

# ARTIFACT

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The term “artifact” can refer to many different things. Common definitions describe an artifact as “something created by humans usually for a practical purpose; especially: an object remaining from a particular period” and “something characteristic of or resulting from a particular human institution, period, trend, or individual” (Merriam-Webster’s Online Dictionary, 2012). The word itself was coined in the early nineteenth century and it comes from two Latin words: *arte* (from *ars*) that means “by skill” and *factum* that is the past participle of *facere*, to do or to make. All artifacts are characterized by this twin relationship between doing and making that is found in *facere*. Accordingly, “an artifact is anything that we can design in the very large sense of the word” (Friedman, 2007, p. 7), including both the artifacts of doing and the artifacts of making.

In his classic essay “Do Artifacts Have Politics?”, Langdon Winner contemplates two ways in which technological artifacts can embody specific forms of power and authority. He discusses both the “instances in which the invention, design, or arrangement of a specific technical device or system becomes a way of settling an issue in the affairs of a particular community” and the “man-made systems that appear to require or to be strongly compatible with particular kinds of political relationships” (Winner, 1986, p. 22). While video games surely partake of both categories, they at the same time question the stable ontological status of “man-made” objects and pose the question concerning artifactual agency (Giddings, 2005). The question arises, then: how do the general definitions help us understand games?

With their military origins, emergent and programmable nature, and ubiquitous popularity, video games provoke multiple scholarly approaches. The study of games as artifacts may be roughly characterized in three parts, each highlighting a different key aspect of contemporary video games. First, the history of video games highlights the importance of approaching video games as *material artifacts*. Second, studying video games as *software artifacts* sheds light on the very “digitality” of these games and highlights the role of procedural rules in the meaning-making process. Finally, games need to be examined as *cultural artifacts* that carry embedded meanings and ideas and are socially shaped in production and use. By introducing, evaluating, and integrating the aforementioned perspectives, this essay aims at teasing out the value of artifactual approach for the study of video games.

## The Materiality of Video Games

In many ways, the known history of games is a history of artifacts. The current understanding of the origins of gaming is largely based on historical artifacts unearthed at

archeological sites over the world. Earliest known dice, gameboards, and other ancient gaming equipment can shed light on the forms and nature of play even in preliterate societies. A closer look at recent video game exhibitions in museums indicates that also the history of video games is intimately tied to material manifestations of gaming. The major attractions of these exhibitions include arcade cabinets, early home consoles, and exotic gaming peripherals, in other words, material artifacts, the objects remaining from a particular period.

The historical perspective also nicely highlights how artifacts are not stable but change over time. For example, the game of chess has several origins. Its predecessors can be found in India, Persia, and East Asia. The game has existed in several different variations over the centuries, and the chess pieces we recognize today were designed only in medieval times to satisfy the European taste and to reflect the feudal social hierarchy of the time (Parlett, 1999, pp. 276–331). Similarly, the products of the modern video game industry have a potential to capture, archive, and communicate the cultural, social, and economic ideas and behaviors typical of particular periods and societies. One of the often-repeated anecdotes quintessential to video game culture is the story of the Atari cartridge burial. According to the story, Atari Corporation drove truckloads of merchandise, including several million unsold and returned cartridges of *E.T. The Extra-Terrestrial* (Atari, 1982) to a New Mexico landfill site in 1983 (Donovan, 2010, pp. 108–109). The burial made the *E.T.* game cartridge an iconic gaming artifact and a key symbol of the North American video game industry crash of the time.

At this point, someone who has been closely following the developments of the global game industry might point out how the recent industry trends accentuate virtualization, pervasiveness, transparency, and immateriality. And indeed, the buzz around virtual items, digital distribution of games, cloud-based gaming services, and controller-free interfaces seems to question the significance of hardware. In fact, sometimes it appears that setting players free from the chains of material artifacts has become a widely-shared industry dream. Interestingly, a closer look at contemporary game cultures still reveals a rich body of meanings attached to gaming hardware and other material manifestations of digital gaming.

