



Received: 08 March 2016
Accepted: 04 July 2016
Published: 18 July 2016

*Corresponding author: Clemens Reisner, Graduate School "Locating Media", University of Siegen, Am Eichenhang 50, Siegen 57076, Germany
E-mail: clemens.reisner@gmail.com

Reviewing editor:
Alex Wade, Birmingham City University,
UK

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CULTURE, MEDIA & FILM | RESEARCH ARTICLE

On the media practice of highscoring

Clemens Reisner^{1*}

Abstract: This article aims to demonstrate that the introduction of highscores resulted in a distinct way of playing videogames that also provides a useful figure to understand socioeconomic developments of the 1980s. Using the theoretical concept of media practice it describes how highscoring has emerged from the infrastructural prerequisites of arcade gaming. The article will furthermore demonstrate that elements of highscoring can also be found in other social domains such as fitness and the financial economy where during the 1980s computer technology increasingly was employed. The article hence aims at delineating highscoring as a media practice that gives us a framework to look at similar developments in other social domains during the same time and is as such part of the genealogy of gamification.

Subjects: History; Media History; Video Games

Keywords: highscore; videogames; 1980s; media practice; video games in the 1980s

1. Introduction

The existence of custom-made arcade games may strike the casual observer as a counterintuitive fact of Soviet daily life. A quick look through the virtual exhibition of the Museum of Soviet Arcade machines in Moscow and St. Petersburg where a collection of these arcade game machines is on display reveals some apparent differences between arcade cabinets in a Western and Japanese context and their Soviet counterparts (Museum of Soviet Arcade Machines, 2010). The most apparent of these differences concerns visual appearance and technological prerequisites. Less obvious but certainly not less decisive is the absence of a typical feature of Western arcade games: a highscore list.

ABOUT THE AUTHOR

Clemens Reisner is a scholarship holder at the Graduate School "Locating Media" at the University of Siegen, where he is currently working on a PhD project about digital games and the cultural construction of the cold war. As the time frame for the PhD project is meant to cover the 1980s and early 1990s the present article relates to the question of the position of digital games in their sociohistorical context.

PUBLIC INTEREST STATEMENT

Videogames can tell us much about the cultural and social contexts in which they are designed and played. And as videogames as a medium are now about 40 years old they have become a suitable means to gain insight into the past.

This article suggests that if we look at how videogames were played after the possibility to reach a highscore was introduced in the late 1970s, we might discern a distinct way of playing. It wants to suggest that elements of this way of playing can also be found in other fields of the time such as fitness and the financial economy. Coming back to the initial thought about videogames reflecting their historical context the article wants to show that in this way videogames enable us to understand developments that occurred in videogaming's broader historical context and lead up to the immediate past.

“That kind of competition wasn’t encouraged,” explains Alexander Stakhanov, one of the museum’s founders and engineers. “If you got enough points you won a free game, but there was no ‘high score’ culture as in the West” (Zaitchik, 2007).

This, again, seems to be a fitting fact for how the casual observer would imagine Soviet videogames to function. From Stakhanov’s remarks it can be inferred that by “that kind of competition” a form of competitive behavior is implied that somehow must have been deemed capitalist or at least not belonging to Soviet society in its very nature by the Soviet regime (Donovan, 2010, p. 202). His use of the term culture furthermore suggests that this competitive behavior in the West might have potentially transgressed the boundaries of videogaming. The article aims to take the term highscore culture as a starting point and thereby add to existing work that has highlighted videogames in their historic context (Kirkpatrick, 2013; Kocurek, 2012; Wade, 2014). The term highscore culture hints at the connection between videogames and the social imaginary (Kirkpatrick, 2013, p. 3). Specifically, it is reminiscent of the concept of gamification that understands points and scoring systems as one of the main tools and go-to solution in order to disseminate gaming principles into various aspects of everyday life (Raczowski, 2014, pp. 144–145). Taking Malaby’s practice-oriented view on games as a cue (Malaby, 2007, pp. 96–97) the article asks: How does highscoring work? And how did the relationship between highscoring and its socioeconomic context play out?

In order to tackle these questions I suggest approaching highscore culture from the perspective of media practices. In this understanding practices are a set of actions and knowledge that is constituted in concrete situations and also constitutes situations. This means that practices can stabilize over time, albeit being in the concrete case dependent on their situational application. The concept of media practices can be approached from different directions but basically asks for the emergence of practices in the daily usage of media technology, the connection between technology or infrastructure and its usage as well as the role of media, understood in the broadest possible sense, in the practices of daily life (Couldry, 2004, pp. 117–122; Postill, 2010, pp. 1–2). This essay will mainly focus on the first two aspects. Understanding highscoring as a media practice will allow highlighting how it emerged as interplay between (media) technology and its practical appropriation. Furthermore, the article aims to show that highscoring as practical knowledge was likely to cross the domain (Postill, 2010, p. 13) of videogaming and offer a discursive figure, both in a practical and rhetorical sense, for other domains that were pertinent to the sociohistorical context of the 1980s. The prime aim of this article hence is to delineate highscoring as a pattern, a form of practical and habitual knowledge.

