14 Emergence of Game Cultural Institutions

Hobbyist Efforts, Policymaking and Lucky Accidents

Jaakko Suominen and Markku Reunanen

Introduction

Game players, developers, publishers and hardware companies are among the most evident actors when considering who are involved with game cultures, but on closer inspection, it is easy to find numerous other, diverse stakeholders. We call these organizations *game cultural institutions* and define them as cultural institutions and bodies whose activities are geared toward the development or sustenance of game cultures or the gaming industry. These institutions may exclusively focus on games and gaming at a general level, or they may concentrate on specific sectors within gaming-related activities. Alternatively, gaming may represent just one facet of their broader agenda, such as youth work or financing entrepreneurial activities.

These institutions facilitate interaction among the game industry and related stakeholders, provide funding, organize events, implement policy measures, advocate for political support and generally communicate the activities of the entities they represent to a wider public. Institutions typically operate with a defined structure and management, implicitly or explicitly articulated goals and they utilize various infrastructures. In addition, they tend to provide stability and longevity, which is not equally characteristic for motivation-driven and constantly changing grassroots activities. With the term institutionalization, we refer to the process of creation and shaping of institutions (see Gronow 2006; Scott 2014, 59–70).

In this chapter, we aim to address the following research questions: *What is the history of game cultural institutions and what is the relationship between grassroots hobbyist activities and institutions? Through what processes do these institutions develop, evolve, interact, merge and potentially cease to exist?* The case examples we use to highlight the developments are mostly from the Finnish context, coupled with international comparisons to provide a wider and more generalizable perspective (see also Suominen et al. 2022).

Our main argument is that game cultural institutions – like any other institutions – do not emerge out of nowhere, but develop gradually over time, involve other institutional bodies and before long, create an institutional network, an ecosystem around game cultures. As we argue in the upcoming

DOI: 10.4324/9781003679851-15

sections, it is common for game cultural institutions to spur from grassroots efforts, whereas companies and the public sector tend to recognize the commercial and cultural value of the activities only with a delay.

The chapter starts with a section dealing with the concept of a *vernacular institution*. The section lays the theoretical foundation for the rest of the chapter. Next, we present a historical overview of the societies and clubs that predate digital games with the purpose of revealing the roots of today's similar communities. The Assembly 2024 festival, our practical case study, serves as a bridge between historical and contemporary institutions, where we also observe the diversity of institutions as well as their relationships to games and gaming. The following two sections cover two spheres more: first, game research and education, followed by the efforts of GLAM (Galleries, Libraries, Archives and Museums) organizations, which typically focus on preservation. Finally, we wrap up the discussion with general observations on the emergence and development of game cultural institutions.

Question of the Vernacular Institution

Game and computer cultural studies frequently emphasize the importance of grassroots activities and hobbyists in the development of creative and personal computing (e.g., Swalwell 2008, 2021). According to a common narrative, the transition from mainframe computers to micro and home computers took place in particular thanks to the revolution driven by individualism and creativity. In this case, historical change is presented, first and foremost, as subcultural and anti-institutional. One of the earliest and most influential portrayals of the transition can be found in Steven Levy's *Hackers: Heroes of Computer Revolution* (1984; see also Nelson 1977).

Long-standing terms used in computer and game history, such as the subculture and the scene, have recently been coupled with the concept of *vernacularity*. Vernacularity has been used and defined in different ways in various fields of study ranging from linguistics to folkloristics and anthropology to cultural studies. In cultural studies and related sciences, the term currently refers to novel, voluntary, distributed and hybrid activity, where the borders between amateurism and professionalism are blurry. The concept has acquired new meanings, for instance, when it has been applied to network cultures (Howard 2008a; 2008b; Fingerroos et al. 2020, 5). In folkloristics, the concept of vernacularity was introduced to do away with the ideological burden of 'folk' terminology, which bound together certain kinds of expression and groups of people. However, the new concept is not free of ideology and hierarchies either and, therefore, also its use requires reflexivity (Fingeroos et al. 2020, 5–7; cf. Valk 2022).

Melanie Swalwell has written about homebrew gaming and the beginnings of vernacular digitality. She uses Michel de Certeau's theories on the practices of everyday life as a foundation for the discussion. Swalwell refers to

the hobbyist-driven game production that started in the late 1970s as *homebrew gaming*. She does not discuss the relationship between homebrew and vernacularity in relation to institutions in detail, but it is evident that the two spheres are different: 'Homebrew productions were made in domestic space rather than in any kind of institutional space' (Swalwell 2021, 2–3).

