

Of discs, boxes and cartridges: the material life of digital games

Saara Toivonen

University of Tampere
Kanslerinrinne 1, Tampere, Finland
saara.toivonen@iki.fi

Olli Sotamaa

University of Tampere
Kanslerinrinne 1, Tampere, Finland
oli.sotamaa@uta.fi

ABSTRACT

So far the field of game studies has mostly bypassed the everyday meanings attached to the material manifestations of digital games. Based on qualitative survey data, this article examines what kind of personal and collective values are attached to the physical copies of games, including the storage medium and packaging. The results show how materiality resonates with the reliability and unambiguity of ownership. Furthermore, games as physical objects can have a key role in the project of creating a home, receiving their meaning as part of a wider technological and popular cultural meaning structure. Finally, collecting associates games with more general issues of identity, sociability and history. Through storing and organising games and having them on display, gamers position themselves as part of game culture, gather subcultural capital and ensure the possibility for nostalgia.

Keywords

Game culture, physical copies, digital distribution, material culture, domestication, collecting, nostalgia

INTRODUCTION

Digital games consist of code, and over the last decade game researchers have put a fair amount of effort on mapping out the special nature and attributes of digital gaming. This has entailed that the material attributes of digital games have been largely ignored. Consequently, we still know quite little about the meanings attached to the material manifestations of games, including the storage medium and packing. This article aims to start to define and contextualize such meanings.

One of the recent developments characterising consumption in general and gaming in particular is dematerialisation. The development of digital publishing platforms has made publishing of games more cost-efficient and revenue models based on virtual goods increasingly attractive. While virtual consumption may have actual potential to fulfil generally acknowledged social needs (Lehdonvirta, Wilska and Johnson 2009), it would be an oversimplification to claim that virtual items can in any simple way entirely replace the material objects associated with digital gaming. Quite the contrary, we argue that exploring the meanings specifically connected with the physical properties of digital

Proceedings of DiGRA 2011 Conference: Think Design Play.

© 2011 Authors & Digital Games Research Association DiGRA. Personal and educational classroom use of this paper is allowed, commercial use requires specific permission from the author.

gaming will help us better understand the prospects and challenges encountered by digital distribution.

In the earlier phase of our project, we studied the general views and habits related to digital distribution of games, using a quantitative survey (n=1184). The findings indicate that gamers for example consider a wide selection of games and the ease of finding and paying for games to be important factors. In addition, the reliability of digital distribution and the everyday problems related to distribution platforms were issues of concern for many. (Toivonen & Sotamaa 2010.) All in all, we found it a little surprising that a fairly large number of active gamers familiar with downloading games told us that they still prefer having their games as physical copies. There were different kinds of practical reasons for this, but as many as one fifth of the respondents reported that they simply did not like downloading games. We saw it as surprising that the respondents readily expressed such a strong commitment to physical copies. As the phenomenon left us wondering, we decided to examine it in more detail.

The article is based on data collected with a directed online survey, carried out in December 2009. The survey consisted of open questions where the respondents had the opportunity to express their views in their own words. There were 11 questions altogether and they inquired about practical differences between downloading and physical copies, the storing of games, motives for acquiring physical copies of games, collecting, the gaming hobby and social gaming. We approached 50 respondents who had given their contact information in the first survey. In the end, 33 responded to the survey. The ratio (2/3 of the contacted respondents) was deemed to be fairly good. The age distribution of the respondents was from 15 to 45 years. As in our first survey, the majority of the respondents were male. We have added identifying information to each direct quotation selected from the material to show the gender and age of each respondent. No real names are used.

All the respondents included in the study had downloaded games but reported that they prefer to purchase their games as physical copies. Almost all reported that they play PC games at least an hour a week, in other words they can be considered relatively active players. Respondents who played console games played less – some of them did not play at all and none of them played over ten hours a week, whereas one third of the PC gamers played over ten hours a week. The data do not represent a comprehensive set of any particular group and the findings that emerge from the responses should not be generalised as the views of all gamers. However, we believe that our data have been carefully selected and the viewpoints emerging from the data are relevant when discussing what digital downloading and physical copies of games mean to gamers.

