

This is an Accepted Manuscript of a book chapter published by Routledge in *Role-Playing Game Studies: Transmedia Foundations* on April 4, 2018, available online:
<https://www.routledge.com/Role-Playing-Game-Studies-Transmedia-Foundations/Deterding-Zagal/p/book/9781138638907>
Please cite as: [Bienia, Rafael] (2018). [Science Technology Studies and Role-Playing]. In Zagal, José P. and Deterding, S. (eds.), *Role-Playing Game Studies: Transmedia Foundations*. New York: Routledge, [314-322].

17 Science and Technology Studies and Role-Playing

Games

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Box 17.1: A Home of Role-Players

In 2012, I went to Helsinki for the first time for a larp convention. I arrived earlier and two locals offered me a place to stay overnight. They had prepared a place for me and two other convention guests in their living room. Entering their apartment, I felt immediately at home. The living room was full with game boxes, candleholders, books by authors beloved in the role-playing game community, a walking stick and other larp props, and a huge table with comfortable chairs for six players and one game master. In its center stood a wooden box, filled with many-faced dice ready for play. All these things felt familiar, making me think: this is the home of role-players.

During role-playing games (RPGs), players are surrounded by manifold materials: there are physical books that lie on a table or move from player to player, computer hardware that builds virtual worlds and extends possibilities with headsets, costumes in larp that players make and buy from shops.

Despite this rich material world, players, designers, and researchers rarely ascribe materials more than a passive, supporting role. With the rise of cloud services, computer RPGs (CRPGs) seem to have become even more ephemeral, with physical copies no longer required if not for some quaint copyright protection or collector's impulse. In tabletop RPGs (TRPGs), physical dice hold a game-mechanical function and some tangible and acoustic pleasures, but

again, these tiny bits of plastic, metal, and sometimes bone can be and often are replaced with random number generators on a computer without much loss. What does it really matter what matter the living room of a role-player is composed of, if we can and do play RPGs in convention halls, Google hangouts, or on tiny smartphone screens? Surely, phenomena like rules, narratives, or player immersion are far more defining and constitutive for RPGs than discs, dice, and ‘feelies’.

Such views – common in game studies – express an *anthropocentric* perspective: They take human experience and agency as the starting point, center, and limit of analysis. While this may be useful in understanding how, for instance, RPGs are experientially different from other games, it is just one perspective. Bogost’s *Alien Phenomenology* (2012) invites game studies to take on a different perspective or ontology – a view on how being and reality are constituted – that has been variously called speculative realism, speculative materialism, post-humanism, new materialism, or object-oriented ontology. This alternative perspective puts human and non-human entities, including materials, on equal footing.

Ontology: Historically a branch of philosophy concerned with the nature of being and reality. In contemporary science and technology studies, ontology denotes a particular way of constructing what something is. For example, making a fundamental distinction between human and non-human is a specific ontology.

Callout 16.1: Ontology

Standard anthropocentric RPG research would ask how humans produce, enact, experience, and make sense of phenomena like rules, stories, or RPGs. A materialist or object-oriented perspective in contrast might ask how objects like dice or computers produce, enact, and experience stories, rules, RPGs, players, and each other in turn. Arguably, such a perspective

is fruitful for RPGs because of the wealth of material objects involved and how the diversity of RPG forms is entangled in their materiality: live action role-play (larp), CRPGs, multiplayer online role-playing games (MORPGs), and TRPGs.

To give some examples, in **Chapter 2**, Deterding and Zagal reconstruct how the material underdetermination of TRPGs – a rulebook and dice don't prescribe action as much as a piece of software does – afforded people to develop very different play styles. The string of bits of a console CRPG, programmed according to very specific standards, determines that all players have to use a particular console, cartridge, standardized controllers and compatible monitors.

Chapter 5 on larp shows how materials like costumes or locations make play possible but also differ from group to group, country to country, affording a rich diversity of play.

In short, following materials not people, researchers can learn how materials shape, constrain, and evoke RPG phenomena. Discovering and analyzing these processes requires tools and methods. This chapter introduces the field of science, technology and society studies (STS) as a source of proven approaches to study how materials and technologies work within our lifeworld. It offers a materialist perspective on RPGs that views games as materials or *technologies* – the collection of processes that produce a product or service. In other words, it views RPGs as an exemplary entertainment technology.