In a first step I will scrutinize the prerequisites necessary for highscoring that is the technical circumstances and the situation in the arcade. Then I will look at highscoring as a media practice that is constituted by a multitude of practical and communicative elements at play. I will show that the media practice of highscoring mainly entails the possibility to create equality and comparability, to consider infinity in a distinct way and to play the machine. In the last part, I will try to relate highscoring to its sociohistorical context.

The article hence wants to contribute to a clearer understanding of videogaming in its sociohistorical context. It shows one possibility how videogames may help to think about and understand the 1980s, a decade that in many respects reaches into the immediate past which also concerns gamification processes.

2. The arcade situation and infrastructure

In the late 1970s, videogames had entered the arcades. Gradually, they complemented and even replaced pinball and other mechanical amusement machines in the process (June, 2013). Starting in the arcades, videogames had launched a veritable craze in wider global popular culture reaching its’ peak, most visibly, in the USA of the early 1980s (Donovan, 2010, pp. 81–95; Kent, 2001, pp. 151–179). From the early 1980s onward, Western Europe as a whole became affected by the videogame wave. Today middle-aged people from German-speaking countries, for example, often maintain quite vivid

memories of the arcades they had visited as children in their Mediterranean holiday locations (Seesslen & Rost, 1984, p. 52). In this first wave of videogame enthusiasm, the golden age as this relatively short period from the late 1970s to the early 1980s is frequently labeled, the videogame business grew to a global scale led by the USA, Japan, and Great Britain as the heartlands of software production and consumption. Initially, videogames were practically synonymous with arcade videogames. With console gaming systems growing in importance and home computers also poised to gain significance, the avant-garde when it came to graphics and gameplay was to be found in the arcade gaming sector. Hence, it is apt to start the search for the media practice of highscoring in the arcade. In order to understand highscoring, its' infrastructural prerequisites are of particular interest. These are understood as a more or less stabilized ensemble of social, cultural, and technical elements that provides a foundation for practices to be enacted (Schüttpelz & Gießmann, 2015, pp. 26–29).

With the rise of videogames arcades increasingly strived to become entertainment centers with a focus on creating a clean and family-friendly environment thereby aiming to replace their image as hotbeds of teenage seduction (Williams, 2003, p. 538). As the magazine *Electronic Games* in 1982 somewhat proudly pointed out, this development was supposed to even allow women to join the fun (Worley, 1982, p. 31). Arcades seemed to have quite literally opened up, with their front entries oftentimes open to the street, colorful interior lighting, and service staff. The shopping malls, where arcades also were frequently integrated, might be seen as a prototype for these changes in appearance and organization (Latham, 1981). In an article from 1981, the German weekly newspaper *Der Spiegel* sums up the respective developments in Germany as follows: "(...) arcades are flourishing like never before: by now there are around 3,500 saloons in the Federal Republic, since 1980 alone 400 arcades have been opened between Ostfriesland and Oberpfalz—most of them, different from earlier times, neatly furnished and in prestigious city-locations" (Karasek, 1981, p. 148). Despite these efforts the arcades never could entirely shake off their image as places of seduction and hotbeds of delinquency. In fact the attempts to create a family friendly atmosphere were oftentimes a reaction to respective allegations which never really went away (Smith, 2013; Williams, 2003, p. 538). The arcade of the golden age of videogames also continued to carry the image of a rather dim place with cigarette smoke and a cacophony of gaming noises filling the air. In that sense, the arcades of the golden age became nostalgic places with specific historical coordinates situated right at the intersection between arcades of the old and new type. "For some, the thought of these spaces evoke such vivid memories of playing videogames that similar establishments created before and after the 'golden age' simply aren't 'arcades'" (Saucier, 2013).

The arcade situation in this phase hence offered a social space for their core clientele of male teenagers to on the one hand simply meet and mingle with likeminded people. On the other hand, the arcade also served as a place of their own that hence still carried connotations of social deviance and rebellion. With their increasingly approachable design and videogamings increasing popularity arcades, however, also promised to provide entertainment for everyone. To contemporary observers the arcade seemed, especially remarkable in regard to the social interactions it generated. These included playing in solitude and silence, interactions with machines that seemed to resemble interactions between humans and interactions between humans that seemed to resemble interactions between humans and machines insofar as, for example, no talking was involved (Loftus & Loftus, 1983, pp. 83–89). At the beginning of *Pilgrim in the microworld* David Sudnow delivers a fitting summary of the arcade situation and its contemporary reception: "strangers of all kinds pack in tight along the walls, intensely engrossed in private behavior while browsers come close up from behind to watch. Rear ends are dark and faces flicker. Something vital is being dispensed" (Sudnow, 1983, p. 7).

