

Short Games

Quickly Made, Quickly Played

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Abstract

A short game is a (computer) game that can be typically played and finished in one session. In comparison to typical commercial games, short games feature simpler assets, easy to learn gameplay and less content. By introducing experimental game features or interesting socially- or personally-relevant topics, short games can be attractive for gamers looking for a gaming experience that can be concluded within minutes to few hours of playing. The increasing popularity of making computer games, driven by the availability of game making tools, game jams, and webpages hosting collections of short games leads to a significant number of short games made every day. Many of these games are also made in a considerably short time which requires developers to know their tools well, significantly reduce game content and asset complexity, and to follow a disciplined approach for building and assembling the parts of a game.

Keywords: Shortgame, Indie games, Game development, Game jam, Game engineering, Software engineering

Introduction

Game development has become more and more popular. This trend is well supported by tools like Unity, Unreal, GameMaker, Godot, Construct2, Pico-8, Bitsy, Twine, Stencyl, or Scratch. Existing tools address different needs, appealing to both professional game developers as well as hobbyists and even children learning their first programming language. In addition, game jam events encourage people to develop a computer game in a comparably short time of typically 48 to 72 hours. The results are playable and fit well within typical definitions of a computer game (Juul 2004; Esposito 2005). Resulting games also often address interesting topics as a result of an uncommon theme issued by the game jam. For example, the theme “Combine 2 Incompatible Genres” in Ludum Dare #41 yielded over 3000 submissions covering a plethora of different genre combinations that were created in just one weekend.¹

Comparing such games to state-of-the-art commercial games yields significant differences from both the developer’s and gamer’s experience. For example, development effort for AAA games involves large teams working on a game for several years, resulting in a game experience of high quality,

¹ <https://ldjam.com/events/ludum-dare/41/stats> Ludum Dare 41

different play modes, involving a significant backstory, many levels, large maps, and, consequently, a long playtime.

This paper challenges the idea of ever longer games in favor of so-called *short games*. We approach the idea by exploring the evolution of game length in the history of computer games and identify the genre of short games as games with reduced but meaningful content, a single message, and a length of gameplay that allows to finish the game in one go. In the following section, some examples for short games are shown. Besides a high number of commercially successful short games, there exist an even higher number of non-commercial hobbyist games, driven by easy-to-use game making tools, the possibility to publish and host games, and game jams as a motivation to finish and publish a game. As indicated by some short game examples there is, besides playing length, a high diversity upon these games. In a further part, we look at tools and development methods for ultra-short development times that are imposed at game jams often leading to the creation of new short games.

Game Length in the History of Computer Games

Over the history of computer games, we have already experienced different formats of games, where the average playing time increased significantly over the years.

In the early 1980s, gaming mostly happened on arcade machines. These games were designed to be "easy to learn and hard to master" based on the economic requirement that the arcade machine should not be occupied for long. Typical games of this era were *Pac-Man* (Namco 1980), *Donkey Kong* (Nintendo 1981), or *Space Invaders* (Taito 1978). With home computers and consoles, the game length was not limited in the same way, because there was no economic loss in playing a game for a longer time. While many games for early home computers and consoles still were arcade-style games, there was also an increasing number of games with much longer playtime, such as role-playing games like the *Ultima I* (Garriott 1981) or *The Bard's Tale* (Interplay Productions 1985). Since the long playtime did not allow to finish such a game in one go, these games implemented a save function, allowing to save the current game state to storage, so that the play session can be continued later by restoring the save game. With increasing hardware capabilities (especially large data media) games became even more extended and complex over time.

While games since then have been made in great diversity, including the play length, at the time of writing of this article many popular games have considerably longer gameplay. As shown by sites such as [gamelengths.com](http://www.gamelengths.com)² and howlongtobeat.com³ the average time to play through a popular (as defined by those site) game is above 48 hours. For example, the newest released games at [gamelengths.com](http://www.gamelengths.com) amount to an average length of 71 hours. The community-driven page howlongtobeat.com reports an average competition time close to 49 hours for the top-rated games on that platform (see Table 1). Some games, like multi-player online games or games with procedurally created content can be even played without ending.

On the one hand, a game being able to entertain the player over a significant period of time is often considered a quality feature. On the other hand, with completion times of 50 or more hours per game, the number of games that can be finished is significantly capped by the total available playtime of gamers.