The next sections survey current main approaches in STS to then focus on actor-network theory as an exemplary and widely influential approach. The following sections presents current work analyzing RPGs through actor-network theory and a materialist perspective more broadly, and their limitations.

Science and Technology Studies

Science and Technology studies (STS, sometimes also Science, Technology, and Society Studies) is an interdisciplinary field emerging in the 1960s within the larger research area of science studies. It brings together historical, sociological, and philosophical work to study with how society, politics, and culture affect scientific research and technological innovation, and how science and technology in turn affect society, politics and culture (Hackett et al. 2008).

This means that STS views and analyzes scientific knowledge and technologies as fundamentally social. For example, Newton's axioms aren't eternal truths that 'somehow' exist in a Platonic idea sphere: to inform aspects of social reality like the building of machines, they have to become part of teaching books, the engineering curriculum, engineering equipment like rules and calculators and so on. That said, STS rejects technological determinism, the widespread belief that technologies are fixed entities that automatically cause predictable changes in human lives, e.g. 'video games *cause* violence.' Instead, STS examines technologies as processes. They ask: How and from what other social processes and things are 'video games' being put together and stabilized as an entity? How do people come to agree on the belief that they 'cause violence', and how do such shared belief change 'what video games are' in return? In so doing, STS highlight the *contingency* of these processes: they are not eternal natural givens but malleable phenomena that could and can be different.

Science and technology society studies: An interdisciplinary field within the larger research area of science studies that studies how society, politics, and culture affect scientific research and technological innovation, and how science and technology in turn affect society, politics and culture.

Callout 16.2: Science and technology studies

There are three prominent approaches within STS: large technological systems, social construction of technology, and actor-network theory. *Large technological systems* (LTS) originated in the history of technology and studies the development of complex technical infrastructures like the Internet or electricity supply system (Hughes 1983). In so doing, it aims to understand how technologies become with society, how they are “both socially constructed and society shaping” (Hughes 1987, 51). LTS sees a system like the Internet to consist of a technological core that is put together and extended by particular individuals – system builders – within a rich sociocultural context, and in the course reshapes this context. A study of RPGs as large technological systems might follow the development of a particular MORPG like *World of Warcraft*, disentangling how particular developers, designers, and financiers managed to put together a system touching millions of people across the globe within a complex web of organizations, traditions, laws, people, and artifacts, and how this MORPG in turn reshaped society around it.

In contrast, *social construction of technology* (SCOT) develops a less linear and ‘heroic’, individual-centered analysis of technological innovation (Pinch and Bijker 1984, Bijker, Hughes, Pinch and Douglas, 1987, Bijker 1997). A common story of technological history is that technology becomes objectively ‘better’ over time: among competing inventions, ‘the better one’ will win. SCOT counters that not only is this a mere untested assumption: different people have different ideas of what counts as ‘better’. If we study the history of a technical invention in detail, we see multiple different variants being continually developed, tested, and changed. Different social groups – teams of inventors, users, journalists – hold different understandings or “technological frames” of a particular technology that shape what new variants they construct and test and how they use it. Groups ‘fight’ with new variants as much

as with rhetoric and political power to establish a dominant understanding of the technology; once dominant, an understanding or frame stabilizes how a particular technology is designed and used. A SCOT analysis of TRPGs would show how they are not the sole result of two ‘genius’ inventors, Gary Gygax and Dave Arneson, publishing *Dungeons & Dragons*. It would unpack how TRPGs as a form emerged from a complex chain of variants developed by different groups in parallel, together with different understandings what they are and how to use them, and how in the struggle of designers, players, the media, lawyers, and other groups, a dominant, stable form and notion of TRPGs came to be.

Actor-network theory (ANT) asks even more fundamentally how any entity like ‘the media’, ‘the law’, or ‘*Dungeons & Dragons*’ is made and maintained from other entities. Instead of starting with pre-determined constructs like ‘system builders’ or ‘technological frames’ or focusing on the development of one technology within the context of ‘organizations’, ‘laws’, and the like, which are treated as stable and given, ANT traces the processes in which all these entities or *actors* are put together or *networked* from heterogeneous elements (Latour 2005, Law 2009). Similarly, it rejects the common ontology of human actors having agency and passive non-human things lacking it; rather, it studies empirically whether and how a given actor – human or non-human – affects other actors (Fenwick and Edwards 2010).