From a technical and game design standpoint the idea of a golden age of videogaming is substantially connected with the two originally Japanese games *Space Invaders* and *Pacman*. These two examples may serve to understand the technical prerequisites for highscoring. *Space Invaders* released by the company *Taito* in 1978 to this day is frequently viewed as the archetype of an arcade game. Arcade games of course had been around for a while at the time of *Space Invaders*' release.

Space Invaders however was among the first arcade games to use microchip technology with the consequence that saving information and hence also the players' highest score became possible. The idea behind this feature was to enable players to alternately compete against each other via the machine instead of just playing against the machine or head to head during the game. Before *Space Invaders* it was possible for players to earn extra lives or the like after reaching a certain score. Two years prior to *Space Invaders* the game *Sea Wolf*, for example, already had introduced the possibility for the players to earn extra playtime by beating a preconfigured highscore. However, the game would not save the players' score (Symonds, 2010). Of course in the end *Space Invaders*' innovation of saving the highest score amounted to a technical update of an old principle or cultural technique of score keeping (Montfort & Bogost, 2009, p. 86). Furthermore, in the last instance the definition of scoring systems and their significance lies in the hands of the players. They retain the ability to ultimately define the conditions for winning any given game and adapt, bend, or ignore the preconfigured rules accordingly. This, however, does not mean that preconfigured rules are insignificant. The practice of playing a game rather moves between the poles of preconfiguration and appropriation (Salen & Zimmerman, 2004, p. 130, Malaby, 2007, pp. 102–103). Highscoring relied on a technical infrastructure capable of counting and saving highscores. In *Space Invaders*, this infrastructure was prone to several glitches. For the score to be saved the machine had to remain plugged in. Unplugging it would result in the score being erased. Furthermore, the score reverted to zero after the player had reached 9,999 points. Also, similar to pinball machines, a tilt switch was built in which meant that the game stopped should the player engage in too intense physical contact with the machine (Computer Archeology, 2016).

Nevertheless, or maybe just for this reason, *Space Invaders* stood at the beginning of a technical evolution of scoring and record-keeping in videogames. It led to the implementation of a permanent leaderboard into games where the best players could enlist themselves with a three-letter entry next to the score they had achieved. It is said that this feature was introduced for the first time in the game *Star Fire with Asteroids* probably being the best known early example (Montfort & Bogost, 2009, p. 86; Symonds, 2010). *Space Invaders* introduced several other features that were to characterize arcade games for the time to come among them the principle of a difficulty curve and enemies firing back at the player (GamingHistory, 2015).

Pacman released two years after *Space Invaders*, already had most of the landmark features of a classic arcade game in place. It featured a difficulty curve and the clear idea that the game is designed to go on forever. However, also in this case technical reasons limited these features. The level design would not change after the 20th level. Obviously, the designers had not anticipated that players were able to make it that far. Furthermore, the game cannot be played past the 256th level where it crashes due to a bug (Pacman Museum, 2009; Pittman, 2009; Wade, 2014, p. 4). Usually, it was the players who unearthed limitations such as these. They arguably did so because the introduction of highscores had led to distinctive playing practices.

3. The formation of the media practice of highscoring

At this point a few basic remarks about the concept of media practices are in order. Practices are characterized by a double character. The term might be used to describe sets of habituated practical knowledge as well as the application of such practical knowledge *in situ* (Reckwitz, 2002, p. 249). By asking for the formation of the media practice of highscoring this section aims at understanding how practical approaches to playing under the conditions of the sociotechnical implementation of a highscore established highscoring as a habituated practice. Furthermore, it asks to which perceptions, structures, and conventions in videogaming this media practice of highscoring led as a consequence. It is not primarily concerned with a recreation of highscoring as a practice applied *in situ* rather than a classification of highscoring as habituated practical knowledge.

3.1. Finding patterns, playing the machine—player approaches to highscoring

Highscoring effectively entailed several particular approaches to playing among which two key aspects might be highlighted. First, the practice of highscoring intended to tackle contingency and

coincidence. These are essential traits for any game, especially games of chance, as they are practically synonymous with unpredictability, which generates excitement. As spectators we want games to give us the impression that they might take unexpected turns at every moment. As players we might, by contrast, strive to unearth a games' system in order to understand how it works with the games' contingency in this case being part of the challenge. In both cases linearity and predictability diminish the excitement of a game (Malaby, 2007, p. 106–107; Salen & Zimmerman, 2004, p. 189).