In his study of PC case modding, Simon (2007) points out how the gaming experience is importantly connected to the material pleasures of embodied practice. Despite the mainstream information technology rhetorics that foreground the processes of immersion, dematerialization, and virtualization, gamers seem to find multiple ways of appreciating and celebrating the very machines that enable and facilitate their playful behaviors. According to Simon, case mods act both as representations of gamer identity and as “material instantiations or enhancements of the gaming experience” (2007, p. 188). In other words, the presence of customized gaming machines allows the gaming experience to continue even outside the immediate gaming instances. Similarly, we can find empirical data to show how game cabinets, cartridges, discs, boxes, and other related materials can operate as important carriers and mediators that provide games cultural value that surpasses the passing gaming instances (Toivonen & Sotamaa, 2011). Phenomena such as game collecting associate games with more general themes of identity, sociability, and history. Storing, organizing, and putting games on display can have an important role in creating a particular gamer identity, gathering subcultural capital to be communicated to other devoted enthusiasts, and ensuring the opportunity for reminiscing and recalling past gaming experiences.

The aforementioned studies concerning video games as physical artifacts can serve as

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a healthy reminder of how even today digital games should not be reduced to mere code  
lines running along electrical cables. In fact, a steady growth in popularity of exclusive  
collector's items, high-end gaming peripherals, and hybrid games and toys indicates that  
dematerialization is surely not the only trend defining the future of commercial video  
games. At the same time, is clear that the very "digitality" of video games deserves more  
attention. So in the following, I will elaborate more on the implications and conse-  
quences of making games out of code.

### Games as Procedural Artifacts

A glance at the history of computers reveals that the difference between hardware and  
software is not clear-cut, but there is significant overlap between the two. For early  
hackers, responsible for the first video games, creating software was not possible without  
manipulating hardware. In the 1980s, fiddling and tinkering with computers was at least  
still as much about hardware as it was about software (Swalwell, 2012). All in all, the  
idea of having separate roles for a mechanic, a programmer, or a user is very recent, and  
according to Simon (2007, p. 179), a result of a conscious "counter-reformation" process  
in computer systems. Recognizing the complicated but necessary relation between the  
higher-level symbol functions (software coding) and material conditions such as voltage  
differences (hardware level) suggests that all software is and will also in the future be  
intimately tied to its material basis (Kittler, 1995; Parikka, 2012).

The emerging field of software studies accentuates the importance of conceiving soft-  
ware as a distinct theoretical category. It is argued that the wider cultural analysis of  
computational and networked media often lacks the profound understanding of how  
software functions and thereby directs its use and users (Fuller, 2008, pp. 2–3). From a  
games perspective, this agenda calls for more attention to the computational processes  
that essentially make video games function.

In order to explicate the expressive potential of software, Noah Wardrip-Fruin (2008)  
has invented the notion of "expressive processing." The term is meant to evoke two dif-  
ferent issues. First, computational processes should be seen as means of expression for  
authors such as game designers. At the same time, expressive processing points out how  
"the shapes of computational processes are distinctive—and connected to histories,  
economies, and schools of thought" (2008, p. 4). If processes determine the techniques  
and logics that make things work, *procedurality* is often used to refer to the ways of creat-  
ing, explaining, or understanding these processes (Bogost, 2007, pp. 2–3). Much of the  
theorization influenced by software studies places this concept at the heart of its agenda  
to understand video games as software artifacts. While Bogost calls for "procedural rhet-  
oric," a new type of rhetoric tied to the computer's ability to run processes and execute  
rule-based symbolic manipulation, Mateas argues in favor of "procedural literacy" that  
helps scholars "grapple with the essence of computational media" (2005, p. 101).

A crucial starting point for procedural approaches is Murray's ([1997] 1998) notion  
that the uniqueness of digital games is, among other things, based on their procedural  
nature. In other words, digital games are always intimately tied to the ways in which  
computers operate. Procedural systems excel in generating behaviors that are based on  
rule-based models. Rather than creating representations per se, software authors such  
as game designers write code that enforces rules to generate representations (Bogost,  
2007, p. 4). Accordingly, much of the meaning of the game is argued to be encoded in  
the procedural rules (Mateas, 2005). Simulation rules are applied to present embedded

values, and by decoding and appropriating this ensemble, players generate the meaning. Thereby, procedurality is not only seen as a key characteristic of video games, but also “as the *specific* way in which computer games build discourses of ethical, political, social and aesthetic value” (Sicart, 2011).

In his overview of procedurality, Sicart (2011) pays attention to how the aforementioned arguments work to justify the cultural validity of video games as an important medium of expression and thereby provide an alluring discursive basis for serious games design. However, the benefits of proceduralism are, according to Sicart, often accomplished by disregarding the creative and expressive involvement of play and players. Accentuating the role of coded rules in meaning making may lead to the conceiving of players as mere activators of embedded meanings. At the same time, empirical studies indicate that players actively negotiate, change, and discard rules and create entirely new and unexpected uses for video games (Taylor, 2006; Consalvo, 2007; Sotamaa, 2010).