The analysis of the data is thematically divided. First we introduce some issues related to the reliability induced by materiality. In the later sections we examine in more detail two themes that seemed particularly interesting: the relation of games to home and the meanings related to collecting. Together these themes are supposed to shed light on the meanings of materiality in the everyday contexts and to connect the physical copies of games to issues of identity, sociability and history. Finally, in the light of our analysis we discuss the role of physical copies in a situation where the games market is orientating increasingly towards digital distribution.

THE RELIABILITY OF A MATERIAL OBJECT

"When a game has been downloaded, it doesn't exist in a physical sense. If the hard disk of a computer gets broken, you have to purchase the game again or something like that.

Downloaded games are more 'vulnerable': it depends on whether your internet connection works when you download and on the condition of the hard disk or the computer. A physical copy lasts longer. I don't [SIC] in downloaded games actually any good qualities. I don't see them as reliable: you can always rely on a physical copy, that it will be there and be available whenever you want, whereas the use of a downloaded game depends more on other factors. They keep talking about how downloaded games are the future: perhaps, but I believe that physical copies will remain popular for a long time. The whole system should develop first, into a better and more reliable one, so that I could trust it more." – Male, 26 years¹

The expressions used in the data to describe the desirable qualities of physical game copies were often related either to concreteness and being tactile, or the issues of ownership and the rights of possession. All these expressions were somehow associated with ideas of reliability: for most of the respondents a tactile game's existence was better ensured, and its ownership was more secure than with digital content. Trust in the existence of a game and its ownership was related both to the fact that a game can be played whenever the gamer wishes to and to issues of memory and ways of maintaining one's player identity.

The fondness for physical copies of games was strongly related to their nature of being tactile and sensorily present. A tactile physical copy was seen as proof of the authenticity of a game, whereas when a game is downloaded, "it doesn't exist in a physical sense" (Male, 26 years). The concreteness of the existence of a game was a prerequisite for the feeling of ownership, which was a satisfying feeling for many gamers. The connection between concreteness and ownership is highlighted in expressions like "I have a direct proof that I HAVE the game" (Female, 25 years) or "I have a concrete right to install and play the game, which no service crash or virus can take away from me into the virtual space" (Male, 25 years).

The charm of ownership was directly expressed in many responses, for instance, saying that "it's just nice to own games" (Male, 30 years). In some cases the pleasure of ownership was directly associated with the physical object itself, not so much with the digital game content. Owning immaterial content was seen as less clearly defined. This is connected to the fact that digital downloads do not 'switch owners' in the purchasing process in the same sense as physical objects do, and therefore it is not always clear how the rights of possession are divided between the seller and the buyer (Bruun et al. 2009, 71-73). In our data, 'ambiguous ownership of the game (having only the right to use)' was one way of expressing the problem.

The experience of having the rights of possession is not limited to the existence of a game; it is also related to the reliability of use. Regarding physical copies, it was mentioned that "nobody can take them away" (Male, 21 years), whereas regarding downloads, the respondents felt that being dependent on the downloading service even after purchasing the game weakens their rights of possession to the game, and therefore also weakens their experience of ownership.

"The service selling the game has a little too big opportunity to do what it wants with its clients, [the distribution platform] Steam just proved this. [--] Steam removed all Modern Warfare 2 games from those who bought it from unofficial resellers. These unofficial resellers were, however, completely legal, or at least nobody has shown evidence to prove otherwise." – Male, 26 years.

The above-mentioned case of *Modern Warfare 2* is related to the phenomena of parallel markets and black economy, made possible through digitalisation. A more widely known and perhaps even more thought-provoking case example of the flexibility of the rights of possession was witnessed a couple years ago when the online store Amazon erased all purchased copies of George Orwell's works from the Kindle e-book readers of their clients. In the following quotation, one respondent analyses from various viewpoints the potential threats that can ensue from switching a physical copy to mere rights of possession:

"I will have no concrete, physical evidence of owning a game and the fact that I have purchased it legally. It can be a problem with, for instance, online game accounts. The game is not always easily available either if I needed to reinstall it as I have to look for it first, and in the worst case I will have to download the game again. I also don't appreciate at all that many services require an internet connection in order for me to 'prove' that my game has been legally purchased before I am able to play it. In the worst case scenario, a website selling games will be closed and suddenly everything disappears into the virtual space." – Female, 25 years.