Games like *Space Invaders* appear to be rather linear. However, there were elements included in *Space Invaders*' game design that aimed exactly at breaking the games' linear setup such as the enemies' shots and the so called mystery saucer an enemy that seemed to appear randomly. *Pacman* also increased its contingency or at least appeared to do so. In contrast to *Space Invaders*, the game allows players and enemies to move up and down as well as left and right in a space that nevertheless remains confined. Furthermore, the players are given the opportunity to transform enemies that usually are to be avoided into containers of points that are to be chased. Nevertheless, early arcade games clearly were rather linear games with the objective to clear levels by destroying all enemies (*Space Invaders*) or collecting all dots (*Pacman*). They handled contingency only to a very limited extent and in-game events and enemies' movements were more or less apparently preconfigured (Kocurek, 2012, p. 202). The insight that everything in a videogame is preconfigured is the starting point for the search for patterns and the design of counter-patterns on the side of the players (Sudnow, 1983, pp. 102–128). As Steven Levy put it in an article on *Space Invaders* "Space Invaders might have been a twitchfest, but it was a puzzle as well" (Levy, 2009). Knowing the patterns of a game amounted to knowing what the game was about to do next and was a way of situating ones actions within the logic of the game. This was the prerequisite for staying in the game as long as possible and a crucial basis for achieving a highscore (Gazzard, 2011). The practice of highscoring hence to a large degree rested on recognizing and memorizing the machines' patterns as well as executing counter-patterns. As the guidebook *How to win at Pac-Man* advises "It is best to move the Pac-Man by logical and repeatable patterns in order to achieve the highest score" (Editors of Consumer Guide, 1982, p. 8). The puzzle, Levy is referring to, also consisted of unearthing the scoring system that is the logic behind the distribution of points and the connection between scores and patterns. The player Eric Furrer, for instance, discovered that in *Space Invaders* the number of shots fired before the appearance of the mystery saucer had an influence on the score that was awarded for shooting the saucer. Furrer effectively had unearthed the algorithm behind the distribution of points for shooting the saucer. Subsequently, counting and limiting ones' shots in order to achieve the highest possible score for shooting the mystery saucer became known as the Furrer trick (GamingHistory, 2015; Killer List of Videogames, 2016). This specific shot economy led to patterns of playing that may have appeared counterintuitive to the uninformed watcher or beginners who usually played for bare survival. Similarly, in *Pacman* items that award points when collected by the player initially seem to appear randomly in the center of the screen. In fact, however, their appearance follows a pattern that is tied to the number of dots the player has already collected (Pacman Museum). In summary, highscorings' first crucial component consists of handling contingency by searching for patterns in order to maximize the score rather than to play for survival.

The second factor is in close proximity to this practice of finding patterns. Highscoring also involved identifying gaps, bugs and other shortcomings in hardware and software and using them to the players' advantage. These ways of approaching a machine with an eye on circumventing or repurposing its affordances that might be called playing the machine maintained a genealogical relationship to the practices of hacking. As Tomohiro Nishikado the designer of *Space Invaders* conceded "Hah, they were something of a problem for me, all those tricks players found from what were basically programming bugs" (Shmuplations, 2008). Effectively, this meant that players had found gaps in the code by practical rather than theoretical analysis. The so-called Nagoya trick or Nagoya technique in *Space Invaders* is an example for this aspect. It takes advantage of the fact that at a certain position the playing figure becomes impervious to the enemies' shots (TVTropes, 2016). Strategies of playing the machine also involved physical routines of handling the game controls. For example, in an entry into the forum on the website Penny-Arcade a player described employing the following

techniques when playing the sports game *Track & Field*: “(1) hold my thumb firmly against my index finger forming a little beak in which to peck at the button; (2) turn my hand sideways and stick out my index and middle finger like a doctor about to probe you. Then try and vibrate my arm rapidly while striking the button with the side of my middle finger.” (Truck-a-Sauras, 2009). In some instances these physical techniques also involved the usage of aids such as spoons or lighters for handling the controls more efficiently. Using the prerequisites of the hardware and software in a creative way highscoring, hence also reveals its’ potentially subversive and unregulated side.

These short descriptions of two crucial aspects of the media practice of highscoring already hint at the fact that highscoring actually involved a plethora of actions, movements, and skills. It included actions that were directed toward the self such as memorizing, improving hand–eye coordination, and reaction speed, as well as learning to keep an eye on the whole screen as an dynamic ensemble of enemies, the playing figure, and the playing field (Sudnow, 1983, pp. 25–40). Furthermore, aspects of the interaction between players that was specific to the arcade situation became important. These included the physical presence of players often grouping around an arcade cabinet, sharing the same machine between players, taking turns and the opportunities as well as pitfalls that came with playing in front of an audience such as making others nervous or showing nerves oneself (Vidiot, 1982, p. 17). Also, the materiality of the machine itself, factors such as its degree of wear and tear as well as individual bugs had to be taken into account.

These last aspects reiterate that the actual practices of highscoring were much more manifold than can be hoped to grasp here, especially when they were applied *in situ*. It is, however, still maintained that the two main approaches of finding patterns and playing the machine are constitutive parts of the media practice of highscoring. These practical approaches to playing videogames in combination with the technical prerequisites of saving scores in turn yielded a set of organizational consequences and medial qualities. It is the combination of both practical knowledge and organizational and medial consequences that constitutes highscoring as a specific media practice.