Tiina Männistö-Funk (2011) has, in turn, studied vernacular technology using 1800s homemade bicycles as a case example. She describes vernacular technology as self-made means of transportation that served many purposes, but which were still rooted in existing skills and social networks. Männistö-Funk separates vernacular and artisanal, of which the latter refers to small-scale production that supplements another profession. Again, vernacular technology resides outside institutions and their practices (see also Jo 2022).

Studies dealing with self-motivation, homebrew and vernacular do not generally define what its opposite – institutional – actually means. In this chapter, we aim to provide a new, wider perspective into game cultural institutions and institutionalization, questioning whether vernacular and institutional are opposites to begin with. What would vernacular game cultural institutions be like? We could define them here as established communities rooted in voluntary hobbyist activities, which manage to stay agile and flexible when furthering their game-related causes. As Robert Glenn Howard emphasizes: 'the vernacular needs the institutional from which to distinguish itself, and in this way the vernacular takes part in the institutional. As a result, no pure vernacularity exists, only degrees of hybridity' (Howard 2008a, 203; see also Jo 2022, 159).

Longue Durée of Game Cultural Institutions

How did gaming become an organized activity in the first place? One way to trace the roots of today's institutions is to observe the history of earlier clubs and societies. The importance of clubs for computer and gaming hobbies has already been recognized for decades. Even if clubs were not necessarily highly organized, they can still be considered as early forms of institutionalization. For instance, Steven Levy has written about the Tech Model Railroad Club (TMRC), founded in 1946 at the Massachusetts Institute of Technology, and proposed it as one of the birthplaces of hacker culture. Even though the main activities of the club revolved around model trains, its members were also generally interested in technology and started experimenting with computers in the late 1950s. The members wrote chess programmes and also created the famous *Spacewar!* game (Russell et al.) for the DEC PDP 1 minicomputer in 1962 (Levy 1984, 17–69). Another often referred early example is the Homebrew Computer Club, founded in 1975 in Menlo Park, California, which started building and programming computers in the 1970s (Levy 1984, 201–23; Petrick 2017).

According to Jaroslav Švelch, the peak of Western computer clubs was seen in the late 1970s and early 1980s, after which the wide availability of hardware and software eventually made clubs redundant. In contrast, behind the Iron Curtain, clubs retained their importance until the late 1980s and were founded by many stakeholders (Švelch 2018, 65–90). Petri Saarikoski observes that, in Finland, clubs originated in schools and phone or electronics companies, and were often formed around a specific computer brand. Saarikoski emphasizes that club magazines were an important part of the activities, as well as getting familiar with the latest hardware and software together. The relationship between clubs and games was, however, ambivalent and complicated, as gaming was not always considered valuable computer use (Saarikoski 2004, 67–77; see also Haddon 1988; Kirkpatrick 2016).

Institutionalization processes related to games date much further back than digital gaming itself, even beyond the electronics and radio clubs, which are frequently portrayed as forerunners of computer clubs (e.g., Campbell-Kelly and Aspray 1996, 233–5; Saarikoski 2004, 69; on radio hobbyism, see also Douglas 1989; Rappaport 2022). Next, we discuss examples of such institutionalization through the history of game clubs and societies.

According to Peter Clark (2000, 10), there were about 25,000 clubs and societies in the 1700s in English-speaking countries alone. The terms club and society are often used interchangeably, but Clark states that societies are more formal (and thus, perhaps more institutional) in character. They started emerging, in particular, after the English Civil War in the late 1600s. There were clubs and societies everywhere, but according to Clark, they were particularly prominent in Britain and its colonies: 'By 1800 clubs and other forms of association had become a vital component of the social life of the educated English-speaking classes, whether at home or abroad' (Clark 2000, 3).

Clubs and societies, where a defining factor was the voluntariness of participation, could be categorized into 130 kinds, ranging from science to arts and to the practice of religion. Among them were game-related actors, such as gambling and sporting clubs. Clark notes that clubs were a particularly urban and male phenomenon, even though they existed in rural areas too, and some were available to female members as well. The spread of urbanization, religious pluralism and new forms of public sociability were driving factors behind these developments (Clark 2000). These definitions are surprisingly well in line with later computer clubs which, too, tended to be male dominant and urban.

Thus, it is possible to trace the formation of institutions to the organized forms of the representatives of a certain social class and gender. Games and play have also served other purposes than just entertainment, for example, by maintaining social relationships between the upper class and the upper middle class in the early 19th Century (see Artukka 2021, 157, 183–4). Games

themselves were not necessarily the main point of the activities but rather served a supporting role.