Taking seriously the creative, subversive, and productive aspects of play that highlight the co-creative nature of ludic experience leads us to question the key hypotheses of proceduralism. At the same time, the forms of player production suggest that software can indeed operate as a powerful medium of expression, not necessarily only for designers, but at least as importantly for the players of these games. As Manovich (2001, p. 258) argues, different forms of new media make it hard to establish clear boundaries between production tools and media objects. Game cultural phenomena such as game modifications and machinima movies nicely highlight the nature of video games as malleable and re-programmable software artifacts. In the hands of avid players these artifacts turn into tools and versatile means of expression (Jones, 2006, pp. 269–270; Sotamaa, 2009, pp. 90–91).

This section has highlighted both the expressive potentials of video games and the creative gaming practices that surround them. This logically leads us to examine the overall cultural and social nature of video games. After discussing games as material objects and software compositions, the final part of this essay will take a look at video games as cultural artifacts.

### Symbolic Meaning Making and Socially Constructed Technologies

The particular cultural nature and role of video games has been actively debated in the game studies community over the past decade. These days it is widely agreed that the creative involvement of the player is a necessary and characteristic element of any game. In other words, games must be played as their meanings are inherently co-created in a dialogue between game developers, game systems, and game players. Mäyrä (2008, p. 19) differentiates between *semiosis*, meaning making through decoding of media representations and *ludosis*, meaning making through playful action. Thus, while understanding contemporary video games necessitates skills similar to those needed in watching movies, listening to music, or reading poetry, games also entail and require a variety of competences specific to them. In the process of learning the game, a player acquires not only the explicit rules but also the implicit conventions and guidelines of the game. Accordingly, players simultaneously adopt both the practical ways in which the game is played and the larger notions of what it actually means to play a particular game (Mäyrä, 2008, p. 19).

The actual meanings attached to playing video games are still largely dependent on the socio-cultural context of this play. According to social constructivist accounts, one should never take the meaning of a technical artifact as residing in the technology

itself. Instead, technological systems through a complex collection of ability an artifact possesses make judgments that steer the stabilization.

Giddings (2005) argues that they are often too limited in their flexibility to an extreme will in a technologically-based foundation of the instances of play and the theorization of technological age from consulting the actor-network coming the human/nonhuman digital artifacts as embodied knowledge: video games and their players work together and influence each other, but as machines become more believable. Online play, defined on what terms. Furthermore, agency to nonhuman actors such as designed to automate selection.

As implied by the general definition “cultural artifact” is often used to describe of our time and culture. “constructedness” of video games actually able to teach us about the present global networks of circulation ideal commodity of post-Fordist the central forces of the current such as cars, suburban housing durability, solidity, structure, and commodities such as video games experiential, fluid, flexible, he in fashion with form and style” (2009) people’s leisure time and to provide games may seem like a “dream world” and their reliance upon it “the most acute instabilities and

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(11) pays attention to how the aforementioned validity of video games as an important alluring discursive basis for serious games are, according to Sicart, often accomplished through the involvement of play and players. Game making may lead to the conceiving of new games. At the same time, empirical studies suggest that games can be made, and discard rules and create entirely new ones (Jones, 2006; Consalvo, 2007; Sotamaa, 2010). The productive aspects of play that highlight the nature of video games as cultural phenomena such as game facts. In the hands of avid players these facts of expression (Jones, 2006, pp. 269–270;

the expressive potentials of video games and the materiality of these games. After discussing games as material artifacts, the next part of this essay will take a look at video

### Materially Constructed Technologies

Video games have been actively debated in the past few years. These days it is widely agreed that the defining and characteristic element of any game is the interaction between meanings and game players. Mäyrä (2008, p. 19) argues that game play is a meaningful action through decoding of media representations. Thus, while understanding games is similar to those needed in watching movies, playing games entail and require a variety of competencies. To play the game, a player acquires not only the rules and guidelines of the game. Accordingly, the ways in which the game is played and the nature of the particular game (Mäyrä, 2008, p. 19). Video games are still largely dependent on the materiality of the artifact as residing in the technology

itself. Instead, technological systems such as modern video games acquire their meaning through a complex collection of social interactions. Analyzing the interpretive flexibility an artifact possesses makes us more aware of the interests, choices, and value judgments that steer the stabilization of particular meanings over others.