² <http://www.gamelengths.com/> accessed January 15, 2019

³ <https://howlongtobeat.com/> accessed January 16, 2019

Game	Median Completion Time
Persona 4 Golden	69:15 h
The Witcher 3: Wild Hunt	48:35 h
Umineko no Naku Koro ni	66:00 h
Metal Gear Solid HD Collection	45:00 h
Persona 5	95:05 h
Bloodborne	28:00 h
Chrono Trigger	23:00 h
Metal Gear Solid 3: Subsistence	16:00 h
Average completion time	48:51 h

Table 1: Completion time of top-rated games (<https://howlongtobeat.com>)

A market research on the state of online gaming reports that the average time spent on gaming by gamers is 6 hours per week (Limelight Networks 2018), which limits the games that can be finished to about 6 games per year. In many cases gamers desire to play more games in a year, thus starting a game, playing it for some time and then abandoning it, leading to a backlog of unfinished or even unplayed games, often referred to as “Pile of Shame” (Levy 2014).

Notably, there is a skew of the distribution of weekly average playtime over age, where gamers above 25 years tend to play less hours per week. Consequently, the report shows that casual games like Candy Crush or Angry Birds have a higher share in time than other categories (Limelight Networks 2018).

Short Games – A definition

A *short game* is a (computer) game that can be typically played and finished in one sitting and focuses on a single idea or aspect. It is thus related to the definitions of *short stories* (Shaw 1983) or *short films* (Cooper and Dancyger 2004). It is not related to short game in golf (unless we talk about a computer golf game).

The term *minigame* or *mini-game* although sometimes used to refer to short games (Smith and Sanchez 2010), typically carries a different meaning than short game since minigames describe small, self-contained games being part of a larger videogame.

Casual games (Kuittinen et al. 2007) refer to games that can be played within a short time, however are also associated with less complex gameplay and easy mechanics in order to address casual gamers. Other than casual games, short games can carry a serious and sometimes disturbing message, creating a particular mood after playing.

A short game is further different from *indie games* (Zhevzyk 2016), which describe games made without the support of a big publisher. While many Indie Games feature less game material than AAA games due to a significantly lower budget (Koster 2018), Indie Games typically come with a gameplay

length exceeding the requirement to be playable in one session. Being not made on a big budget, short games can be considered a subset of Indie Games.

With limited graphics and sound, some short games are also approaching the style and aesthetics of older computer games, creating a resemblance or actually becoming a *retro game* (Carey 2005; Morris 2017).

There exist several commercially successful short games, as exemplified by the list “The best short games on PC” published by PC gamer (2017). The games listed there are intended to be “finished in an evening or two”, or, in other words, having a playtime of a couple of hours. On the other hand, many games with an even shorter play time are hard to commercialize, being the computer game equivalent of complimentary comic strips in a newspaper. An exception are game hosting services like GameJolt that provide freeware games which are monetarized via ads inserted before playing a game. In many cases a short game is not intended to generate revenue but used as a prototype to explore the possibility for developing a larger game. Further, some short games are just made as presents for friends or family without the intention of making a commercial success.

Non-commercial Short Games Examples

Due to their reduced development time, the support by convenient game making tools and the possibility to publish and host games for free at pages like itch.io or GameJolt, there is a plethora of short games published and there are many more of them created and published every day. During game jams like the Global Game Jam or Ludum Dare, several thousand games are created during one weekend, most of them fitting the definition of a short game.

Therefore, picking a few of such short games as examples will be far from being comprehensive. That being said, here are some representative examples of the genre:

Passengers by Arnaud Debock (2015) is a game where you play a smuggler of migrants at the Mediterranean Sea. The game was made for Ludum Dare 33 and is implemented for the fantasy console Pico-8, an environment that deliberately limits the graphic and sound features to resemble the time of 8-bit computers at the beginning of the 1980s. Thus, the game comes with a screen resolution of 256 times 256 pixels with persons in the game being sketched with only a few pixels.



Fig 1: *Passengers* by Arnaud Debock (2015)

The game features a screen with the map and a screen for embarking the people looking to travel to Europe. Each person offers an amount of money and is described with a short background story. The player can accept a person on board or deny them. The actual story of the game forms in the mind of the player, asking which strategy is appropriate. First come first serve? Economic maximization? Taking the persons that are endangered the most?

The authors give a very insightful depiction of the game's message at its webpage, which reads "[m]igrants are all over the news. They're treated as a group of people, not as individuals. We wanted to go beyond that, to show some of their individuality and how powerless it is in front of the acting monster, you."

The game Snail by Griffpatch (2015) has a less disturbing message but is notable for two aspects. First, although the game description classifies the game as platformer, it is missing the classic mechanics such as running and jumping. Instead, the player controls a snail that is able to go up walls and can move even upside down sticking to the bottom of a platform. The game mechanics further involve stretching the snail's body to reach nearby platforms.