The respondents also mentioned that if a game sold in a physical form requires an internet connection due to updates and registration of the game, the independence of the ownership, and therefore the joy of having a physical copy disappears. There was some uncertainty about whether it would be possible to download a game again from the downloading service and the ability of the downloading services to stay in business was questioned. For instance, in the case of a PC breaking down or being switched for a new one, downloading the game from a disc again was seen as safer. As one reason for the feeling of uncertainty, one respondent explained: "They often limit the number of times you can install from the same file and the limits are small. After this [exceeding the limit], you have to contact and ask for additional installs" (Female, 21 years).

"Moreover, you don't have to worry about a physical copy of a game disappearing if the service closes down. Even if the game developer goes bankrupt or the online store decides to stop selling the game, a physical copy of the game will remain on your shelf until the discs are worn out. This is also the downside to a physical copy, in other words the possibility that an online store will last longer than a CD or a DVD disc, the life expectancy of both being somewhere around 10 to 15 years." – Male, 30 years.

To some of the respondents, the physical existence and ownership were also related to the emotional bond attached to the game and the game experience, as with one respondent who described his relationship to the game in the following way: "Owning a physical copy creates a special bond with the game. A part of your soul is transferred to the cartridge and the game, making it a more pleasant and gratifying experience to play" (Male, 19 years). The significance of tangible copies was further highlighted in relation to rare or otherwise personally meaningful games. As the examples above indicate, the meanings attached objects often go beyond the pure functional and display value. In the following we move on to examine the role of games in the everyday meaning making processes at home.

DIGITAL GAMES AS PART OF HOME

As already discussed, the academic exploration of gaming experiences has rarely taken into account such issues as packaging and the storage medium. However, based on our data, the players actively use game packages in the process of creating a home. The significance of domestic technologies in the home making process has been studied

before (see Soronen & Sotamaa 2004). In the following we argue that applying both theories of domestication and findings from the empirical studies of home can provide an important starting point for widening our understanding of uses and attributes of digital games.

Home is often seen as a representation of individuality, even though people's homes actually resemble each other quite a lot as the interiors are designed and decorated according to particular generally comprehensible arrangements and spatial articulations. Through this shared "grammar of home", the inhabitants build their identity and communicate with other people who visit the home. Because this creation of meanings increasingly happens through consumption choices, consumption and related aesthetic preferences – like owning game copies and showcasing them – have become an important part of home and home making. (Peteri 2006, 84–85.)

One of the recognized downsides to physical game packages was that they take up space. This was, however, rarely considered a major problem among the informants. Instead, the majority of the respondents kept their games in a somewhat visible place. They were argued to carry an aesthetic value of their own: "The covers are sometimes truly wonderful works of art, it's nice to look at the game shelf where those games are placed" (Male, 45 years). Many deemed it important to have the games on display for visitors, as well. Only few thought that game packages are not worth keeping on display or wanted to keep them hidden, worried that someone might break them, for instance. All through the data, the importance of using games in creating a home to be displayed to others as representative of oneself was evident. The respondents mentioned that showing their game collection to others is related to personal status and introducing one's interests. In this sense, games were seen to have a significant meaning both in the identity building process and in strengthening social relationships. The games put on display were mentioned to function as inspiration for discussion: "I have made an impression on women, too, when they've found their favourite on my shelf", one male informant (24 years) mentioned. In this connection, one needs to keep in mind, as Pargman and Jakobson (2008, 231) who have studied active gamers note, that the whole issue of having games in display may not be particularly relevant when discussing a social environment in which it is commonplace to own a lot of games. Most of our informants were active gamers and thereby more inclined to showcase their hobby. Some of the informants, however, were more modest about having their games on display: "if someone wants to examine them, by all means, but I'm not showing them off to anyone, but I'm not trying to hide them either..." (Male, 30 years).