Why has there been a need for game cultural institutions in the first place? One clear example is sports: a need for sports institutions emerged when competitions grew in scale and there was a need for shared rules, as well as organizations that would be in charge of the competitions. The Olympic Games organized in ancient Greece and the later Olympics that re-emerged in the late 1800s are historical examples of such development. In the same vein, sports, such as football, other ball games, sailing, gymnastics and several others, started becoming increasingly organized towards the 1900s, and international sports started forming on top of local and national clubs and leagues.

In Finland, the foundation of sports clubs was affected by the country's situation as part of the Russian Empire between 1808 and 1917. For instance, the founding of a registered society was tightly controlled. The first known, still operational sports club is the sailing club Segelföreningen i Björneborg (BSF), founded on January 1, 1856. Some other clubs also emerged already in 1860–1870, but they became more commonplace in the 1880s. One explanation for the growth was that the Finnish Senate was given the right to grant permissions for founding cultural societies in 1883. The Helsinki Chess Club – also still in operation – was founded in 1886 and some other chess clubs followed suit in the early 1900s.

In the early 20th century, the appearance of a new game was reflected in the popular press of the time, where the foundation of a new club concentrated on the game was considered a sign of its popularity. Another sign of the popularity was that the game became part of various clubs' and societies' meetings and festivities (Suominen 2023). Both cases are early examples of both institutionalization and the process of appropriation (see Hård and Jamison 2005).

Researchers representing the sociology of sport have studied the formation of sports clubs and foundations, among other approaches, from the perspective of civilization theory. The studies have shown how rules and organizations were able to, at least partially, reduce the violence involved with football and other team sports, and how they facilitated organizing joint events (for more on the civilization of sports, see Dunning 1999). Especially at first, it was also considered relevant to define what sports *were* in the first place: chess, billiards or table tennis did not qualify as such, even though they were competitive and reliant on the participant's skill. However, great stamina was not required for them, unlike in the case of traditional sports (Suominen 2023). One more factor in play is gender: the image of athletic sports has been masculine, and women have often been systematically banned from competitions.

More recently, similar discussions on the relationship of sports and esports have emerged. Early discussions are particularly relevant for the study of game cultural institutions, since new institutions tried to mimic the practices of existing ones and, at times, even joined them (e.g., Suominen et al. 2022).

On the other hand, older institutions have also attempted to absorb new phenomena and learn from them in case they turn out to be successful. The strong presence of esports at Assembly 2024 serves as a recent example of such development.

Institutional Event as Assemblage: Case Assembly

In the previous section we explored the history of game cultural institutions through the lens of history. Another approach is to observe today's existing institutions, their nature and interlinkedness through case studies, building a bridge from the past to today. Next, we take Assembly, a Finnish digital culture festival, under scrutiny and study how, why and which game cultural institutions take part in it. Games and gaming are not the only themes present at the event, but they can justifiably be called the reason why Assembly exists as it is today.

Assembly calls itself the biggest digital festival in Finland and is one of the largest events in Europe targeted at computer enthusiasts. Originally a demoparty organized in Kauniainen, located near Helsinki, in 1992 with about 700 participants, it has grown to a happening of about 30,000 participants and dozens of organizational partners. As Tyni and Sotamaa (2014) point out in their article discussing the links between Assembly and the Finnish game industry, the transition from a demoparty into a large gaming festival was not always a smooth one, as different visitors had conflicting views on the purpose of the event (cf. Reunanen 2017, 46–8).

On the one hand, Assembly itself has become a long-standing digital and game cultural institution and, on the other hand, it acts as a hub for many other game and digital cultural institutions, such as game industry lobbying organizations and companies, game-related memory institutions, educational organizations and so forth. This dual nature of the event coupled with the wealth of the stakeholders it brings together makes it an excellent subject for our study. Therefore, we set out for Assembly Summer 2024, held at the Helsinki Expo and Convention Centre (formerly Helsinki Fair Centre) on August 1–4, to chart the actors and activities involved [Figure 14.1]. As some participating institutions did not have a stand or similar physical presence on site, the observations were supplemented with information found on the event's website.