3.2. Infinity, accounting, bureaucracy—consequences of highscoring

One of the immediate consequences of the possibility to save a highscore was that infinity in videogaming came into play in a distinct way. As in previous games like *PONG* a game of *Space Invaders* was designed to potentially go on forever. It goes through a cycle of nine waves with an increasing difficulty curve and returns to the first wave after concluding the cycle. As the highscore could be saved, at least up to 9,999 points, there was a clear incentive to go on as long as possible in order to collect as many points as possible. Arguably, the possibility to save a highscore facilitated the conception or mental image of infinity as an object rather than a process (Monaghan, 2001, pp. 244–245). The infinite playing space could be conceived of as a scoring-mine that is it could be approached with the expectation to generate a score, a finite result.

In *Invasion of the Space Invaders*, Martin Amis highlights this connection between infinity and scoring: “Hence this game (like most of the others) (Anm.: *Space Invaders*) is theoretically infinite. All those stories that circulate in the parlors—scores of five million or more, some kid playing for 52 h on one 25-cent piece—suddenly take on credibility. We live in an age, after all, when people will make the most life-wrecking sacrifices for a dismissive footnote in the Guinness Book of Records.” (Amis, 1982, p. 19–20).

In principle this constituted a shift from time to points as the currency and measurement of successful playing. Prior to the possibility to save scores the player had bought playing time by inserting a coin into the machine with the objective to maximize it. The owner of the arcade machine of course had exactly the opposite objective and hoped for the player to drop out of the game as early as possible and pay for another round. “In the case of arcade games, in particular, time is money as the player strives to stay playing for as long as possible before dying and having to insert more coins to start again. Therefore, time becomes a reward through the successes of high-scores and skill against avatar death” (Gazzard, 2011). I would furthermore argue that it was highscores that shifted

the reward from time to points. The main attraction of videogaming in its early phase seems to have been to reside in the game, to immerse oneself into the games world. That does not mean, however, that before the highscore the players were barred from finding ways to compete against each other via their own scoring systems. With the possibility to save scores the objective to stay in the game, however, could become tied to translating playing time into a score, preferably the highscore (Wade, 2014, p. 6). In theory playing time and the score can be conceived of as detached entities. Highscores aimed at translating the potential infinity of the gaming situation into a concrete reward and thus also provided a strong incentive to revisit a game (Gazzard, 2011). Amis' mention of the Guinness Book of World Records also hints on another aspect. The introduction of the highscore amounted to the codification of an agonal principle into videogaming that might have been a matter of individual and situational negotiations before. Agonal games according to Roger Caillois' well-known classification include games of skill rather than games of chance which are covered by the term *Alea* (Caillois, 1958, pp. 18–27). Thereby, highscores contributed to the stabilization of agonality in videogames both by the standardization of the measurement of player performance as well as the shaping of said performance through the fact that the players were aware that they were being tracked as they played and would be presented with an account of their performance at the end of the game (Seesslen & Rost, 1984, p. 71). As such highscores shaped the character of the information that circulated in the feedback loop between player and machine. It became clear to the player that every one of her or his steps and actions in the game is being accounted for (Loftus & Loftus, 1983, p. 25). The specificity of highscoring in this respect is that the user is in a simultaneously active and inactive state concerning the drafting of said account. As much as he or she can be supposed to know that his or her activity is being translated into a score the scoring itself is entirely sourced out to the machine and hence does not distract the player from focusing on the tasks at hand. Knowing that one's performance is scored, however, may in turn provide a special form of motivation and shape the activity of playing. It could be expected that time payed off and that at the end of every game stood an account in form of the highscore. An individual players' performance hence also became accountable and highscores, as social rewards, shaped the information that circulated between the players as well (Gazzard, 2011). Highscores can then be interpreted as social media in this sense (Thielmann, 2012, pp. 91–92) as "(...) highscores and leaderboards only work if scores can be compiled and compared across different devices" (Raczowski, 2014, p. 148).

As social groups began to form around arcade gaming the gamers gradually became a community that started to exchange and pass on playing strategies. Over time and in concordance with videogaming's general popularity, an array of advice literature on gaming and scoring tricks and strategies was published. These included special issues of gaming journals or dedicated sections as well as fully fledged strategy guidebooks (Editors of Consumer Guide, 1982; Tetro, 1981, p. 29). As the first tournaments were held professional gamers began to emerge. Personalities such as Billy Mitchell world record holder in *Pacman* and one of the main protagonists in the documentary film *The King of Kong* would become publicly known. Gaming leagues such as the German VCS *Bundesliga* began to form (Seesslen & Rost, 1984, p. 73).