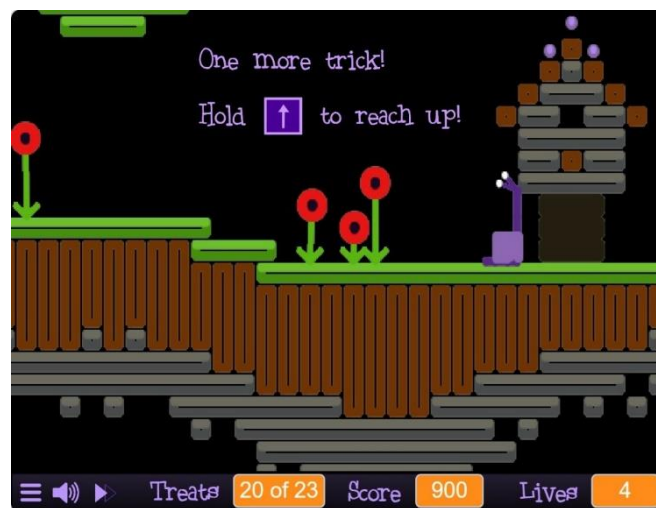


Fig. 2: Snail by Griffpatch (2015)

The second interesting aspect of this game is that it was not made with a dedicated game engine, but with the educational block-based programming language Scratch (Resnick et al. 2009). It was also published via the Scratch webpage, a social network site where creators can share their work. The game Snail, despite being of particularly high quality for a Scratch game, is representative for many short games among over 30 Million published Scratch projects⁴.

Nickey Case's *We become what we behold* (2017), seen in Figure 3, prominently states a playtime of 5 minutes at its start screen, therefore fitting well the short game genre. The game addresses how mechanisms of social media form and influence opinions and how a society can be driven by specifically picking information to be published. The game implements this via a game mechanic where you can make camera snapshots which are then published on a screen in the center of the small game world. Each published information on the screen is then taken up by the simulated people on the screen, thus reinforcing single random events into trends affecting a whole population. The game was

⁴ <https://scratch.mit.edu/statistics/>

implemented with the Pixi HTML5 Creation Engine, is open sourced and was translated into 10 different languages by other users.

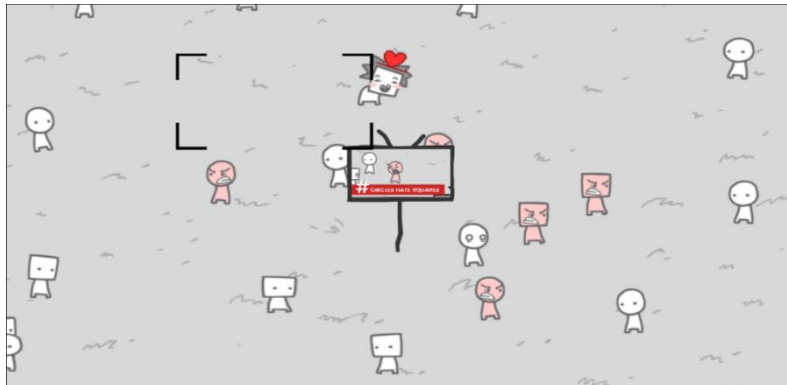


Fig. 3: *We become what we behold* by Nicky Case (2017)

Typically, role-playing games feature long playtimes and are thus an unlikely candidate for a short game. A notable example that shows how to shorten gameplay without losing content is *Ultima IV Part 2* (2009), a humorous parody of the *Ultima* series games made by Chris Hopkins. Understanding that users playing a parody game might not be willing to spend too much time roaming the game world, searching for equipment and leveling up, the designer of the game implemented a number of shortcuts equipping the player with fast travel and decent equipment from the beginning. Still, the game requires several hours to finish, thus technically exceeding the length for a short game.



Fig. 4: Start screen of *Ultima IV Part II Dude, where's my avatar?* (Hopkins 2009)

A notable take on the short game genre is given by the website Meditation Games, which provides short, free games that are, according to the site, often small, experimental, and minimalistic. In order to emphasize the volatility and evanescence of short games, each game is only available one day, via a launcher that only allows to play the game of the day. If one misses a day, the respective game will not be available until the following year.

Making a game in limited time

A short game is not necessarily made quickly, however due to game jams being a strong driver for the creation of short games many such games are also made in considerably short time. Another reason for a limited time budget per game is the fact that it is hard to make money out of short games, so short games are made in one's free time as a hobby besides a bread-and-butter job paying the bills.