When asked about the exact locations of games, it came up that copies were often placed next to books, CDs and DVDs. On the one hand, this indicates that games have an equal status with other cultural products and ways of spending free time. On the other hand, it can be seen as tangible proof of how games are given meaning as part of a wider popular cultural meaning making system. A knowledgeable guest can be expected to recognize certain books, films, CDs and games on a shelf and to interpret individual cultural products as part of the larger "shared grammar". Interestingly, all the mentioned fields – music, films and literature – are increasingly digitally distributed. However, this transformation has mostly happened separately for each field, and an individual consumer's ability to organise and present the relationships between digitalised cultural products is still finding its form.

Another common way of placing games in the home was to keep them close to computers and game consoles. This habit emphasises functionality, but also the status of games as

part of a technological meaning structure. "The different media technologies in the home are used as resources when creating the experience of separate spheres in life", explains Peteri (2006, 73). Based on our data, games and the related devices alone or together with other media equipment can become an important part of the entire interior decoration. In separating different spheres of life, it can make a difference if games are seen to be part of the 'computer corner' or a 'home theatre' – although these can also be part of a wider whole of different media. The following response refers to this kind of approach:

"My computer is in the corner of the living room, where I've built a nice 'office/gaming' corner. It's in the living room because my computer is connected to my home theatre system, and sometimes I play games on my big flat screen TV for better immersion. My computer also functions as the entertainment centre in the home and I play music on my home theatre system. The games are conveniently next to me on the shelf just like films traditionally are." – Male, 32 years.

PC:s and game consoles have traditionally had quite different uses and statuses in people's homes. A PC has been viewed as a more personal device that receives a separately devoted space at home (Peteri 2006, 67), whereas a gaming console is usually located in the living room or some other place where it can be played with others. The difference is also related to the different intended uses of these devices. A PC is often used for work or for taking care of daily activities, such as communication, finding information and running errands. Gaming is only one of the many ways that a PC can be used, whereas a gaming console has traditionally been reserved only for gaming. In recent times, with the advent of network connections, increasingly diverse uses for consoles have emerged. At the same time, as laptops and tablet PCs have become more common, the computer no longer stays in its own corner. Furthermore, a television can be used as a computer screen and a computer can be connected to other media equipment at home. All in all, the PC and the console have come closer as regards their uses and statuses in the home. At the same time, with the emergence of motion detection based interfaces, gaming colonizes more space and increasingly affects interior decoration, sometimes forcing people to entirely redecorate their living rooms (Bogost 2005).

Domestic technologies can be seen to compete for space in the home, especially with each other. Quandt and von Pape (2010, 338–342) argue, that novelty is a 'competitive asset' when negotiating the placing of technologies, and therefore new technologies easily replace older ones, taking their space (old devices may be relocated somewhere else in the home, however). This idea is based on earlier theories where devices are examined metaphorically as competing species. The competition for space in the home will continue until technologies find their own 'ecological niche', at least momentarily (Kopytoff 1986; Silverstone & Haddon 1996; Haddon 2003). We find this particularly relevant for our study. Downloaded content can be seen to have a special advantage in that they take up hardly any space at all. At the same time, this may be the saving grace for physical copies in the competition because downloads do not threaten to take their physical place in the home. Loosely following Mary Douglas' idea Peteri (2006, 73) argues that when encountering a new phenomenon or idea, we become aware of the larger system, and particularly so if that idea or phenomenon is an anomaly that does not appear to fit existing classifications. In the context of our study this refers to people becoming accustomed to physical copies. They form a recognized part of the integrated system of technology, for their part defining the different uses of the space. Games existing only as downloads do not similarly fit these accustomed categories of everyday life. The feeling of home has traditionally been integrally connected to the meaningful

objects and their placement in the home. It is, however, clear that the roles and the moral order associated with domestic technology are a result of a constant negotiation of meanings. The informants make some of these negotiations visible when discussing justifications for the status of physical game products, and at the same time pondering on occasions where downloading from the internet seems to naturally fit their everyday life.