Institutions started to access and standardize playing practices thereby formalizing the comparability inherent to highscoring. Chief among them was certainly *Twin Galaxies*. Founded in 1981 by Walter Day, a former oil-broker, *Twin Galaxies* began as an arcade and went on to take the role of a self-proclaimed "intergalactic scoreboard," effectively an international scorekeeper for videogames. Key to *Twin Galaxies* approach was the verification and centralized collection of scores. In its early days, players had to hand in proof like a letter from the owner of the arcade where their score was achieved along with the score itself in order to be recorded on a central board (Alpiger, 2008; Newman, 2008, p. 125; Thomasson, 2008). There are also examples of gaming magazines that provided such forms when hosting tournaments (Computer & Video Games, 1983, p. 10).

Institutions like *Twin Galaxies*, or any host of any given tournament for that matter, had their *raison d'être* in highscoring's multifaceted and contingent side *in situ* but benefited from the accountability inherent to highscores. They stabilized the initial idea of highscores by transporting them from

the contingencies of the arcade to a central agency thereby ensuring their comparability and with it the agonal nature of videogaming. The implementation of saved scores into digital games with their technical prerequisites hence triggered the idea of a standardized form in videogaming. Ideally highscores would in this way give rise to the idea that there was a fair basis of comparison between players of any given game as the score should express the players' skill in numbers, raw data so to speak, that were accountable and accounted for and held their value over time and space (Latour, 1986, p. 7). In this way, highscoring systems constituted a transferable and movable piece of bureaucracy as the saved score could be shown to other players who were able to understand it (Leigh Star & Griesemer, 1989, p. 411).

Highscoring was in this sense also involved in fostering a culture of comparability and doability in a broader sense. Issue 5 of the British magazine *Computer and Videogames* for example featured a report on an arcade tournament that saw a teenage schoolboy competing against a professional snooker player who also happened to play videogames in his spare time. Clearly, the appeal of this episode stems from the impression that these two in age and social position entirely different characters somehow appeared equal when playing arcade games (Computer & Video Games, 1982, pp. 14–15). This, again, is reminiscent of Caillois' characterization of games of *Agon* as being absolutely equal (Caillois, 1958, p. 22). Incidentally, such a view can also be seen as part of neoconservative appraisements of society as consisting of entrepreneurial individuals born with the same chances and competing on a free marketplace of abilities (Harvey, 2005, pp. 64–65; Rodgers, 2011, pp. 63–76). The means of the digital playing machines hence provided a discursive figure of the machine as leveler that established a model marketplace consisting of perfectly rational participants that entered it with the same prerequisites and the same means. The only barrier for entry was money, which at that point became somewhat of an investment in ones' skills (Kocurek, 2012, p. 193).

3.3. Highscoring as gaming

At this juncture it seems necessary to concede that the arcade most likely never constituted some kind of boot camp for the information society, a training ground for tomorrows' financial elite, or gunfighter pilots for that matter, since too much unbridled joy was involved and the gamers themselves can be expected to have had a pretty good idea that what they did was just playing games. Highscoring is still part of a game and games convey the meaning and their players carry the implicit knowledge that playing them is an activity that is largely consequence-free for the real world. Highscoring might hence after all also be seen as a practical expression of the completists joy of mastering and understanding a game totally (Newman, 2008, pp. 123–124). It certainly was to a large extent about the unadulterated fun that could be had with playing the machines. As stated above, this aspect highlights the proximity of highscoring to hacker ethics. As much as this gaming and playing aspect initially seems to speak against the idea of the migration of highscoring into other social domains it is on the contrary exactly one of the decisive ingredients for understanding highscoring as a media practice in a broader context.

4. A highscore culture?

It is perhaps telling of or at least pertinent to the historical context of the early 1980s that the contemporary discourses surrounding Videogames basically can be situated between the two thematic poles of money and labor (Kocurek, 2012, pp. 192–205). As arcade videogames are coin operated, especially the first aspect seems entirely reasonable. To this day it remains the most basic of arcade gaming facts that every game on an arcade machine has to start with spending money (unless the player is also the owner of the machine). In the socioeconomic context of the late 1970s and early 1980s this was no trivial matter. The application of monetarist economics at least in the first half of the 1980s had led to a situation where money was short and high profits were sought (Harvey, 2005, pp. 23–31). In short, money had better be spent or invested well. And in the public opinion it was more than doubtful if videogames were the right way to spend money (McKernan, 2013, pp. 315–316). Arcade gamings' core demographic of mostly male teenagers increasingly came into public scrutiny as it was feared that playing videogames would drive them toward addiction and incite them to spend their or rather their parents' hard earned money unproductively on videogames

(Williams, 2003, p. 540). Videogames, however, also were fascinating to a wider public, especially because of the skills involved in playing them. Videogaming transported an image of a new generation that was to playfully master the demands of the digital workplaces of the future. This sentiment is probably most poignantly expressed in the already classic quote from Ronald Reagan: “Watch a 12-year-old take evasive action and score multiple hits while playing ‘Space Invaders,’ and you will appreciate the skills of tomorrow’s pilot” (Reagan, 1983). Videogaming, at least in this early phase, hence was frequently seen as the appropriate pastime of the information society, a possibility to unwind and playfully confront the machines that gradually began to matter in more and more areas of daily life (Williams, 2003, pp. 537–538). The same aspect of pleasure in turn spawned discussions on the futility of playing videogames their inherently violent nature and playing with them amounting to a waste of time (Loftus & Loftus, 1983, pp. 97–105).

