

Visualizing Game Studies: Materiality and Sociality from Chessboard to Circuit Board

Aaron Trammell & Aram Sinnreich

Abstract

This article presents an alternate narrative of the way that game studies has been framed as a field of research. In order to challenge a definition of the field that is at times too insular, it is important to visualize the field's scholarship in new ways. Specifically, this paper provides a visualization meant to provoke a discussion of the disciplinary genealogy of game studies. We argue that the field itself can be understood in terms of its research foci, its objects of study, and its underlying theoretical approaches, as well as the traditional academic disciplines in which these foci, objects, and theories are embraced. In addition to providing a visual framework tracing the disciplinary genealogy of game studies, we also propose a new narrative regarding the field's broader relevance and social context. Game studies has emerged in this era because video games represent a transitional moment during which rules

Author Biographies

Aaron Trammell is a PhD Candidate and Lecturer at Rutgers University's School of Communication and Information. His work focuses on the intersection of games and culture and his dissertation recovers a cultural history of role-playing games. It explores the politics of the role-playing techniques and diplomatic experiments in conflict resolution in Cold War think tanks like The RAND Corporation, the subsequent dissemination of these techniques through grassroots Alternative Publishing Associations in the 1960s, and the stabilization and commoditization of these techniques in the game Dungeons and Dragons. You can learn more about Aaron's work at his website, aarontrammell.com.

Aram Sinnreich is an Assistant Professor at Rutgers University's School of Communication and Information, in the Department of Journalism and Media Studies. Sinnreich's work focuses on the intersection of culture, law and technology, with an emphasis on subjects such as emerging media and music. He is the author of two books, *Mashed Up* (2010), and *The Piracy Crusade* (2013), and has written for publications including the New York Times, Billboard and Wired. He holds a Ph.D. in Communication from the University of Southern California and an MS in Journalism from Columbia University. His personal website is <http://aram.sinnreich.com>.

and interfaces merge at the code level and become something new altogether—rule-sets. Simultaneous and consequent to this process, games are undergoing a fundamental transition from metaphorical to instrumental in their social valence. Where the dueling discourses of games as metaphor and games as social instrument were once irreconcilable, the two tropes now coexist within the singular, and often fraught discourse of game studies.

The goal of this article is to present an alternate narrative of the way that game studies has been framed as a field of research. It is our opinion that game studies, like Narcissus in Greek mythology, has jeopardized its longevity by drinking in its reflection too deeply. Scholars working within in the field frequently situate it as a chaotic “neutral zone” of interdisciplinarity, where there are few rules as long as the object of study, the game, remains consistent. Or, polemically, it is situated in an instrumental fashion where its object, the game, is grafted into a preexisting disciplinary discourse.

Neither discursive strategy is completely satisfying. Much interdisciplinary games scholarship lacks the methodological rigor and critical focus that exist within more traditional disciplinary contexts. On the other hand, when too many disciplinary boundaries are erected around the study of games, papers cease to reflect the broader field at all, emerging instead as cloistered anomalies. We do not discount the brilliant and insightful work that has emerged from games studies in the past fifteen years, but we do suggest that a better understanding of the field’s fraught relationship with disciplinarity can only help to strengthen the focus of emerging scholarship.

In order to challenge a definition of the field that is at times too insular, it is important to visualize the field’s scholarship in new ways. Specifically, this paper will provide a chart meant to provoke a discussion of the disciplinary genealogy of game studies. We argue that the field itself can be visualized in terms of its research focus (material and/or social); its objects of study (platforms, texts, sites of praxis, and institutions); the underlying theoretical approaches (political economy, platform studies, textual analysis, media studies, etc.); and finally the traditional academic disciplines (education, economics, communication, etc.) in which these foci, objects, and theories are embraced. The genealogical visualizations we provide here aim to offer a sense of scope, keying readers in to important trends in scholarship, but also to some concepts that have been, regrettably, overlooked or forgotten.

We acknowledge that our chart functions more as a provocation than as a definitive ontology, because the field of game studies is in constant flux. By providing this framework, we hope to initiate a conversation within the research community, to be continued via a dynamic, collectively edited website allowing users to extend and critique our genealogy via a visual, hyperlinked interface.