One important point of view that shows the advantages of internet downloads is the possibility for the buyer to decide the time and place of purchasing them. This perspective also importantly connects digital copies to the home. One of the respondents argued that "once you can conveniently purchase a game while sitting on your sofa, you might just realise that it's a good thing that you don't have to go through the trouble of going to a store to buy it" (Male, 32 years). An even more important factor, apart from moving from one physical place to another, was the freedom to decide how to use your time. As an advantage of downloads, it was mentioned that a game can be "bought at any hour of the day you want", or as one respondent fittingly put it: "if I get inspired at 3 in the morning, and realise that I must get a copy of the new Grand Theft Auto right now, then it's practically impossible to get a physical copy, at least without the police paying attention" (Male, 21 years).

SIGNS OF COLLECTING IN EVERYDAY PLAY

Gaming and collecting can be seen to share many different qualities (Sotamaa 2010). The prehistory of both dates back to the dawn of humanity, or even further back if we consider animals to be capable of playing and collecting. Many contemporary games, both digital and analogue, utilise collecting as a central game mechanic. In the past years, with the popularity of retrogaming, collecting games and related material has become popular and generally accepted. In addition, academic research on collecting has utilised concepts such as addiction and flow, which are also actively used by game researchers (Belk et al. 1991; Carey 2008; Pöyhtäri 1996).

When asked whether they collect games, the majority of our respondents replied either with a plain 'no' or by saying that they do not technically collect games, even though they own a lot of them. Nevertheless, the respondents' relationships to the games they own showed many qualities typical to collecting. One of the key reasons why the respondents did not view themselves as collectors was that they did not see their games as forming a unified whole. The idea of a somehow limited collection is considered to be an important defining feature to the activity of collecting (Pöyhtäri 1996, 12). Some of the respondents, however, had a clear idea of which games they would want to keep. This can be seen as an act of limiting their collection, even though they may not consciously see it as such.

Reminiscence was an important reason for keeping and storing games: many of the respondents mentioned that they only keep the best games – those that will provide good memories. Male informant, 18 years, explained how: "game[boxe]s are like photographs from the past. Just by looking at the game cover I remember those playthroughs and events that I experienced." While some of the informants associated storing of games with the possibility of actual replay, like in "you can look at and admire your games in old age, maybe even play a little if you happen to still have the equipment required" (Male, 26 years), it seems that collecting is still primarily related to the possibility of bringing back the experiences of the past. The original experience in itself cannot be recreated by playing the same game again, so a replay could even erode the nostalgic longing related to the memory and the pleasure it can bring (cf. Ibid., 105). Therefore, the

possibility of replay functions rather as a way of bringing the past to the present (ibid., 88–90). Like other technological objects, games can be seen as particular kinds of “time machines” or “memory machines” that function as gateways to nostalgic experiences and become important institutions for cultural memory (Suominen 2011).

The possibility to touch an object representing a game was also felt to be important for reminiscing. The packages of games and additional material give pleasure also directly through the sense of touch. “Browsing” the games, taking them into your hands and looking at them, was mentioned as a delightful activity in itself and also as the reason for preferring physical copies: “For nostalgic moments, it’s nice to have something physical to browse through” (Male, 24 years). Digital downloads were rarely associated with these kinds of values. One informant, however, mentioned that “if you buy a crappy game by downloading it, it can haunt you in your Steam profile, for instance, giving you bad memories and bringing down your mood” (Male, 19 years).

The studies of collecting have highlighted how the activity of collecting meaningful objects and organising them can function as an important channel for developing self-understanding (Belk et al. 1991). One of the informants argued that “on the shelf, they [games] bring out my personality and bring a smile to my face” (Male, 19 years). Another informant described the significance of the game packages in the following way:

“They bring out my gamer self and describe a little bit about what kind of things I like. In a way they’re a part of me and have created good memories over the years, which I can recall as I browse my games on the shelf.” – Male, 24 years.