These discursive connections between videogames and their socioeconomic context beg the question whether the media practice of highscoring also traversed the boundaries of its immediate domain into a wider context. In short could there indeed have been something like a highscore culture? The following examples aim to show that the media practice of highscoring is an aspect of how videogames became part of the social imaginary (Kirkpatrick, 2013) and hence can be brought into a relation to socioeconomic developments of the 1980s that emerged in the wake of the spread of personal computing. Like videogaming these developments are assumed to have had a global impact. The following examples are best understood as a starting point and testing ground for considering the media practice of highscoring in a wider context.

4.1. Highscoring in videogaming and beyond

One potential domain for highscoring is the fitness industry. Fitness and the optimization of the body were enormously popular during the whole decade on a global scale (Glassner, 1989, pp. 180–181; Millington, 2016, pp. 2–3; Stern, 2008, pp. 2–7). Fitness guides became bestsellers with Jane Fonda’s training videos as probably the best known example. Especially, in the first half of the 1980s Fonda’s slogan of “no pain, no gain” seemed to have been paramount to many fitness—enthusiasts with the consequence of occasional casualties due to over extensive training. Not unlike in an arcade game an investment be it the purchase of a training video, the fee for a fitness studio or simply the time devoted to training in these cases clearly was directed toward the idea of tackling infinity, of gaining ever more in some cases even beyond the point of ones’ bodily capabilities (Manning, 2000; Stern, 2008, p. 7). The general proximity between videogaming and fitness studios didn’t escape contemporary observers either who occasionally compared fitness studios to arcades (Wells, 1988). A direct connection between highscoring and fitness training can be observed with the introduction of electronic exercising machines, for example, the machines of the *powercise* series, which appropriately enough were designed by, among others, Rick Dyer who also had developed the arcade videogame *Dragons Lair* (Wells, 1988). These machines amounted to the equivalent of a digital motivational trainer offering comments on the users performance, measuring it and presenting its user with a score “(...) just as playing a video game results in a score” (Van, 1987) after the end of the training session (Brady, 1987). In this case, digital technology was employed as both a motivator and a neutral entity that was meant to dispassionately measure the performances of its users and make them accountable and comparable. At the end of a training session with the *powercise* machines the overall performance of the user would be printed out. Just as in highscoring individual exercises hence were instantly made accountable. The user would use the machines in the knowledge that he or she is working on a list as he or she is exercising. The introduction of technologies such as the *powercise* machines was on the one hand presumably inspired by the technical prerequisites of videogaming. On the other hand the media practice of highscoring can be assumed to have been familiar to potential users of the *powercise* machines thus lowering the entrance threshold.

With arcade gamings monetary basis in mind it seems obvious to furthermore relate highscoring to the practices of the financial economy. Around the early 1980s computer technology was gradually employed in the domain of future trading to try to predict market behavior (MacKenzie, 2008, pp. 143–177). Trading in futures traditionally was seen as a risky undertaking all the more so when