Giddings (2005) argues that approaches grounded in humanities and social sciences are often too limited in their notion of agency. Stretching the idea of interpretive flexibility to an extreme will inevitably lead to underestimating the impact of the technologically-based foundation of video games. Giddings points out that proper analysis of the instances of play and their wider contextual frames requires a recognition and theorization of technological agency and that game studies would in this respect benefit from consulting the actor-network theory (ANT). ANTian approaches aim at overcoming the human/nonhuman divide in distributing agential properties and conceiving artifacts as embodied knowledges and actions (Latour, 2005; Shiga, 2007). Accordingly, video games and their players should be approached as a network of actors that both work together and influence each other. Artifactual agency works in subtle and intricate ways, but as machines become more complex their agency seems to become increasingly believable. Online play, defined by a network of routers, protocols, access codes, distribution platforms, software updates, rating algorithms, community services, and many other components, is a paradigmatic instance of a system that carefully specifies who can play and on what terms. Furthermore, it is not uncommon that players intentionally attribute agency to nonhuman actors such as machines that run specific cheating software or macros designed to automate selected game tasks through artificial intelligence routines.

As implied by the general definition discussed in the beginning of this essay, the term “cultural artifact” is often used when referring to something that is found to be characteristic of our time and culture. Thus, an artifactual approach aims not only to reveal the “constructedness” of video games, it can also be used to uncover what video games are actually able to teach us about life in today’s society that is increasingly defined by omnipresent global networks of circulation. Kline et al. (2003) describe video games as the ideal commodity of post-Fordism that—both in production and consumption—embody the central forces of the current regime of accumulation. If typical Fordist commodities such as cars, suburban housing, and appliances were characterized by “massification, durability, solidity, structure, standardization, fixity, longevity, and utility,” post-Fordist commodities such as video games are governed by a metalogic of the “instantaneous, experiential, fluid, flexible, heterogenous, customized, portable, and permeated by a fashion with form and style” (2003, p. 74). With their ability to effectively colonize people’s leisure time and to provide the basis for entirely new industries and markets, video games may seem like a “dream” commodity for post-Fordist capital. At the same time, games and their reliance upon a workforce of digital artisans and netslaves also highlight “the most acute instabilities and uncertainties of the new regime” (2003, pp. 76–77).

This quick overview of games as cultural and social artifacts shows that by being critical of both technological determinism and social reductionism, game studies can move on to examine more closely the exchange of properties between video games and their players.

### Coda

I began this essay by discussing the material manifestations of video games over the decades. Given that we are talking about *digital* games, this may not have been the most

obvious point of entry. The later sections of the essay have, however, confirmed the central importance of this perspective. As it limits any consideration of materiality and technological agency, Giddings (2005) notes how taking a critique of technological determinism to an extreme and focusing solely on the symbolic aspects of video games can be damaging. Software studies take a critical stance toward the supposed “immateriality” of software and brings out how the materiality of software operates in many scales through limitations and affordances it provides (Fuller, 2008, p. 4).

All in all, the artifactual approaches discussed in this essay open various intriguing opportunities for video game studies. Together they provide understanding of both how games function and get their meaning and what is the relationship between games and their players. The concept of “artifact” helps us to conceive of the forms of technological agency invested in video games and their material manifestations. Perhaps most importantly, turning focus on games as artifacts can help create dialogue between perspectives that stress the power of game systems over their players, on the one hand, and standpoints that accentuate the creative and productive potentials of play, on the other.

Finally, as Parikka (2012) points out, materiality is not just machines and objects, but is closely associated with the global circulation of raw materials, goods, and waste. The video game industry not only relies on constantly changing hardware based on minerals mined in developing countries and produced in undesirable working conditions by cheap labor, but it also generates remarkable amounts of electronic waste. Similar to other electronics, gaming equipment is often discarded after a relatively short use-period. Most manufacturers have developed reuse and recycle programs, but three decades after Atari’s infamous video game burial, significant amounts of computers, mobile phones, and game consoles are still dumped into landfills and incinerators or exported to scrap yards in developing countries. In addition, cloud services, widely advertised as a clean and trouble-free alternative, are based on data centers that consume tremendous amounts of electricity often generated from non-renewable sources of energy. So far, the academic study of video games has done very little to connect the constantly increasing consumption of natural resources and energy and the toxic substances leaking back into nature, to the entertaining and moving experiences provided by video games. As game researchers, we should pay more attention to this complex artifactual nature of video games all through their lifecycle.

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