Within the respondents, memories related to gaming were highly valued, equal to other important hobbies, as in the following response: “games are actually part of my life experience, it’s the same as if you read a good book or played the piano for 15 years” (Male, 24 years). Statements like this indicate that physical game copies can operate as carriers and mediators that provide a value that withstands time and surpasses the value related to the passing gaming instance.

As explained earlier, the lifecycle of a media device entails that it can be relocated and reappropriated (Quandt and von Pape 2010, 338). Therefore, the process of domestication is not necessarily a straightforward development where a device arrives at home and prospers until it eventually falls out of use. Instead, the lifecycle of a device can include several reinterpretations (ibid., 333–334). Similar to other technological objects, games can be seen to have their own lifecycle. In most cases game are at first bought to play them, the early phase highlighting the use value of the object. Some of the respondents said that they only buy games that they know to be good beforehand and which they will not give away once they have bought them. Already at this point the game can have value for the gamer that is different from its monetary value. When the game has been played through, it again enters the phase of assigning meanings. Sooner or later, the object is in danger of ending up in the category of trash, where it no more holds any exchange value. At this point, the collector steps in, singularises the object and gives it a special value that is separated from its exchange value. In this sense, the collector represents a counterforce to the evanescence of an object. (Pöyhtäri 1996, 70–71.)

When a collector detaches an object from its usual meaning and makes it valuable and meaningful again, namely a singular, the collector may at the same time raise the general value of the object. Especially if certain objects start gaining the attention and appreciation of many people and a collecting culture forms around them, it can also

increase the monetary value of the objects. "In the paradox of singularisation, singularisation, which by definition means detaching an object from its utility form and keeping it away from it, can paradoxically promote the transformation of the singular non-usable object again into an object with exchange value", notes Pöyhtäri (ibid., 64–65). Until now, game collectors have so far mostly focused on original game packages, rare gaming devices and other material manifestations suitable for collecting. The nature of digital items, easily copied and reproduced, makes them quite special in relation to collecting and rarity (Sotamaa 2010). In the process of assigning value for virtual items, the availability of particular objects can be artificially limited, resulting in exclusive items and sought-after rarities. In a similar manner, downloaded add-on content for console games may be available only for a limited time, and certain products can achieve a special status value among gamers.

CONCLUSIONS AND DISCUSSION

According to the latest international statistics, the proportion of digital distribution is still less than 10 per cent of the total game sales (FADE 2011). This share is expected to keep growing, but predictions trumpeting the sudden disappearance of physical copies appear to be strongly exaggerated. As we have tried to show, one central attraction of material recording media is associated with how the objects of gaming are utilized in the project of creating a home. Games are collected, they have their own place in the home, and they are displayed to others. This way the games are part of creating a gamer identity and gathering subcultural capital to be communicated to other devoted enthusiasts. The significance of a game collection is also related to a temporal dimension, as meaningful objects create special opportunities for reminiscing and recalling past experiences. Game downloads, for their part, may not have a similar place in the home, but they can also contribute to the homely feeling as their 24/7 availability frees the player to fully enjoy the comfort of the home.

With the increasing popularity of digital distribution platforms, one may ask whether the iPhone and Facebook players of near future will even recognize the optical discs packed in plastics cases as games. While our data allows us not to answer this question, in a general level we have not found any significant differences among the respondents with respect to age. What is, however, clear is that the forecasts predicting a sudden change in consumption rarely take into account the everyday meaning making activities of gamers.

As discussed in the beginning of the article, digital distribution of games may seem like a logical development overall: games consist of program code to begin with. Based on our data, however, it looks like the phenomenon is not quite so simple. It is particularly interesting because new distribution channels are only one manifestation of the dematerialisation trend defining contemporary digital games. At the same time, projects like Microsoft's Kinect predict a future without game controllers, and cloud services such as OnLive and Gaikai are announcing that devices devoted to gaming are going to be history soon. With this in mind, our study serves as a healthy reminder of how digital games should not be simplified to mere code lines running along optical cables. Rather, it seems that gamers can create strong and meaningful emotional bonds with the physical manifestations of digital games.