In addition to providing a visual framework tracing the disciplinary genealogy of game studies, we also propose here a new narrative for the field's relevance and contextualization as an example for how such visualization can contribute to the greater scholarly discourse. Game studies, we argue, has emerged at this particular moment because video games represent a transitional point in the development of games, during which rules and interfaces merge at the code level and become something new altogether—rulesets. Simultaneous and consequent to this process, games are undergoing a fundamental transition from metaphorical to instrumental in their social valence.

When games are understood to reflect or simulate social configurations, as has historically been the case, their primary role is metaphorical. Whether they are “read” as texts or interpreted as platforms, we imagine them to be evocative of other processes in the world at large. Thus, a stack of cards, or an assembly queue hardwired into platform architecture, may represent a line in a store. Similarly, a video game's “script” is often understood as a cousin to those that propel more linear media, such as cinema, and therefore a conventional artifice that exists for the purpose of representing collective fantasy or lived experience, via traditional means such as character, plot and dialogue.

As the apparatus of gaming increasingly comes to resemble the apparatus of social institutions, the role of games shifts from metaphorical to instrumental in nature. In this modality, games are seen as instruments of social control rather than reflections of social dynamics. Games like *ArmA: Armed Assault* (Bohemia Interactive, 2007) are now literally used to train soldiers, both psychologically and physiologically, to fight in real theaters of war. Similarly, the “epistemic games” produced at The University of Wisconsin-Madison's Epistemic Games Lab (Shafer, 2006) are used to train children to participate in anticipated workforce predicated on the expectation of networked data flows and collective analysis.

Game studies emerged as a field of study in the late twentieth century precisely due to the convergence of metaphor and instrument within a singular artifact, the video game. As games migrated from cardboard to circuit board, the graphic capacities of digital platforms became both a limiting factor and a visual heuristic for the rules of the game. In this sense, rules and interface became more closely related and aligned than at any prior point in game history. Furthermore, the mass reproduction, sharing, and modification of data in the twenty-first century has enabled games to weave their ways through complex social networks in unprecedented ways. Where the dueling discourses of games as metaphor and games as social instrument were once irreconcilable, the two tropes now coexist within the singular, and often fraught discourse of games studies.

The recent embrace of “gamification,” within both scholarship and society at large, should be read as the ultimate consequence of this marriage. Gamification is the naturalization of games within our social infrastructure. It is a moment of Baudrillarian simulacrum wherein the game interface becomes hidden within the social apparatus, and the game rules become

manifestly law. As we will discuss later, the speed-camera lottery, implemented in Sweden, evokes this social shift perfectly and can also be read as a direct consequence of placing scholarship on games as social metaphors and games as social instruments into dialogue with one another. In the remainder of this article we will aim to further this dialogue by discussing both themes in greater depth, first through a visualization of game studies as ontology and finally by tracing the transformation of games from metaphor to instrument in greater detail.

Game Studies as Dynamic Ontology

In Figure 1, we offer a rough visualization of the game studies field, as it exists today. It is designed both to unite and distinguish the diverse connections, assumptions, and epistemic positions among the various authors within the larger discursive field of game studies.

Video Games Studies	Material	Platform	Platform Studies	Digital Humanities	Ito Kirschenbaum Aarseth Howard	
		Text	Textual Analysis	History	Kent Donovan	
			Narratology	Lit Studies	McGonigal Laurel Murray	
	Social	Production	Ludology	Design	Juul Nealen Zimmerman Salen	
			Consumption	Media Effects	Education	Gee Ito Reynolds
		Practice		Media Studies	Psychology	von Neumann & Morgenstern Piaget
		Institution	Political Economy	Comm	Vorderer Anderson	
			Business	Cultural Studies	Law	Bogost Consalvo Jenkins Galloway
				Economics	Economics	Lastowka Mac Sithigh
						Castronova Edery Dymek
Research Focus	Object of Study	Theory	Field	Author		

Figure 1: An Ontology of the Game Studies Field.

Towards this end, the chart has been broken down into several taxonomic strata: research focus, object of study, theoretical approach, and disciplinary home.

