |

| | | | | | | |
|---|---|---|---|---|---|---|
| 625960 | Stoneshard | 06/02/2020 | 19,553.00 | 6,998.00 | 26,551.00 | NA |
| 628770 | Tangledeep | 01/02/2018 | 1,188.00 | 245.00 | 1,433.00 | NA |
| 492410 | Rogues Like Us | 11/05/2018 | 56.00 | 6.00 | 62.00 | NA |
| 960690 | One Step From Eden | 26/03/2020 | 6,815.00 | 477.00 | 7,292.00 | 82 |
| 887450 | Tunche | 02/11/2021 | 532.00 | 186.00 | 718.00 | 68 |
| 949200 | Ambition: A Minuet in Power | 18/08/2021 | 327.00 | 60.00 | 387.00 | 75 |
| 1170230 | Below the Stone | 17/11/2023 | 354.00 | 66.00 | 420.00 | NA |
| 1367300 | Blade Assault | 17/01/2022 | 1,642.00 | 530.00 | 2,172.00 | NA |
| 1607040 | Evertried | 21/10/2021 | 53.00 | 14.00 | 67.00 | NA |
| 326840 | Heart&Slash | 09/08/2016 | 489.00 | 113.00 | 602.00 | NA |
| 527230 | For The King | 19/04/2018 | 35,334.00 | 4,680.00 | 40,014.00 | 79 |
| 315840 | Catacomb Kids | 20/02/2015 | 542.00 | 63.00 | 605.00 | NA |
| 330020 | Children of Morta | 03/09/2019 | 18,640.00 | 2,346.00 | 20,986.00 | 82 |
| 343100 | Overture | 02/02/2015 | 946.00 | 303.00 | 1,249.00 | 76 |
| 250580 | Paranautical Activity: Deluxe Atonement Edition | 20/10/2014 | 964.00 | 447.00 | 1,411.00 | NA |
| 318230 | Convoy | 21/04/2015 | 1,108.00 | 304.00 | 1,412.00 | 72 |
| 349730 | Popup Dungeon | 12/08/2020 | 761.00 | 244.00 | 1,005.00 | 73 |
| 662540 | Haque | 22/11/2017 | 136.00 | 22.00 | 158.00 | NA |
| 442780 | STRAFE: Gold Edition | 09/05/2017 | 1,726.00 | 652.00 | 2,378.00 | 64 |
| 288120 | Dungeonmans | 09/12/2014 | 994.00 | 97.00 | 1,091.00 | NA |
| 342550 | Phantasmal: Survival Horror Roguelike | 14/04/2016 | 153.00 | 192.00 | 345.00 | NA |
| 551620 | Approaching Infinity | 29/04/2025 | 478.00 | 24.00 | 502.00 | NA |
| 262060 | Darkest Dungeon® | \N | 129,296.00 | 11,763.00 | 141,059.00 | 84 |
| 295670 | Hive Jump | 18/01/2017 | 251.00 | 111.00 | 362.00 | NA |
| 299600 | Dragon Fin Soup | 03/11/2015 | 168.00 | 124.00 | 292.00 | NA |
| 686770 | The Wind and Wilting Blossom | 11/12/2020 | 166.00 | 8.00 | 174.00 | NA |
| 366180 | Disposable Heroes | 22/03/2016 | 52.00 | 31.00 | 83.00 | NA |
| 1886080 | Tetraphobia | 21/02/2024 | 11.00 | 0.00 | 11.00 | NA |
| 1235800 | Oneiro | 18/06/2021 | 48.00 | 1.00 | 49.00 | NA |
| 655740 | Tallowmere 2: Curse of the Kittens | 19/02/2024 | 288.00 | 61.00 | 349.00 | NA |
| 1251210 | Dungeon No Dungeon | 19/11/2021 | 290.00 | 212.00 | 502.00 | NA |
| 1037130 | Dandy Ace | 25/03/2021 | 1,012.00 | 128.00 | 1,140.00 | 80 |
| 1623210 | Soulash | 04/03/2022 | 377.00 | 156.00 | 533.00 | NA |
| 1535100 | Nadir: A Grimdark Deckbuilder | 07/02/2023 | 192.00 | 115.00 | 307.00 | NA |
| 2095080 | Paperback Adventures | 30/01/2023 | 57.00 | 2.00 | 59.00 | NA |