Studying CRPGs with ANT, one could trace how players, designers, computers, and monitors together construct the virtual world of the game, whether and how it is set apart from and related to other actors outside of it, or how the computer ‘plays’ the player.

All three STS approaches share a focus on heterogeneous elements – human and non-human, social and technical, etc. – and the processes in which these elements shape technology and scientific knowledge. They also share a rejection of technological determinism. They differ from each other in the extent to which they take certain entities and distinctions as given: LTS

sees individual human ‘system builders’ creating and pushing a given technology into society. SCOT sees technologies not as a given, but as the outcome of social groups with different interests and understandings fighting for dominance. ANT doesn’t take the distinction of human actors versus passive non-human matter as given, nor entities like ‘social groups’ or any other ontology for that matter. What entities there are in a field, which are active and passive is the result of constant processes that have to be empirically observed. All three approaches have individual strengths and drawbacks in investigating the materiality of RPGs. Because ANT is the most ‘radical’ in adopting a materialist perspective and because the overwhelming majority of existing materialist RPG research has used ANT, we will here focus on it.

Analyzing RPGs with Actor-Network Theory

ANT originates in ethnographic studies of how science works and how scientific knowledge is produced in concrete environments such as laboratories (Latour 1987). Other analysts took this kind of ethnographic fieldwork to places of technological invention. Today, ANT is deployed across many disciplines, ranging from organization studies (Kostera 2007) to education (Fenwick and Edwards 2010) to game design (Beil and Hensel 2011). ANT is a social constructivist approach that studies how scientific and technical entities come into being as the result of actor collaborations or networks, including non-human actors. Instead of replacing human actors, such as players or designers, with non-human actors, such as dice or computer hardware, ANT starts with the symmetrical premise of equal analytical worth of all actors. Both the stability and change of any network involves some concrete work of actors. Actors have to make other actors change behavior, enrolling yet other actors in the process. In this regard, ANT redefines agency and change as a distributed process. Where anthropocentric game studies see agency as solely human, for ANT, it might involve any actor (Wardrip-Fruin, Mateas, Dow and Sali 2009).

Box 17.2: Some Key Terms in Actor-Network Theory

***Actor:** An element that makes a difference to other elements.*

***Network:** A collaboration of actors working together.*

***Agency:** The “inertia” of the process which makes all actors collaborate to make one specific change to the network and its relations between actors. Agency is not caused by one actor but emerges from the collaboration of actors.*

Box 17.3: A Home of Role-Players

Back in the role-player home in Finland in 2012, I pick a die out of the box on the table. Dice have been added to TRPGs to generate chance. But they don't automatically produce chance. To insert chance in a particular play session, the dice have to entertain particular relations with other actors. Rules have to be written that specify how to use and read dice result. Players have to know the rules and decide when to use dice, which is often triggered by particularly moments of their co-created story. There need to be the required number and type of dice available for the situation. There needs to be a table or other surface with free space to roll them, and sufficient light to read their face. Once the dice are cast and read, players need to conform their actions to the result in accordance with the rules.

From an ANT perspective, the dice are an actor – an element that acts upon its environment. To be identified as an actor, we require empirical evidence that shows another entity changing in response to the actor's changes. And indeed, we observe that players do change behavior in response to how the dice fall. However, to accomplish chance and the continuation of the play session, player and dice have to collaborate. If the dice don't land in a clearly legible way on the table, no chance is produced and the session is interrupted. Similarly so if the dice land legibly but the player would refuse to adapt their action to the

dice result. And how much agency over in-game events is given to dice to begin with depends on the rules of the TRPG in question (Dormans 2006). As we can see, agency such as producing a moment of chance rests not automatically with players or dice: it emerges from a process of networked heterogeneous actors collaborating, including 'marginal', often taken-for-granted actors such as the table or the light source.