The study turned up 68 stakeholders that participated in the event – the list is most likely not complete, but certainly enough to discuss who is involved, how and why. Assembly itself presented its partners on its website in a hierarchical order with the main ones (AOC Agon, Philips Evnia, Supercell, Telia, Verkkokauppa and Wrigley's Extra) receiving the most attention, second tier somewhat less and, finally, others that were only present in the programme or the event map. Commercial importance in the form of sponsorship could, therefore, be considered the first way to categorize the stakeholders. It is also easy to observe how directly the size and resources of the actor were reflected

Figure 14.1 Assembly 2024 main party hall at the Helsinki Fair Centre. Photo by Markku Reunanen.

on this perceived importance: multinational brands first, societies and individuals last.

Another, heavily related take would be to consider the kind of actors involved [Figure 14.2]. Hobbyist societies, such as the Finnish Dance Gamers' Association and Hacklabs, represent one end of the scale, whereas Yle (Finnish Broadcasting Company) and Traficom (Finnish Transport and Communications Agency) are large national actors operating on public funding. Commercial actors ranging from large multi-billion enterprises to one-person businesses form a similar continuum which, again, gets close to the grassroots level at the smaller end of the scale. The theme of vernacularity is particularly present here, as some of the communities are loosely organized, distributed and only at their initial stages of institutionalization.

The degree of how inseparably a stakeholder is linked to games and gaming is another factor separating them (see also Suominen et al. 2022). Game companies were surprisingly not very present at Assembly 2024, with Supercell as the notable exception and one of the main partners. Game stores and gamer societies are other examples of bodies whose reason to exist is games. For some, games are only part of their larger operations, like in the case of large multinational companies (AOC and Philips) or the *Skrolli* computer hobbyist magazine, which also covers various other subjects related to digital culture. Finally, at the other end of the scale, we find actors who are present mostly to reach a young audience who are possibly interested in their products and

Figure 14.2 Stakeholders' stands ranging from game resellers to food companies and the Police of Finland. Photo by Markku Reunanen.

services. For instance, food companies marketing snacks and drinks for gamers, the Finnish Red Cross and Espoo City fall under this category.

It is relevant to consider which of these diverse stakeholders could be called game cultural institutions in the first place. Certain cases, such as the Finnish Museum of Games and most of the societies, can easily be labelled as institutions, whereas the status of several others is notably harder to define – this observation demonstrates how institutionalization is more of a continuum than an on/off binary. In the grey area we find, for instance, national institutions for whom games or gaming are only a recent and relatively low-effort part of their larger activities.

As an institution, Assembly itself started as an enthusiast-driven effort with a local nature: a hobbyist event that brought together likeminded Finnish demosceners. Today's Assembly, with its organization, large number of visitors, corporate partners and business dimension, is a completely different entity altogether. Multiple kinds of institutionalization processes can be observed in its history. While the demoscene was initially an expansive novelty, nowadays it has already turned into a maintained or even a preserved

one as the constitution of the visitors has largely changed from demosceners to gamers (see also Suominen et al. 2022; Tyni and Sotamaa 2014).

A Subject Worth Studying

Game-related courses, study modules and complete programmes offered by schools are a prime example of institutionalization. Game research is typically closely linked to education and takes place at the same institutions. The approaches these actors take vary greatly: games are studied, for instance, from a cultural or design perspective, but also as business or media (see Sotamaa 2023). Schools are institutions themselves, and their efforts are symptomatic of larger societal recognition of games and gaming – from a financial perspective, education often involves public spending, which must be justified.

Games education ranges from vocationally oriented courses catering to the needs of the industry to research-oriented ones aiming at an academic career. In the Finnish scope, vocational schools, adult education centres, universities of applied science as well as research universities all provide individual courses and larger modules to prospective students, at times in close collaboration with industry partners (Mononen, Neittaanmäki, and Vähäkainu 2014). It must be noted that for effectively all of the schools, games are still a relatively recent addition, one topic among several others, as opposed to being their main focus. From an institutionalization perspective the relevant question here is: *how, why and when did games education emerge?*

While educational computing itself is a widely studied subject, games education has received considerably less attention from researchers so far. One example of such studies is Barry Ip's *Fitting the Needs of an Industry: An Examination of Games Design, Development, and Art Courses in the UK* (2012) that approaches the subject from a game industry perspective: how well is higher education aligned with the needs of game companies? Brendan Burns (2008), in turn, used game development for teaching and bringing together computer science topics. Game design is another subject that has been covered by academic studies (e.g., Gestwicki, Sun, and Dean 2008), whereas topics such as teaching the history of games or game cultures appear as an almost unexplored territory, highlighting the often professional or instrumental nature of games education.