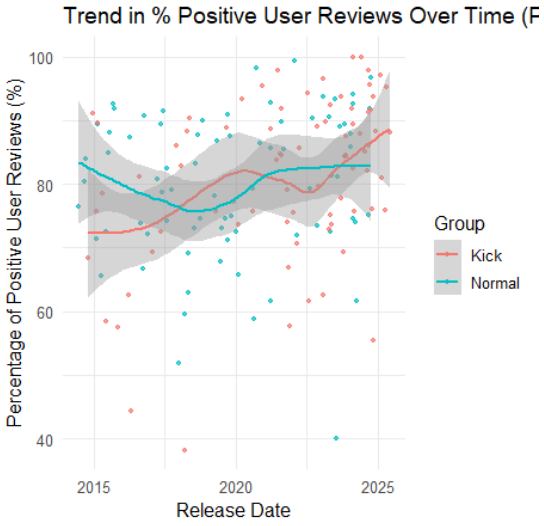
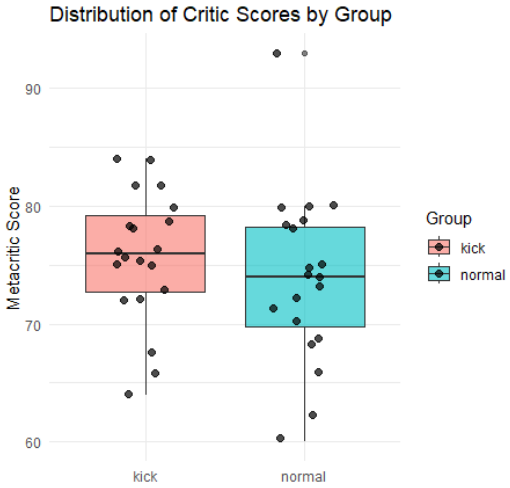
4. Non crowdfunding group