While this chart is valuable insofar as it provokes the investigation of a discourse that is not at all easy to unpack at first blush, it does have many clear limitations. First and foremost, this is a snapshot of our framework for understanding game studies and not a comprehensive review of the field. The chart is intended to serve as an invitation to debate and discussion rather than as an authoritative final word. Additionally, at many points we have sacrificed complexity for clarity. For instance, there are many interdisciplinary scholars within game studies, and our chart does not adequately represent this fact. This is an oversight we aim to correct when we translate this static chart into a dynamic, database-driven internet application with richer metadata capacities. Caveats aside, we believe this ontology provides a set of useful set of categorical considerations, which we explore in greater detail below.

Research Focus

A primary takeaway of this study was categorizing the main work in game studies as holding a focus on either the social or material aspects of gaming. While some contemporary work in gamification (McGonigal, 2011; Nicholson, 2012) focuses on the intersection between these two categories, historically most scholarship has fallen squarely into one camp or the other.

Objects of Study

Game Studies research tends to focus on one of four specific objects of study: game platforms, games as text, the practices and culture of players, and the institutional production of and application of games.

Material studies of games tend to focus on the ways in which games are either structures with representational characteristics or structures with procedural characteristics. Scholars focused on representational characteristics often read them within the context of their narrative milieu (Murray, 1998; Laurel, 1993). In this tradition, games are a multimedia iteration of narrative storytelling, and as such they can be analyzed with the classical toolsets of textual analysis. Similarly, a platform studies approach recognizes the mechanical procedurality of games and considers the ways in which the materiality of games yields a set of active narrative tropes that cannot be reduced to representation (Montfort & Bogost, 2009). Although the procedural consequences of platforms are at times representational, a key element of this approach is the assertion that a game's meaning is produced through an advanced algorithmic calculus that varies the narrative from player to player. There are many paths that players can take in a game, but their actions are limited to the confines of a concrete algorithmic ruleset. Therefore, when considering the procedurality of games, it is more important to consider how actions interact with rules and alter the gamestate than to consider the game's elements representationally in isolation from the cybernetics of player and code.

Broadly construed, the social approach to games studies (that of institutions and everyday practice) contrasts with the material approach. Such scholarship tends to focus on the various ways in which players approach, encounter, engage with, and are transformed by games. In conversation with this approach are perspectives on the institutional ramifications and implementation of games. While games have been integrated historically within the broad educational infrastructure, they are now implemented in a variety of business and legal infrastructures as well. Some scholars in this field have critiqued the apparent subsumption of social interactions by game logic (Galloway, 2006), while others have critiqued the commodification of games by industrial and commercial mechanisms (Dyer-Witherford & de Peuter, 2009).

Games researchers also differ in terms of the site of analysis. Scholars focused on both practice and text as objects of study are primarily concerned with *consumption*, while scholars interested in platforms and institutions tend to emphasize *production* as the relevant site. This distinction can be understood as a secondary axis of differentiation, distinct from but equally as relevant taxonomically as the object of study.

Theoretical Approach and Academic Field

Although theoretical approach and academic field may at first glance seem like redundant strata of analysis, we use them to describe two distinct taxonomic dimensions. We consider theoretical approach to describe a scholar's critical vantage point, style and methodology, while academic fields describe more political and institutional factors like book genre, academic department, and intellectual community.

In our ontology, theories can be understood as tactical approaches to given objects of study, and simultaneously to produce those objects of study. For instance, platform studies was a quasi-methodological approach engineered to research game platforms. Similarly, textual analysis predated the study of games as texts but has been retroactively applied to that object of study, thus affirming the game's categorical existence as a text. And, while narratology and ludology are best understood in conversation with one another, both theoretical approaches relate to games as text and games as objects of cultural practice (with narratology emphasizing the textual and ludology emphasizing the practical [Aarseth, 1997; Frasca, 2003]). Both media effects research and media studies methods have been used to understand the implementation of games as practice as well (Consolvo, 2009; Cassell & Jenkins, 2000). Finally, political economy and business analysis have both been used to understand the ways in which games are situated institutionally (Dyer-Witthford & de Peuter, 2009; Dymek, 2007).

Further complicating our ontology is the fact that a given field of game studies scholarship may encompass variety of theoretical approaches. For example, digital humanities scholars rely upon both platform studies and textual analysis (Howard, 2008). Similarly, historians

of games are equally likely to focus on in textual analysis and finance (Kent, 2001; Donovan, 2010). As our ontology demonstrates, these theoretical overlappings are more the rule than the exception.