The roots of games education at a certain institution are not often publicly documented, but fortunately the two-part article series 'Pelitutkimuksen paikat,' published in 2013 and 2014 on *Pelitutkimuksen vuosikirja* (Yearbook of Game Studies) provides, among other topics, a concise historical overview of the developments at four prominent Finnish universities. These accounts place the emergence of game studies and education roughly at the turn of the new millennium – individual researchers had been interested in the subject already earlier, but such efforts did not yet receive official recognition by the institutions (Mäyrä, Suominen, and Sotamaa 2013; Lehtonen, Junnila,

and Koivisto 2014). In the same vein, game-related doctoral theses were still scarce in the early 2000s (Sotamaa 2023). This transition from grassroots to institutional in the university context follows the same narrative as our other examples.

Informal game-related learning had started long before educational institutions started taking note. Some examples of such are the aforementioned computer clubs, which taught relevant skills – programming in particular – since their inception. The 1980s computer magazines published game-oriented programming tips, examples and complete courses, which could be considered as early self-study material (e.g., Suominen and Pasanen 2022; Swalwell 2008). Likewise, publishing houses quickly recognized the growing interest towards the subject and brought game programming books to the market. Programming skills were, in general, considered necessary, future-oriented skills for the to-be members of the information society, but games were by no means a significant focus area in the 1980s computing education (e.g., Saarikoski 2004, 147–8, 2011).

In the same vein, it was largely enthusiasts and journalists, as opposed to academics, who started writing the history of digital games. Jaakko Suominen's historiography 'How to Present the History of Digital Games' (2017) is an analysis of the different kinds of game histories, their authors, purposes and implications. Suominen's category *enthusiast histories* encompasses hobbyist-driven efforts that range from so-called coffee table books to large professional works written in non-academic contexts. Research books on games and game cultures are a more recent phenomenon that co-exist side by side with the colourful enthusiast histories which have by no means disappeared over time – in fact, quite the opposite.

When considering the emergence of game studies and education, it is again easy to note how existing institutions were initially slow to react to the growing cultural and commercial importance of games, possibly owing to their long-term image as children's pastime and less worthy use for computers (cf. Haddon 1988). In the absence of formal education, self-study was the only path to the industry for a number of years and game studies, likewise, largely remained an enthusiast domain until the turn of the millennium.

Institutions of Preservation

As noted already, some game cultural institutions focus on collecting, archiving, preserving, distributing and presenting game-related cultural heritage. These institutions are often called GLAM (Galleries, Libraries, Archives and Museums) organizations. Interestingly, some of them ended up as game cultural institutions by accident, which is an uncommon kind of institutionalization. As part of their other responsibilities, these organizations have built or received collections which are relevant for game preservation, but they have not necessarily realized their worth or brought them forward.

Probably the most important example of such an *accidental institution* is the National Library of Finland, which receives, as dictated by the law, a complimentary copy of all printed publications that are released in Finland. The law has not always been interpreted the same way when it comes to games, but in any case, the library has received numerous board games, some computer games and other game-related material. As game cultural awareness has spread, for instance, due to public discourse, the National Library has also improved its collection and filled gaps with purchases and donations received from collectors.

Museums have also started paying more attention to games. Non-digital games and toys had already been exhibited for a long time, but a significant change took place when digital games arrived at museums. The first exhibitions were held in the late 1990s and early 2000s, which coincided with the growing public recognition of games as cultural heritage. In addition to individual exhibitions, there were international, travelling ones. Probably the best-known example of the latter is Game On, which started in 2002 and was shown for several years around the world (Naskali, Suominen, and Saarikoski 2013; see also Newman 2012, 21).

Actual game museums started appearing in numbers in the 2010s, but some of them have much longer roots. Among the most prominent ones are, for instance, the Strong National Museum of Play in Rochester, US (dating back to the 1960s), Computerspielemuseum in Berlin, Germany (founded in 1997, current exhibition from 2011) and the Finnish Museum of Games, which was founded in 2017 in Tampere (see Nylund 2020). Several game museums and other publicly funded museums are also currently involved in systematic game and game culture documentation, in addition to their history-oriented preservation efforts.

In the case of museums, the role of enthusiasts and collectors has, again, been fundamental. Many of the publicly funded museums are partially or completely based on the collections of individual collectors. The Finnish Museum of Games started, likewise, largely as an enthusiast-driven project, but it has also been supported by game companies. The tight collaboration between hobbyists, societies, companies, researchers and museum professionals has often proven to lead to the best results (Suominen, Sivula, and Garda 2018). James Newman (2012, 26–31) highlights the importance of institutional support to ensure the longevity of collections and preservation work, as enthusiast efforts may become objects of preservation themselves if motivation runs out.