Many game jams match the time limit to a weekend, thus providing 48 to 72 hours for making a game. Some game jams offer a one-day local event, which allows the participation of people with an otherwise busy schedule. The above-mentioned Meditation Games collection reports development times of 6 hours per game. An extreme case is the One Hour Game Jam (OHGJ), which, as the name suggests requires a game to be made in a single hour. In the following, we will discuss good strategies to develop a game in such short timeframes.

The obvious method to cut the development effort for a short game is to use only one game mechanic and to limit the number of levels and characters in the game. Still, designing a single level or making a character can be still a major effort regarding the making of high quality graphics and animation.

One way to counter this is using pre-made assets, which are available as libraries to some game making tools or provided for free by artists at websites like OpenGameArt.org. Still, the necessary asset for a planned game might not be available or one might not be allowed to include such assets due to licensing issues or rules imposed by a game jam.

Therefore, there is the need to introduce an artificial limit on technical quality of the game, such as graphics resolution, animation quality, framerate, etc. Graphics and sound are thus used as a means of communicating the game message without utilizing the hardware capabilities of the target system to its full extent.

Some platforms purposely introduce severe technical limits. For example, the Bitsy game maker by Adam Le Doux deliberately allows only three different colors per screen. Each screen consists of 16 times 16 tiles, where each one is either a background character, the player character, an NPC (Non-Playing Character) or an item. Each one consists solely of an 8 by 8 pixels graphic. Only the player character can move, jumping from tile to tile.

Despite (or perhaps because of) providing very limited possibilities, Bitsy enjoys great popularity as a game making tool. The game hosting service itch.io alone hosts over 1700 entries made with Bitsy.

In a similar way, the tool Pico-8 forces the designer to work with a low-resolution screen of 256 times 256 pixels, although Pico-8 is less restrictive with coding and possible interactions of game elements. The tool Twine reduces gameplay mostly to reading through an interactive non-linear story.

Other tools like Unity do not impose a significant technical limit on making a game. However, in order to successfully finish a short game it is helpful to adhere to some self-defined limits. A common approach is limiting graphics to either retro-style pixel graphics, comic styles, stick figures or geometric shapes.

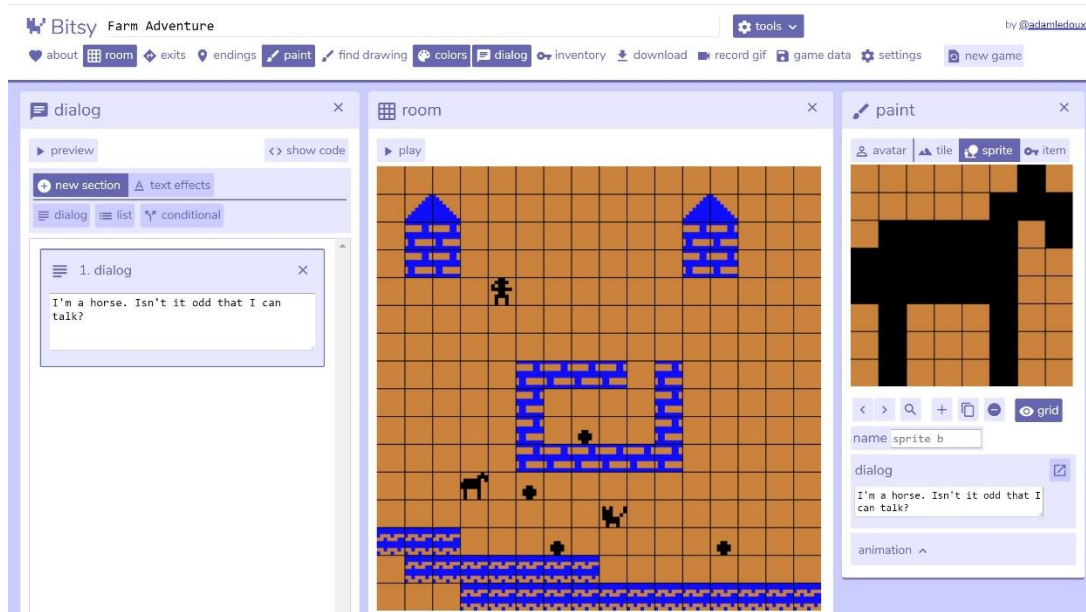


Fig. 5: Bitsy Game Maker

A common recommendation at game jams is that the developers should use tools they are familiar with, thus avoiding losing time in figuring out new things. The choice which tool to learn is open - a brief look at the used tools at the One Hour Game Jam (Figure 6) reveals that there is no single dominant tool for fast game making.