Understanding the complex interplay between object of study, theory and field is vital to understanding the discourse of game studies. Much of the extant games scholarship has done double duty—not merely research on a sociotechnical phenomenon, but also an active construction of a field through a kind of discursive pastiche, linking disparate approaches into something resembling a cohesive chain of argumentation. Only by viewing these links both singularly and collectively are we able to perceive a sense of motion within the field and to understand video games as a vital moment of intersection between our understanding of games as a social metaphor and games as a social instrument.

Rules and Interfaces

Not only do video games play an important role in uniting disparate fields of scholarship, we believe they also represent an important inflection point the development of games as a cultural practice. Game rules, which have historically been transmitted through oral and written modes of communication, are made more tangible with the advent of the video game and hard wired into the code and circuitry of the machine itself. Conversely, game interfaces, once made from materials such as refined plastics, cardboards, and wood, become somewhat less tangible with the advent of the video game, beginning with the abstraction of pixels dancing on cathode ray screens. The intersection of these two trends marks the moment in which games cease to function as diversions or metaphors, and begin to develop procedural lives of their own, instrumentally altering social processes in the “real world.” Figure 2 provides an illustration of this premise.

Abstract Games

From chess to the German *Kriegsspiel*, games have historically been used as tools to address social processes, like warfare, metaphorically. These early games were taught, played, discussed, and shared through orally transmitted cultural channels. In this sense, the play of abstract games, such as chess, checkers, or go, has always been a social process of engagement with material components. A culturally shared, and therefore moddable and malleable, ruleset provided a degree of flexibility that was important to the cultural propagation, evolution and sharing of these games. The design of such games was often abstract as well, with rocks standing in as units, and simple grids exemplifying tactical spaces. Far from being limiting or hazardous, the abstract, metaphorical nature of these games was understood as socially productive and, in fact, a healthy mode of social reflection.