Maybe the fundamental strength of ANT for researchers studying RPGs is that it broadens the perspective on what heterogeneous actors are involved and how they collaborate, beyond preconceived conceptions and distinctions. To work with ANT requires little initial concepts at the outset. If anything, like much qualitative research, it asks to *not* begin from preconceived conceptions. In this regard, ANT is sometimes framed as an onto-epistemological toolset or “infra-language” that works best when it challenges preconceived ontologies and theories (Latour 2005). Rather than taking any ontology for granted, ANT is interested what ontologies emerge from empirical evidence. What this does require from researchers is to go to places where role-playing occurs and ethnographically observe the proceedings. Take the (already contested) concept of ‘immersion’ in RPG studies (Torner and White 2012). Where other researchers might pitch one definition or argument against the other, an actor-network researcher would take no definition for granted, but re-construct from field data how different actors collaborate and work on each other in bringing about one or several, stable or instable ‘immersion’ entities.

Material Studies of RPGs

In the past decade, researchers have begun paying attention to the materiality of games, a movement Apperley and Jayemane (2012) have called “game studies’ material turn”. They identify three particular streams of research: ethnographies of play unearthing the many ways matter and technology shape play; platform studies analyzing how technical platforms like the

Atari 2600 afford and constrain what kinds of games could be made on them (Montfort and Bogost 2009), and critical studies of free digital labor around user-generated content like modifications (mods), enabled by modding tools.

Very much in the spirit of the first stream, Giddings (2006) has addressed videogames as a new media form embedded in everyday experience and popular culture. Drawing upon ANT and other STS work, he develops a method of video microethnography of play tease out how in children's video game and other play, play and its experience cut across standard distinctions like virtual versus actual. They form circuits enrolling heterogeneous actors ranging from non-player characters to furniture and toys to embodied knowledge. In a similar fashion but informed by post-phenomenological philosophy of technology, Leino (2012) unpacks the phenomenon of gameplay. Gameplay artefacts afford a particular existential condition where players have to freely choose to submit themselves to and succeed over the constraints and adversity of the game artefact working to be able to continue choosing to play. At the same time players' intentionality and experience becomes mediated in a way that is not just a "simultaneous occurrence of material, processual and experiential qualities", but "an inextricable intertwinement of qualities across ontological domains" (73).

Continuing on this phenomenological theme, Toivonen and Sotamaa (2011) examine the values people attach to physical copies of videogames. Collecting physical copies is a crucial game culture practice, feeding subcultural capital, nostalgia, and gamer identity. It shows that "digital games should not be simplified to mere code lines running along optical cables" (9). Literally opening those physical videogame boxes, Karhulahti (2012) reminds us of "feelies", often high production value objects publishers added to physical videogames like maps or faux letters, police reports, and similar documents in investigative games. In their tactile physicality, feelies support the players' immersion in the game's overall story world as well

as the situation of a character. Looking at the wargame *Warhammer 40,000*, Carter, Harrop and Gibbs (2014) similarly argue that the “physicality of dice has a positive effect on players’ experience and enjoyment”: replacing physical with digital dice eliminates tactile and acoustic pleasures as well as play practices like particular rituals and superstitions how to roll dice.

The majority of ANT-informed work on RPGs in specific revolves around the MORPG *World of Warcraft* (WoW), starting with Copier’s “network perspective on role-play in online games” (2007). Against the standard game studies distinctions between games and real life (‘the magic circle’) and play and research (‘the ivory tower’), she teases out how human and non-human actors negotiate performances, identities, and relations across what we call ‘in game’ and ‘out of game’, and how game researchers are always embedded in networks of research and play. Where Copier uses STS and ANT to unpack the socio-material negotiation of game/non-game and play/research boundaries, Taylor (2009, 336) turns attention to the negotiation of ‘the game’ WoW itself, as player practices and modifications (mods) inform game designers adapting the game’s technology in response, and player groups enroll mods as actors in their “*collective* use of software and the production of *group practices*”. Chen (2010) follows this thread in an ANT ethnography of how an established WoW guild adopted a “threat meter” mod which at face value allowed assessing how much threat a player character generated for opponents (and thus, how much attention it drew), but at a deeper level allowed to analyze and monitor player efficiency. Chen traces how the role and function of this new actor changes as it was enrolled by the players into their raiding network, but also how it created “new responsibilities to the other actors in the network” (177), and how it “would sometimes extend beyond the computer screen and into the room [...] sticky notes on my desk to help me remember” (174).