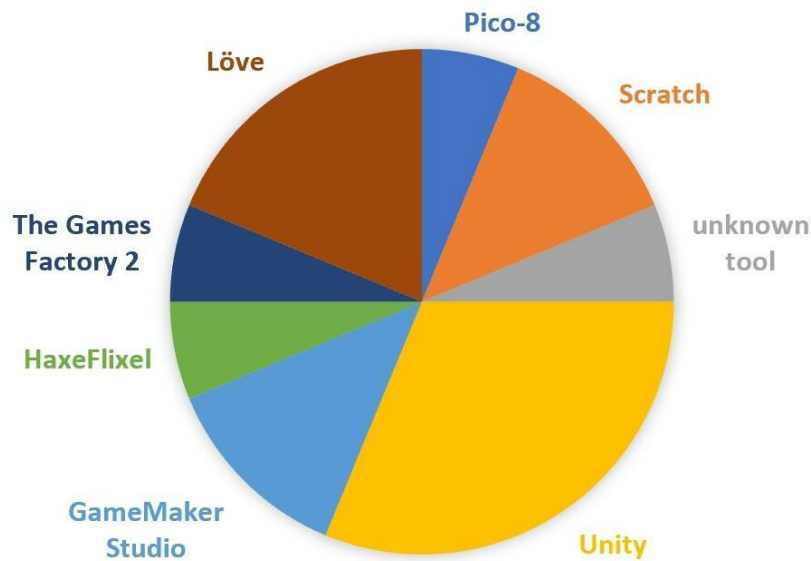


Fig. 6: Game making tools used at OHGJ #180

Ultra-fast development times of a few hours further require a very strict procedure of creating the game's components and assembling them. While state-of-the-art project management approaches for software development are probably hard to fit into such a short timeframe, the classical Waterfall Model (Royce 1970) with its linear sequential design is an interesting possibility for the development of small short games.

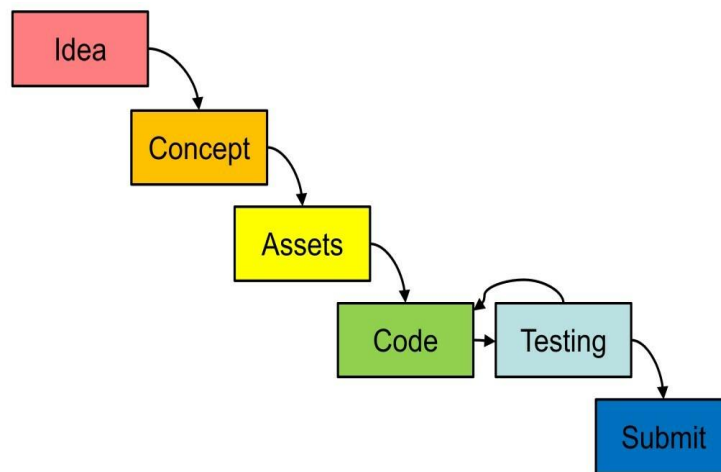


Fig. 7: The Waterfall model adapted to quick game development

As depicted in Figure 7, most stages of the development sequence are only visited once. This means that the game idea, concept and even assets are fixed once they have been derived. The coding/testing cycle is an exception because even small programs require debugging and hardly work as intended with the first version of the code. Note that such a sequential model does not scale to larger projects; with longer project times other development models that iteratively derive the end result will be better suited.

Outlook and Conclusion

Acquiring skills as a game developer does not narrow down the career options to the game industry. Developing and programming games, even short games, means developing skills on programming, independent learning, understanding technical systems, working with libraries and managing projects – all of these are valuable skills that are heavily sought after by companies.

Events such as game jams require the developer or team to finish their game prototype in a very short time. Such short deadlines influence the development process, but also cause the game to be made and, at least as a prototype, finished after the game jam. The results are limited and short but can still be innovative, experimental and carrying an important message. Communicating that a game was made within a short timeframe can also change the players' expectation regarding technical details like graphics or game length.

As a genre different from content-rich commercial games, short games address the fast-paced lifestyle of today's society. While short games can be hardly compared to typical commercial games with far better graphics, sound, story, etc., people who have limited time might be reluctant to start a newly released game which will have 100+ hours of playing. On the other hand, a couple of minutes immersing oneself into a short game and bringing this game to a conclusion will be welcome, especially when the game attracts with novel gameplay, experimental game features or addresses interesting social situations or leads to a different play style and approach to entertainment.

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