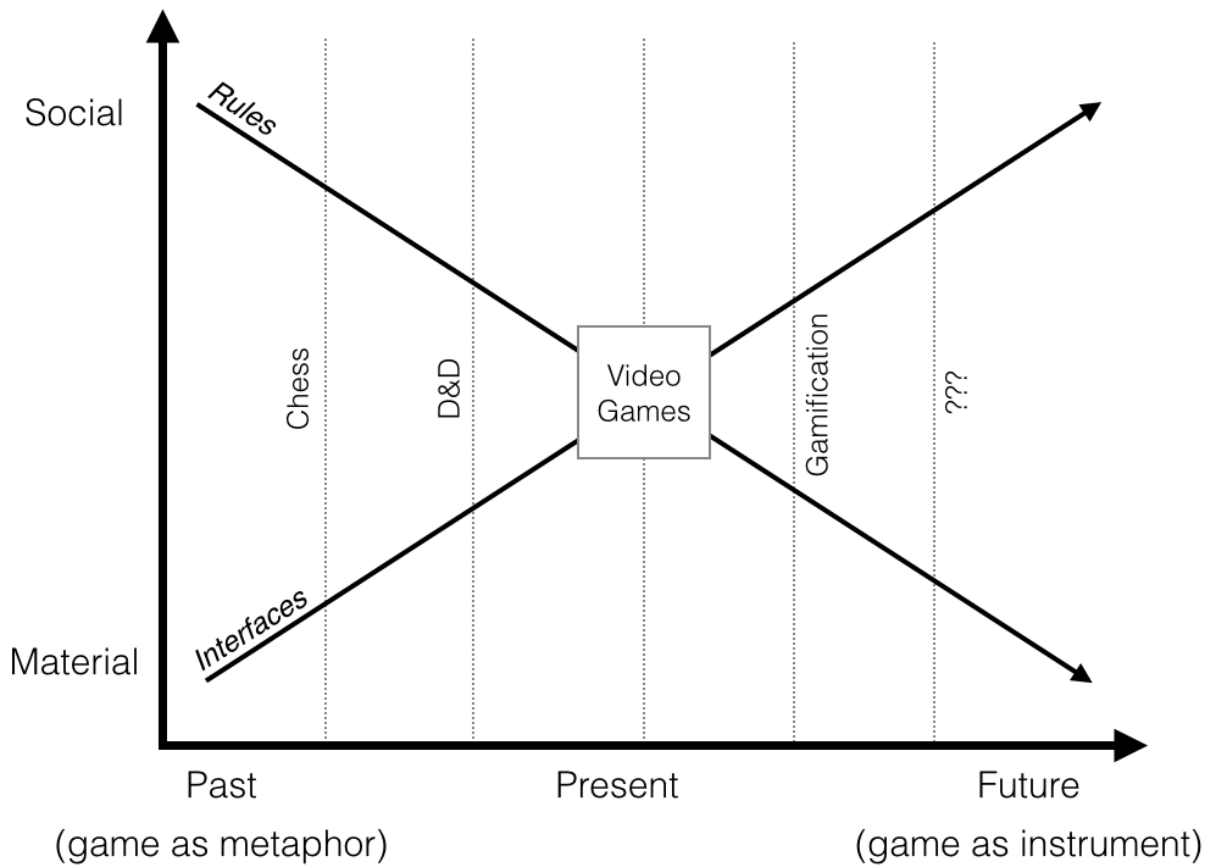


Figure 2: Evolution of Game Rules and Interfaces.

Role-Playing Games

Role-playing games (RPGs) mark an interesting moment on this timeline as they can be classified (at least in commercial mainstays, such as *Dungeons & Dragons*) as particularly rule-heavy. The RPG industry, in fact, thrives on the material production of handbooks and manuals, which are considered integral elements of the game apparatus. Furthermore, although many role playing games began as military simulations, complete with miniatures, their simulatory nature waned as the genre stabilized throughout the 1970s. Ultimately, role-playing is more about the embodiment of character than anything else, with gameplay taking place in a liminal space where the rules are housed in vast collections of books and the pieces are often customized representations of a player's fantasy avatar, rather than universally applicable abstractions.

Dungeons & Dragons epitomizes the shifting relationships between rules, interfaces, sociality and materiality represented by role-playing games in the requirement that players inhabit both diegetic and non-diegetic space, juggling game rules within the core manuals while

simultaneously negotiating their in-game roles at the table. There is a resulting shift away from the materiality of traditional games interfaces as players switch constantly between dice, miniatures, literature and playacting. Furthermore, there is a move away from the orality of rules and toward the privileging of the written word. These same elements can be found in many contemporary board games as well, with increasingly elaborate rules alongside mass-produced components tailor-made for the game itself (in contrast to the “making do” of chess, checkers, and go).

Bits and Pieces: Gamification and AR Games

In recent years, game rules have become concretely material beyond the circuited proceduralism of the video game, and interfaces have become social and immaterial in ways that challenge the cybernetic feedback of the NES controller. By way of example, consider what “pieces” are used in AR games and gamification, and where and how the rules of these games are maintained and regulated.

Recently, Sweden has implemented speed cameras and gamified traffic laws to great success (NPR Staff, 2011). By penalizing those who drive above the speed limit with a fine and entering those who drive below the limit in a lottery to win a portion of this levy, they have effectively altered the behavior of their motorists in a way that law previously did not. Similarly, Moscow recently introduced new subway ticket vending machines in which travelers can pay their fare by exercising (publicly, in front of the machine’s watchful eye) rather than with currency (DiBlasio, 2013). In these examples, the components and interfaces are the citizens who participate in the game, aided only by surveillance cameras networked with invisible processors and servers, and the rules are no longer an emulation or simulation of the law – they are the law itself. Consequently, the games, if we can still understand them as such, cease to serve as metaphors and instead become social instruments, producing rather than merely anticipating desired outcomes.

Ingress (Niantic Labs, 2013) was an altered reality game (ARG) playable on all Android devices. *Ingress* players sought out structures in the real world to unlock clues that flesh out the game world. While it’s certainly more of a traditional game than the Swedish traffic system or the Russian transit system, *Ingress* represents an early step in what will likely be a long series of ARGs that use servers and procedural techniques to moderate the game rules, while making the play of the game more social.