Several hobbyists have opened up their private collections to the public and called them museums, even though their operating principles are often very different from publicly funded institutions. As an instance of institutionalization, some of these collections have eventually evolved into publicly funded museums, or a registered society has been founded to support their longevity, as in the case of the Finnish Computer Museum. These kinds of examples provide further support for the concept of the vernacular institution, which

is, on the one hand, organized and, on the other hand, clearly founded on grassroots motivation, skills and networks.

Conclusion

Even though discussions related to game cultures often emphasize the role of vernacularity and grassroots, game cultures also need institutional structures for their support. Institutions provide longevity and recognition, facilitate fund-seeking, bring people and diverse interest groups together and help to preserve game-related cultural heritage in a systematic manner, to mention a few of the roles that came up in this study. When institutions have been portrayed as the opposite of grassroots activity, they may have been portrayed as limiting, rigid actors instead of paying attention to their diversity and meaning.

The purpose of this chapter has, therefore, been to demonstrate how colourful gaming cultural institutions can be, and how institutionalization itself comes in different forms. As we have shown, game cultural institutions have emerged and evolved through diverse and complex historical processes. Institutions can hardly ever be considered in isolation, as they form networks and clusters, and act as hubs for various other stakeholders. Institutions may also disappear when they are no longer needed – or for a variety of other reasons ranging from personal decisions to public policy or lack of commercial viability, as happened to multiple printed game magazines with the spread of the internet.

Our empirical case study, the Assembly 2024 Festival, a Finnish game culture institution itself, serves as an example of the diversity that the stakeholders' game cultures bring together. Actors ranging from long-standing national institutions to commercial actors can be found side by side at the same exhibition hall filled by gamers – potential supporters, members, students and customers. We recognized multiple different ways to categorize the different actors: their size, prominence in marketing, type (school, company, society and so on), purpose of participation and the essentiality of games for their activities.

Game cultural institutions may be formed because growth-oriented activity requires organized support to develop, spread and gain the recognition and visibility that it strives for. Money may be the main driver behind an institution right from the beginning, as in the case of national bodies that provide financial support and other resources for the game industry, but other institutions must also consider economic factors, especially as they grow in size. Events, exhibitions and collections all require funding, a dilemma which has commonly been solved by collaborating with others.

Game cultural institutions also emerge when existing institutions react to social and cultural needs, that is, to situations where there appears to be a need for support of gaming-related activities. Most often these measures take considerably more time compared to quickly moving grassroots actions:

museums and archives start considering games as worth preserving, schools found study options on game studies and development and public funding is made available for game companies, to name just a few examples. In contrast to these conscious decisions, an unexpected finding was the emergence of accidental institutions, when a stakeholder realizes it has been accumulating game-related information, skills or artefacts as a byproduct of its other, primary activities.

References

Artukka, Topi. 2021. *Tanssiva kaupunki: Turun seurapiiri sosiaalisena näyttämönä 1810-luvulla*. [The dancing town. The high society of Turku as a social scene in the 1810's.] PhD diss., University of Turku; published as a monograph by Finnish Society of Sciences and Letters.

Burns, Brendan. 2008. "Teaching the Computer Science of Computer Games." *Journal of Computing Sciences in Colleges* 23 (3): 154–61.

Campbell-Kelly, Martin, and William Aspray. 1996. *Computer – History of the Information Machine*. Basic Books.

Clark, Peter. 2000. *British Clubs and Societies 1580–1800. The Origins of an Associational World*. Oxford Studies in Social History. Oxford University Press.

Douglas, Susan J. 1989. *Inventing American Broadcasting 1899–1922*. Johns Hopkins University Press.

Dunning, Eric. 1999. *Sport Matters: Sociological Studies of Sport, Violence and Civilisation*. Taylor & Francis.

Fingerroos, Outi, Niina Hämäläinen, and Ulla Savolainen. 2020. "Mikä vernakulaari?" ["What is vernacular?"] *Elore* 27 (1): 4–14. https://doi.org/10.30666/elore.95523.

Gestwicki, Paul, Fu-Shing Sun, and Benjamin Dean. 2008. "Teaching Game Design and Game Programming Through Interdisciplinary Courses." *Journal of Computing Sciences in Colleges* 24 (1): 110–5.