ENDNOTES

1 All citations are translated from Finnish by the authors. No real names are used.

BIBLIOGRAPHY

- Belk, R.W., Wallendorf, M., Sherry Jr., J.F. & Holbrook, M.B. (1991) "Collecting in a consumer culture," in Belk, R.W. (ed.): *Highways and buyways: Naturalistic research from the consumer behavior odyssey*. Association for Consumer Research, UT, pp. 178–215.
- Bogost, I (2005) "The Rhetoric of Exergaming," in *Proceedings of Digital Arts and Culture Conference*. IT University of Copenhagen, Copenhagen.
- Bruun, O., Eskelinen T., Kauppinen I. & Kuusela, H. (2009). *Immateriaalitalous: Kapitalismin uusin muoto [Immaterial Economy: The Latest Form of Capitalism]*. Gaudeamus, Helsinki.
- Carey, C. (2008) "Modeling collecting behavior: The role of set completion," *Journal of Economic Psychology*, vol. 29, no. 3, pp. 336–347.
- FADE (2011). "Retail and digital video game software sales over \$33 billion in 2010". Available at http://fadellc.com/press_17.html (Accessed Aug. 2011)
- Haddon, L. (2003) "Domestication and mobile telephony," in Katz, J.E. (ed.): *Machines that become us: The social context of personal communication technology*. Transaction, New Brunswick, NJ, pp. 43–56.
- Kopytoff, I. (1986) "The cultural biography of things: Commoditization as a process," in Appadurai, A. (ed.) *The social life of things: Commodities in cultural perspective*. Cambridge University Press, Cambridge, MA, pp. 64–94.
- Lehdonvirta, V., Wilska, T.-A. & Johnson, M. (2009) "Virtual Consumerism: Case Habbo Hotel," *Information, Communication & Society*, vol.12, no. 7, pp. 1059–1079.
- Pargman, D. & Jakobson, P. (2008) "Do you believe in magic? Computer games in everyday life," *European Journal of Cultural Studies*, vol. 11, no. 2, pp. 225–244.
- Peteri, V. (2006) *Mediaksi kotiin: Tutkimus teknologioiden kotoutumisesta [Media to home: A study on the domestication of technologies]*. Tampere University Press, Tampere.
- Pöyhtäri, A. (1996) *Keräilystä kokoelmaan. Sosiologisia ja filosofisia näkökulmia keräilyyn [From collecting to collections. Sociological and philosophical views on collecting]*. University of Jyväskylä, Jyväskylä.
- Quandt, T. & von Pape, T. (2010) "Living in the mediatope: A multimethod study on the evolution of media technologies in the domestic environment", *The Information Society*, Vol. 26, no. 5, pp. 330–345.
- Silverstone, R. & Haddon, L. (1996) "Design and the domestication of information and communication technologies: Technical change and everyday life," in Silverstone, R. & Mansell, R. (eds.): *Communication by design: The politics of information and communication technologies*. Oxford University Press, Oxford, pp. 44–74.
- Soronen, A. & Sotamaa, O. (2004) "And my microwave is a fox: Reflecting domestic environments and technologies by means of self-documentation packages," in Sudweeks, F. & Ess, C. (eds.) *Proceedings of the fourth international conference on cultural attitudes towards technology and communication*. Murdoch University, Australia, pp. 211–225.
- Sotamaa, O. (2010) "Game Achievements, Collecting and Gaming Capital," in Mitgutsch, K., Klimmt, C. & Rosenstingl, H. (eds.) *Exploring the edges of gaming: Proceedings of the Vienna games conference 2008-2009*. Braumüller, Vienna, pp. 239–250.
- Suominen, J. (2011). Hurma, himo, häpeä ja hylkääminen – kaarroksia konesuhteissa [Fascination, desire, shame and abandonment - twists and turns in relationships with technology], in *Digirakkaus 2 [Digital Love 2]*. (in print)

Toivonen, S. & Sotamaa, O. (2010) "Digital distribution of games: the players' perspective," in Proceedings of Futureplay '10 (Vancouver, Canada, 6-7 May 2010), ACM Press, pp. 199-206.