ARGs transform the way we understand the world into the logic of proceduralism, mediated through the black box of consumer communications hardware. They produce incentives for the play with material space by capturing it within the game interface itself; the very line between “play” and “life” blurs, erasing Huizinga’s (1980) “magic circle” and instead producing a player—a citizen—who, depending on one’s perspective, is either liberated from the constraints of quotidian life through technological augmentation or diminished to the

stature of a puzzle piece or board game token, duty bound to encounter the entirety of the human experience through a pre-established ruleset from which no escape is possible.

Conclusion

Considering the trajectory of games and society in the post-video game era, we must ask: What comes next? As our bodies, buildings, and feelings become increasingly integrated into the instrumentality of play, and as rules become ever more ubiquitous and invisible, there is an urgent need for video game research and criticism as a bulwark against the somewhat dystopian future we have alluded to in this essay. In short, as games function less and less as metaphors for social control, and more and more as instruments of social control, there is an urgent need to devise strategies that render rules visible and configurable.

In this essay, we have attempted to take a first step towards that end. By creating a comprehensive, user-driven, and user-configurable archive of Game Studies literature, these technological trends can be made visible in our scholarship, and placed into dialogue accessibly within the broader public sphere. Ultimately, we hope to extend the dialogue even further, encompassing game developers, publishers, researchers, funders and players in a collective conversation about the rules and interfaces governing our shared future.

References

- Aarseth, E. (1997). *Cybertext: Perspectives on ergodic literature*. Baltimore [u.a.]: Johns Hopkins Univ. Press.
- Bohemia Interactive. (2007). *ArmA: Armed Assault*. Windows: 505 Games & Atari.
- Cassell, J., & Jenkins, H. (2000). *From Barbie to Mortal Kombat : Gender and computer games*. Cambridge, MA: MIT Press.
- Consalvo, M. (2009). *Cheating: Gaining advantage in videogames*. Cambridge, MA: MIT Press.
- DiBlasio, N. (2013, November 13). 30 squats for a subway ticket? *USA Today*. Retrieved from <http://www.usatoday.com/story/news/nation/2013/11/13/russia-olympics-squat/3514537/>
- Donovan, T. (2010). *Replay: The history of video games*. East Sussex, England: Yellow Ant.
- Dyer-Witheford, N. and de Peuter, G. (2009) *Games of empire: Global capitalism and video games*. Minneapolis, MN: The University of Minnesota Press.

Dymek, M. (2007) *Exporting wars: Literature theory and how it explains the video game industry*. Presented at the annual meeting of the Digital Games Research Association, Tokyo, Japan.

Frasca, G. (2003) Simulation versus narrative: Introduction to ludology. In M. J. P. Wolf & B. Perron (Eds.), *The video game theory reader*. New York: Routledge.

Galloway, A. (2006) *Gaming: Essays on algorithmic culture*. Minneapolis, MN: The University of Minnesota Press.

Howard, J. (2008). *Quests: Design, theory, and history in games and narrative*. Boston, Massachusetts: The MIT Press.

Huizinga, J. (1980). *Homo ludens: A study of the play-element in culture*. Boston: Beacon Press.

Kent, S. (2001). *The ultimate history of video games: From Pong to Pokémon and beyond: the story behind the craze that touched our lives and changed the world*. Roseville, California: Prima Publishing.

Laurel, B. (1993) *Computers as theater*. Boston, Massachusetts: Addison-Wesley Professional.

McGonigal, J. (2011) *Reality is broken: Why games make us better and how they can change the world*. New York: Penguin books.

Montfort, N. and Bogost, I. (2009). *Racing the beam: The Atari Video Computer System*. Boston, Massachusetts: The MIT Press.

Murray, J. (1998) *Hamlet on the holodeck: The future of narrative in cyberspace*. Boston, Massachusetts: The MIT Press.

Niantic Labs. (2013, December 14). *Ingress*. Android: Google.

Nicholson, S. (2012) Strategies for meaningful gamification: concepts behind transformative play and participatory museums. Presented at biennial meeting of the Meaningful Play Conference, Lansing, Michigan.

NPR Staff. (2011, March 27). 'Gamifying' the system to create better behavior. *NPR*. Retrieved from <http://www.npr.org/2011/03/27/134866003/gamifying-the-system-to-create-better-behavior>

Shaffer, D. (2006). *How computer games help children learn*. New York: Palgrave Macmillan.