Gronow, Antti. 2006. "Instituutiot taloustieteessä ja sosiologiassa: pragmatistinen kritiikki." ["Institutions in Economics and Sociology: A Pragmatist Critique."] *Sosiologia* 43 (2): 93–106.

Haddon, Leslie. 1988. "The Home Computer: The Making of a Consumer Electronic." *Science as Culture* 1 (2): 7–51. http://dx.doi.org/10.1080/09505438809526198.

Howard, Robert Glenn. 2008a. "Electronic Hybridity: The Persistent Processes of the Vernacular Web." *The Journal of American Folklore* 121 (480): 192–218. https://doi.org/10.1353/jaf.0.0012.

Howard, Robert Glenn. 2008b. "The Vernacular Web of Participatory Media." *Critical Studies in Media Communication* 25 (5): 490–513. https://doi.org/10.1080/15295030802468065.

Hård, Mikael, and Andrew Jamison. 2005. *Hubris and Hybrids: A Cultural History of Technology and Science*. Routledge.

Ip, Barry. 2012. "Fitting the Needs of an Industry: An Examination of Games Design, Development, and Art Courses in the UK." *ACM Transactions on Computing Education* 12 (2): 1–35. https://doi.org/10.1145/2160547.2160549.

Jo, Dongwon. 2022. "Vernacular Technical Practices Beyond the Imitative/Innovative Boundary: Apple II Cloning in Early-1980s South Korea." *East Asian Science, Technology and Society: An International Journal* 16 (2): 157–80. https://doi.org/10.1080/18752160.2021.1962616.

Kirkpatrick, Graeme. 2016. "Making Games Normal: Computer Gaming Discourse in the 1980s." *New Media & Society* 18 (8): 1439–54. https://doi.org/10.1177/1461444814558905.

Lehtonen, Miikka, Miikka Junnila, and Elina Koivisto. 2014. "Pelitutkimuksen paikat, osa 2: Aalto-yliopiston pelitutkimuksen ja opetuksen nykytila." ["The Sites of Game Research, Part 2: The Current State of Game Research and Education at the Aalto University."] In *Pelitutkimuksen vuosikirja 2014*, edited by Jaakko Suominen, Raine Koskimaa, Frans Mäyrä, Petri Saarikoski and Olli Sotamaa, 100–105. University of Tampere.

Levy, Steven. 1984. *Hackers. Heroes of Computer Revolution*. Doubleday.

Mononen, Laura, Pekka Neittaanmäki, and Petri Vähäkainu. 2014. *Suomen pelialan koulutuksen kartoitus 2014*. [Survey of Finnish gaming education 2014.] Informaatioteknologian tiedekunnan julkaisuja 19/2014. University of Jyväskylä.

Männistö-Funk, Tiina. 2011. "The Crossroads of Technology and Tradition: Vernacular Bicycles in Rural Finland, 1880—1910." *Technology and Culture* 52 (4): 733–56. http://www.jstor.org/stable/23020524.

Mäyrä, Frans, Jaakko Suominen, and Raine Koskimaa. 2013. "Pelitutkimuksen paikat: pelien tutkimuksen asettuminen kotimaiseen yliopistokenttään – Osa yksi: Jyväskylän, Tampereen ja Turun yliopistot." ["The Sites of Game Research – Part 1: The Universities of Jyväskylä, Tampere and Turku."] In *Pelitutkimuksen vuosikirja 2013*, edited by Jaakko Suominen, Raine Koskimaa, Frans Mäyrä, Petri Saarikoski, and Olli Sotamaa, 125–33. University of Tampere.

Naskali, Tiia, Jaakko Suominen, and Petri Saarikoski. 2013. "The Introduction of Computer and Video Games in Museums – Experiences and Possibilities." In *Making the History of Computing Relevant*, edited by Arthur Tatnall, Tilly Blyth, and Roger Johnson, 226–45. Springer.

Nelson, Ted. 1977. *The Home Computer Revolution*. Self-published. https://archive.org/details/homecomputerrevo00nels/mode/2up.

Newman, James. 2012. *Best Before: Videogames, Supersession and Obsolescence*. Routledge.

Nylund, Niklas. 2020. *Game Heritage: Digital Games in Museum Collections and Exhibitions*. PhD diss., University of Tampere.

Petrick, Elizabeth. 2017. "Imagining the Personal Computer: Conceptualizations of the Homebrew Computer Club 1975–1977." *IEEE Annals of the History of Computing* 39 (4): 27–39. https://doi.org/10.1109/MAHC.2018.1221045.