| App_id | Name | Release_date | Positive | Negative | Total | Metacritic |
|---|---|---|---|---|---|---|
| 1520680 | Tetra Cube | 20/03/2021 | 48 | 8 | 56 | NA |
| 2388460 | Pathfinder: Gallowspire Survivors | 04/04/2024 | 330 | 205 | 535 | NA |
| 1100930 | LEGIONCRAFT | 19/08/2022 | 1082 | 282 | 1364 | NA |
| 396750 | EVERSPACE | 25/05/2017 | 8426 | 2266 | 10692 | 79 |
| 827220 | Overclocked: The Aclockalypse | 26/04/2018 | 38 | 17 | 55 | NA |
| 2669910 | Bioguard | 12/02/2024 | 38 | 3 | 41 | NA |
| 837400 | Fated Kingdom | 04/11/2019 | 228 | 76 | 304 | NA |
| 946610 | Pocket Rogues | 25/10/2018 | 375 | 42 | 417 | NA |
| 1192440 | The Monster Breeder | 19/01/2022 | 153 | 1 | 154 | NA |
| 3173930 | The Hilarious Three Kingdoms | 22/09/2024 | 34 | 3 | 37 | NA |
| 1490610 | METALLIC CHILD | 15/09/2021 | 1020 | 174 | 1194 | NA |
| 2125420 | Zorbus | 14/09/2022 | 233 | 25 | 258 | NA |
| 961420 | Vile | 16/10/2019 | 35 | 5 | 40 | NA |
| 1155420 | Dino Zoo Transport Simulator | 23/09/2019 | 77 | 31 | 108 | NA |
| 527990 | Gladiator Trainer | 25/11/2016 | 189 | 73 | 262 | NA |
| 2501600 | DICEOMANCER | 09/10/2024 | 1324 | 44 | 1368 | NA |
| 714240 | SWARMRIDER OMEGA | 19/09/2017 | 83 | 22 | 105 | NA |
| 1063420 | Void Crew | 07/09/2023 | 3268 | 399 | 3667 | 80 |
| 266510 | Hand of Fate | 17/02/2015 | 9369 | 1096 | 10465 | 78 |
| 2503890 | Bloodecay | 21/07/2023 | 18 | 27 | 45 | NA |
| 314410 | Rampage Knights | 04/09/2015 | 3262 | 261 | 3523 | 80 |
| 306700 | Iron Fisticle | 16/09/2014 | 395 | 75 | 470 | NA |
| 266510 | Hand of Fate | 17/02/2015 | 9369 | 1096 | 10465 | 78 |
| 698870 | Metaverse Keeper | 10/04/2019 | 621 | 173 | 794 | NA |
| 2228010 | Right and Down and Dice | 23/01/2024 | 67 | 11 | 78 | NA |
| 1029980 | UBERMOSH Vol.7 | 30/04/2019 | 211 | 32 | 243 | NA |
| 401910 | Darknet | 08/06/2017 | 109 | 10 | 119 | NA |
| 1860600 | the World According to Girl | 22/2/2022 | 108 | 42 | 150 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1253860 | Neurodeck : Psychological Deckbuilder | 18/03/2021 | 158 | 98 | 256 | NA |
| 1425770 | One More Step | 06/11/2020 | 45 | 7 | 52 | NA |
| 1017410 | Tetra Project | 23/09/2019 | 506 | 50 | 556 | NA |
| 392410 | Toy Odyssey: The Lost and Found | 20/09/2016 | 215 | 107 | 322 | 66 |
| 1037410 | Captain Starshot | 09/07/2019 | 198 | 73 | 271 | NA |
| 312200 | Chasm | \N | 1769 | 657 | 2426 | 72 |
| 2685060 | Thunderblade Saga | 26/01/2024 | 22 | 3 | 25 | NA |
| 1069270 | Rotatex | 21/06/2019 | 21 | 10 | 31 | NA |
| 363420 | Leap of Fate | 30/03/2016 | 402 | 58 | 460 | 80 |
| 332400 | Girlfriend Rescue | 10/07/2015 | 186 | 33 | 219 | NA |
| 2086910 | Verses of Enchantment | 01/08/2023 | 26 | 6 | 32 | NA |
| 1510 | Uplink | 23/08/2006 | 2116 | 207 | 2323 | 75 |
| 740240 | Snake Eyes Dungeon | 21/12/2017 | 42 | 39 | 81 | NA |
| 722560 | RAD | 19/08/2019 | 685 | 234 | 919 | 71 |
| 1372430 | Spells and Fellas | 07/11/2022 | 25 | 9 | 34 | NA |
| 341390 | Vulture for NetHack | 02/02/2015 | 130 | 52 | 182 | NA |
| 1895820 | Greedventory | 17/05/2023 | 171 | 39 | 210 | NA |
| 2212410 | Shadowkin | 23/02/2024 | 59 | 20 | 79 | NA |
| 1559700 | Dreamer | 01/04/2021 | 26 | 2 | 28 | NA |
| 364510 | Transcendence | 24/07/2015 | 177 | 24 | 201 | NA |
| 2510850 | Slay the Minotaur | 22/02/2024 | 146 | 9 | 155 | NA |
| 1145360 | Hades | 17/09/2020 | 264182 | 4557 | 268739 | 93 |
| 1793250 | Take Me To The Dungeon!! | 28/06/2023 | 2639 | 188 | 2827 | NA |
| 1575830 | ArcRunner | 27/04/2023 | 153 | 58 | 211 | 75 |
| 1094590 | Helvetii | 03/02/2023 | 45 | 3 | 48 | NA |
| 396640 | TowerClimb | 22/09/2015 | 349 | 31 | 380 | NA |
| 754340 | Paper Dungeons Crawler | 17/07/2018 | 30 | 11 | 41 | NA |
| 2531340 | OASIS: Tokyo | 03/11/2023 | 34 | 4 | 38 | NA |
| 916040 | SFD : Rogue TRPG | 31/08/2018 | 86 | 12 | 98 | NA |
| 665740 | Book Of Potentia 2 | 22/07/2017 | 81 | 28 | 109 | NA |
| 602070 | Plasma Puncher | 11/05/2017 | 68 | 8 | 76 | 69 |
| 698640 | Deep Sky Derelicts | 26/09/2018 | 1967 | 669 | 2636 | 70 |
| 2757630 | Lonely Knight - Idle Roguelike RPG | 18/03/2024 | 189 | 66 | 255 | NA |
| 1162130 | Windbound | 28/08/2020 | 625 | 438 | 1063 | 60 |
| 619780 | The Swords of Ditto: Mormo's Curse | 24/04/2018 | 1438 | 847 | 2285 | 74 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1203360 | Core Defense | 30/07/2020 | 281 | 73 | 354 | NA |
| 531180 | AIRHEART - Tales of broken Wings | 23/07/2018 | 150 | 30 | 180 | 62 |
| 515650 | Straimium Immortaly | 10/10/2016 | 146 | 15 | 161 | NA |
| 756490 | Next Hero | 16/03/2018 | 28 | 19 | 47 | NA |
| 732160 | The Wild Age | 04/02/2020 | 196 | 102 | 298 | NA |
| 305780 | Echo of the Wilds | 10/06/2014 | 147 | 45 | 192 | NA |
| 2205260 | Godfist | 10/04/2023 | 29 | 3 | 32 | NA |
| 2321350 | StormEdge | 13/09/2024 | 100 | 33 | 133 | NA |
| 542660 | Feral Fury | 02/04/2017 | 105 | 25 | 130 | NA |
| 306550 | Runers | 02/09/2014 | 227 | 55 | 282 | 68 |
| 335830 | Distant Star: Revenant Fleet | 07/04/2015 | 193 | 101 | 294 | NA |
| 1043150 | Danger Gazers | 02/01/2020 | 50 | 19 | 69 | NA |
| 462100 | Starr Mazer: DSP | 26/08/2016 | 195 | 69 | 264 | NA |
| 1606340 | Conquest of Elysium 5 | 17/08/2021 | 815 | 93 | 908 | NA |
| 535480 | Sundered: Eldritch Edition | 28/07/2017 | 3917 | 830 | 4747 | 74 |
| 246110 | MASSIVE CHALICE | 01/06/2015 | 1336 | 504 | 1840 | 73 |

5. Figure 1 Visual trend line of user review scores between crowdfunded group (red) and non-crowdfunded group (blue)



6. figure 2. Boxplot showcasing distribution of critic score for both groups, crowdfunded group (red) and non-crowdfunded group (blue)