computers came into play as the increased trading speed made for high market volatility. Maybe for this reason comparisons to games and playing abounded in the public perception of the financial economy. Also, the traders themselves speak about emotions that can be found in gaming when they describe their work. In his study on emotions on the trading floor Jean Pierre Hassoun, for example, observed that the traders set sales records and spoke of playing a trading game (Hassoun, 2005, p. 111). A decisive question, however, is whether the trading activities are likened to a game of chance and subsequently the stock market to a casino or if the traders are portrayed as players who know what they are doing and have some sort of skill. This question became particularly pressing as the high volatility on the stock markets after the introduction of computers and the resurgence of future trading concerned the broader public as well who had increasingly come to rely on stock markets in their daily lives for example in regard to their pension funds (Reich, 1990, p. 103; Strange, 1997, pp. 111–119). In this situation of high volatility, a layman invested in the financial economy would need the reassurance that the people who were trusted with other peoples' money knew what they are doing. To win peoples' trust it could only be in the interest of the financial economy to get rid of the image of basically constituting a gigantic casino. An article in *The New York Times* from 1986 on the changes brought along by the computerization of trading stated that "Such changes also called for a new tribe of players, more quantitatively oriented than before. Where firms previously hired macroeconomists to forecast the course of the economy, now they seek microeconomists who understand relative values among the myriad financial instruments in the markets and can devise complex arbitrage formulas" (Arenson, 1986). The computerization of trading brought with it a change in personnel from chartists who read ticker tapes to traders who were using computers to write algorithms that interpreted the data, predicted market movements, and acted on their own accord. In an article in *The New York Times* from 1986 John Phalon then chairman of the big board characterized the situation in the following way: "The worst downside case would be if everybody's program decided to do the same thing at the same time. But program trading is bringing some of the smartest people into the portfolio game, and they will always be writing new programs" (Nash, 1986). Highscoring offers a framework to understand this characterization of the new professionals in trading under computerized circumstances. Trading with the help of computers resembled a game of skill. PCs were obviously used by the traders as a way to find patterns by creating algorithms. The image that it was only the smartest people who are playing the trading game communicated a certain amount of assurance that trading professionals knew what they are doing that skill was involved and that in this game only the best prevailed. Arguably, it is not very far off to conceive of people thinking about highscoring when picturing traders in this way. Additionally, the introduction of personal computers seemed to open the trading game to anyone with access to the required hardware that increasingly had become affordable. To quote *The New York Times* again, "Even the average small investor, who traditionally called a broker for information and advice, today can use a personal computer for access to much the same information, and same types of programs, used by the big money managers" (Arenson, 1986). In this example, the image of the machine as an equalizer and establisher of a market available to all becomes evident. Once again it might be assumed that this image was readily available to anyone who knew the least about videogaming and highscoring. Nintendos short-lived innovation that enabled users to connect to the stock market with their NES-consoles speaks to the potential connection between videogaming and trading (Glitterberri, 2012). As do the financial simulation games that also increasingly became available.

In its traditional domain so to speak highscoring lives on in the achievement structures of modern videogames that foster a playing style that is different from playing for survival only (Newman, 2008, pp. 123–128). Apart from that highscoring is of course still practiced in arcade gaming communities that oftentimes still play old games the old way. In a broader sense, however, highscoring is also alive and well today in the ubiquitous phenomenon of gamification. In an attempt to explain its genealogy gamification has been brought in relation, for example, to token psychology that is the distribution of rewards in an experimental setting and convincingly so (Raczowski, 2014). The understanding of gamification, however, could benefit further from considering the media practice of highscoring as part of its genealogy. Investment in ones skills in order to tackle infinity by attributing points and ideas of performance and fairness and instant accountability with the help of machines

are evidently key elements of gamification approaches. With these characteristics highscoring primarily highlights effects and aspects of self-control, self-optimization, and the quantified self as part of gamification (Schrape, 2014, pp. 38–42). But highscoring might also direct our view toward finding patterns as well as gaps and glitches and an awareness on the side of the players that the machine sometimes just might not work the way it was intended to.

5. Conclusion

Although all these examples would certainly require further and more detailed empirical research they nevertheless provide evidence that the idea of a broader highscore culture as derived from Stakhanovs' quote may be well worth considering from the perspective of practices.

Highscoring might be interpreted as a media practice that provided contemporaries with discursive and practical knowledge to cope with understand and accept the introduction of computer technology into various social domains. The media practice of highscoring highlights processes that used computer technology to make an activity accountable while enacting said activity and that employed points to translate infinity into an object that could be tackled in order to gain a finite outcome. In this process highscoring, as a skillful, agonal activity seems to have fit into contemporary economic ideas of a marketplace equally accessible for all who are in cash.

The perspective on practices furthermore reveals that an understanding of highscoring as players chasing points in a greedy manner inevitably falls short and as such can hardly serve as a kind of leitmotif for a whole culture of neoliberalism. It can be assumed that there is no direct transmission belt that smoothly leads from videogames into society. Instead understanding highscoring as a media practice implies that it is constituted by a set of practical knowledge that depends on its localized application and is in the last instance bound to situations where it might or might not have been put to use. Highscoring as a media practice is composed of various different practices with their own genealogies. Characteristically, highscoring combined the practices of accounting and scoring with practices of playing the machine and gaming. Delineating a media practice of highscoring hence helps to clarify that it is not only self-government and the quantification of the self that are at stake when we consider the playful application of computer technology in everyday life, but that also potentially subversive processes get incorporated into this nexus.

Videogames added highscoring to wider culture as a means or a set of practical knowledge that could but did not have to be activated in order to cope with situations where computers account for human activities. The number of social situations where highscoring can be applied exponentially grew in a period of time that might well be understood as the long 1980s reaching well into the twenty-first century and the gamification phenomena of today.

Funding

The authors received no direct funding for this research.

Author details

Clemens Reisner¹

E-mail: clemens.reisner@gmail.com

¹ Graduate School "Locating Media", University of Siegen, Am Eichenhang 50, Siegen 57076, Germany.

Citation information

Cite this article as: On the media practice of highscoring, Clemens Reisner, *Cogent Arts & Humanities* (2016), 3: 1210277.

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