Rappaport, Theodore S. 2022. "Crucible of Communications: How Amateur Radio Launched the Information Age and Brought High Tech to Life: Part 1: The Birth and Breadth of the Ham Radio Hobby Invited Article." *IEEE Communications Magazine* 60 (10): 6–10. https://doi.org/10.1109/MCOM.2022.9928087.

Reunanen, Markku. 2017. *Times of Change in the Demoscene: A Creative Community and Its Relationship with Technology*. PhD diss., University of Turku.

Saarikoski, Petri. 2004. *Koneen lumo: Mikrotietokoneharrastus Suomessa 1970-luvulta 1990-luvun puoliväliin*. [The Lure of the Machine: The Personal Computer Hobby in Finland from the 1970s to the mid-1990s.] Publications of the Research Centre for Contemporary Culture, University of Jyväskylä.

Saarikoski, Petri. 2011. "Computer Courses in Finnish Schools During 1980–1995." In *History of Nordic Computing HiNC3*, edited by John Impagliazzo, Per Lundin, and Benkt Wangler, 150–8. Springer.

Scott, Richard W. 2014. *Institutions and Organizations: Ideas, Interests, and Identities*. Sage.

Sotamaa, Olli. 2023. "Suomalaisissa yliopistoissa julkaistut peliaiheiset väitöskirjat." ["Game Research Related Doctoral Dissertations Published at Finnish Universities."] In Pelitutkimuksen vuosikirja 2023, edited by Jonne Arjoranta, Usva Friman, Raine Koskimaa, Frans Mäyrä, Olli Sotamaa, Jaakko Suominen, and Tanja Välisalo, 100–113. Pelitutkimuksen seura. https://pelitutkimus.journal.fi/article/view/136259.

Suominen, Jaakko. 2023. *Pajatsosta pöytätennikseen. Pelit ja pelikulttuuri sotienvälisessä Suomessa.* [From Pajatso to table tennis. Games and gaming culture in the interwar Finland.] Gaudeamus.

Suominen, Jaakko, Anna Sivula, and Maria B. Garda. 2018. "Incorporating Curator, Collector and Player Credibilities: Crowdfunding Campaign for the Finnish Museum of Games and the Creation of Game Heritage Community." *Kinephanos – Canadian Journal of Media Studies*, special issue *Preserving Play,* August 2018. https://www.kinephanos.ca/2018/incorporating-curator-collector-and-player-credibilities-crowdfunding-campaign-for-the-finnish-museum-of-games-and-the-creation-of-game-heritage-community/.

Suominen, Jaakko. 2017. "How to Present the History of Digital Games: Enthusiast, Emancipatory, Genealogical, and Pathological Approaches". *Games and Culture*, 12 (6): 544–62.

Suominen, Jaakko, Antti Silvast, Tero Pasanen, and Markku Reunanen. 2022. "Uutuudesta yhteiskunnan osaksi: instituutionäkökulma pelialan kulttuuriseen omaksumiseen 1990-luvulta 2010-luvulle." ["From Novelty to Societal Recognition: An Institutional Perspective on the Cultural Appropriation of Gaming from the 1990s to the 2010s."] *WiderScreen* 25 (1–2). http://widerscreen.fi/numerot/2022-1-2/uutuudesta-yhteiskunnan-osaksi-instituutionakokulma-pelialan-kulttuuriseen-omaksumiseen-1990-luvulta-2010-luvulle/.

Švelch, Jaroslav. 2018. *Gaming the Iron Curtain. How Teenagers and Amateurs in Communist Czechoslovakia Claimed the Medium of Computer Games*. The MIT Press.

Swalwell, Melanie. 2008. "1980s Home Coding: The Art of Amateur Programming." In *The Aotearoa Digital Arts Reader*, edited by Stella Brennan and Su Ballard, 193–201. Aotearoa Digital Arts and Clouds.

Swalwell, Melanie. 2021. *Homebrew Gaming and the Beginnings of Vernacular Digitality*. The MIT Press.

Tyni, Heikki and Olli Sotamaa. 2014. "Assembling a Game Development Scene? Uncovering Finland's Largest Demo Party." *GAME* 03/2014: 109–19. https://www.gamejournal.it/3_tyni_sotamaa/.

Valk, Ülo. 2022. "An Introduction to Vernacular Knowledge." In *Vernacular Knowledge: Contesting Authority, Expressing Beliefs*, edited by Ülo Valk and Marion Bowman, 1–21. Equinox.