Bienia (2016) extends Copier's work from MORPGs to larp, mixed reality and tabletop RPGs. Drawing on Latour (2005) and Law (2009), he identifies material as an actor in RPGs on the same analytical level as ludic and narrative actors. Thus, "[i]nstead of replacing previously studied elements with material elements", he "offers a multi-centered perspective" (90) on the intertwining of role playing. More broadly, Bienia shows that researchers have only just begun to inquire the manifold places enrolled in role playing and trace their actors and relations – ranging from the living room in Helsinki to a sole person sitting in front of a screen to large-scale larps or the many local global nodes of media content production and distribution in RPG media culture (see **Chapter 21**) to the material sites of World Wide Web and its routers, land lines, and satellites.

This focus on one particular site shows one limitation of actor-network studies. Since they are committed to empirical tracing of any and all actors, data gathering and analysis are time-consuming and tend to be limited to 'small' sites. Moreover, as ANT studies tend to question, dissolve and reassemble initially focused actors, and any actor may entertain relations with a not pre-specified number of other actors, there is no principled limit to a study. Any research with ANT therefore demands tricky conceptual and practical decisions what to study and when to stop studying. Finally, ANT still stirs controversy where it defies folk theories by 'giving' a role and agency to non-human actors (Sayes 2014). Is it the role-player buying a costume for a larp that is relevant or is it the costume's work during a larp that is relevant? Embedded in the networks of play and research, it is on the researchers to make that decision (Copier 2007, Taylor 2009) – and then enroll readers in the network of their writing, convincing them of the prudence of that choice.

Summary

Box 17.4: A Home of Role-Players

I return to the Helsinki living room for a last time. I sit with my notebook in my lap and look around. A brief analysis helps me understand why I feel that this is a room where role-players live and role-playing happens. The assembly of shelves with RPG materials is a trace of the social group of RPG fans. The choice of the big table results from a negotiation of the players' needs, the size of the living room, and the other pieces of furniture present, like the couch where I will later sleep. Understanding the work between materials and people helps me to see what and how elements have been assembled, sometimes by players, sometimes by the requirements of materials elements. Taking into consideration the work of them all helps me to understand how this heterogeneous actor-network constructs role playing.

Despite the proclaimed “material turn” of game studies (Apperley and Jayemane 2012), games and RPG studies often view materials to play a marginal, passive role in the constitution of RPGs and therefore pay little attention to their workings, be it in larp, CRPGs, MORPGs, or TRPGs. This view is tied to a common anthropocentric ontology that splits reality into agentic human actors and non-agentic non-human ones. This chapter presented an alternative materialist perspective, using methodological and theoretical programs from science and technology studies (STS) to study the materiality of RPGs. Of the three popular programs – Large Technological Programs, the Social Construction Of Technology, and Actor-Network Theory (ANT) – ANT in particular has found use in game studies and RPG research. Rather than beginning with assumed ontological distinctions, ANT asks the researcher to empirically observe what heterogeneous actors (human and non-human alike) assert themselves in the field, what other actors they affect and network with, and how change in the total field emerges from the collaboration of actors. Studies following this and similar STS-informed programs have shown how gameplay and its experience are an inextricable mangle of human and material; how physical objects like game boxes, feelies or dice can hold

essential social, narrative, aesthetic, or functional roles and values; how classic distinctions and entities like game/non-game, play/research, or ‘the game’ on closer analysis dissolve into ongoing socio-material negotiation processes; or how agency in something as simple as the role of a die involves a large network of human and non-human actors. Still, we remain at the beginning of fully understanding the role of materials in RPGs. Here, STS invites researchers to question preconceived notions of ‘the better technology winning’ and retrace processes of innovation and stabilization as contingent. ANT invites them to study materials on the same analytical level with other actors and trace their relations in a role-playing game network. Together, they offer powerful tools to leave established ontologies behind and ask how and why materials matter.

Further Reading

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Key terms

Ontology

Science and technology studies