Videogame cognitivism

Alexandre Declos (University of Ottawa – Archives Poincaré)

Introduction

It is not uncommon to hear that videogames are stupid and that players are dumbing themselves down. Against that frequent sort of complaint, I wish to argue today that videogames do possess a cognitive value. But this, I mean that videogames may prove informative, explanatory or insightful. They may impact what it is that one believes or understands.

I will call *videogame cognitivism* the view according to which videogames are cognitively valuable. Admittedly, this idea is not unheard of. Many empirical studies suggest that videogaming may benefit various cognitive or motor skills[1]. This point has also been made sensible with the so-called "serious games", specifically devised for education and learning.

This said, my presentation will not follow this line of investigation. While empirical studies could partially support the claim I intend to make, they hardly provide a theoretical framework to reflect upon the epistemic significance of videogaming. The matter of knowing whether videogames do possess some cognitive value can be assessed on a conceptual level, which is independent, for the most part, of empirical findings. I will also leave aside the case of "serious" videogames, for it would be somewhat meager of a result to show that games devised for learning may, after all, teach you something.

The point of this talk, then, will be to examine on sole philosophical grounds how ordinary videogames could prove cognitively valuable. Here's the outline of the talk. After a brief note on aesthetic cognitivism (§1), I will consider different strategies to support videogame cognitivism:

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[1] Among them: memory, selective attention, imagination, anticipation, problem-solving, spatial reasoning, information treatment, social awareness, hand-eye coordination or reflexes, and so on. See Eichenbaum, Bavelier, & Green (2014) for summary.

the propositional knowledge model (§2); the experiential knowledge model (§3), and lastly, the understanding model (§4).

§1- Aesthetic cognitivism

Videogame cognitivism is a species of a more general thesis that philosophers of art have called "aesthetic cognitivism". Aesthetic cognitivism is the view according to which art is no stranger to truth and knowledge. For aesthetic cognitivists, artworks could be a source of (non-trivial) knowledge or insight about the world[2].

It should be stressed right away that aesthetic cognitivism does not amount to the mere claim that artworks can stimulate a cognitive activity. For this, clearly, is trivially true. Virtually every artwork does appeal to some of their audiences' cognitive skills, such as memory, pattern-recognition, imagination, and so on. Interestingly, this point is even more obvious in the case of videogames[3]. Everybody agrees that playing a videogame is a cognitively demanding activity. Most if not all of them feature challenges to overcome, puzzles to solve, patterns to recognize, strategies to plan, and skills to learn.

Stopping at this stage, however, wouldn't be enough to defend videogame cognitivism. The run and gun game *Cupheads*, for instance, demands spatial reasoning and pattern recognition from its players. It stimulates, therefore, a cognitive activity. But this doesn't mean that this game will in any way be able to teach you anything substantial, that it will impact your beliefs, or that it will grant you knowledge. In brief, the issue is that could admit that videogames stimulate a cognitive activity, while denying that this activity is epistemically significant. This would amount to regard videogames as a sort of mental gymnastics: a process perhaps intellectually demanding or challenging, but eventually impactless regarding what it is that one believes or understands.

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[2] See Gaut (in Levinson, 2003); Freeland (1997); Gibson (2008); Novitz (2004).

[3] "Games are puzzles ta solve, just like everything else we encounter in life. They are on the same order as learning to drive a car, or picking up the mandolin, or learning your multiplication tables. We learn the underlying patterns, grok them fully, and file them away so that they can be rerun as needed" (Koster 2003: 34). See also Juul (2011: 5) and Cook (2007).

Videogame cognitivists, then, must advance something stronger. They must hold that we *learn* something substantial from playing videogames, which is to say that, through them, we "acquire fresh knowledge, our beliefs are refined, and our understanding is deepened", as Cynthia Freeland states (1997: 19). In other words, what videogame cognitivists need to show is that videogames may have an *epistemic impact*. In what follows, I will examine the different ways by which this conclusion could be supported.

§2 - Videogames and propositional belief/knowledge.

I will now consider a first strategy for videogame cognitivism, that I call the propositional model. At the heart of most cognitivist views, lies the claim that artworks can deliver *propositional knowledge* about the actual world. A content is propositional if it consists in statements susceptible of being true or false. Traditionally, the model of propositional knowledge is the following: S knows that *p* iff S believes that *p*, *p* is true, and *S* is justified in believing that *p*. Now, some aesthetic cognitivists have argued that artworks can deliver knowledge thus understood, or at least, true propositional belief[4]. Isn't the same move, then, available to videogames cognitivists?

Some, perhaps, would want to say that one may acquire true beliefs by playing videogames. This seems plausible, at first glance, because a large number of videogames feature accurate information about the world. They do so, for instance, by depicting actual or historical events, places and characters. To take but one example, the strategy game *Crusaders Kings 2* has been praised for its historical accuracy. It can teach you a good deal about actual medieval history. Games of this sort, it could be held, are likely to induce true propositional belief in their players[5].

However, this faithfulness to the facts is the exception rather than the norm in videogames. Most of them, indeed, do not depict real-world elements but are fictional throughout. Still, videogame cognitivists could reply that videogames need not feature factually accurate elements to induce

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[4] See for instance Novitz (2004).

[5] One could even argue that this game potentially produces knowledge *proper*. Indeed, it also seems to justify some of its content, by including in its context menus a number of links to Wikipedia pages. Thus, the players may come not only to form true beliefs regarding actual historical characters or events : they would also be justified in doing so, at least if a Wikipedia page can be taken as a reliable source of information.

propositional belief or even knowledge. It could be argued, for instance, that one may gain conceptual knowledge out of videogame fictions. Let's take an example. The survival adventure game *The Last of Us* is a fictional narrative in which Joel, a cynical character, progressively bonds with Ellie, a young teenage girl. As the story goes, Joel softens up and shows more and more care towards Ellie, and correlatively, towards existence. Now, some cognitivists might hold that playing this game can make you form the (presumably true) conceptual belief that friendship is essential to a fulfilled existence. This would be another example of the valuable propositional content that players may get out of their playings.

Should we say, then, that videogames may a be a source of propositional belief or knowledge? I believe we shouldn't, for there are several major problems with this particular claim:

(1) Firstly, let us look at the *irreducibility problem.* For many videogames, it seems difficult if not impossible to express propositionally what it is that one has learnt after playing them. Consider *Tetris*. This videogame is a pure problem game, as it simply consists in the kinetic manipulation of blocks on the screen, without any background story or overall plot. It seems that games of this sort are hardly reducible to a given propositional conten: there is not obvious "message" that the game is trying to express or convey. Hence, one could object that a number of videogames do not fit the propositional knowledge model.

(2) A second issue lies in what Stolnitz (1992) called the "cognitive triviality of art". According to him, the propositional content that one may extract from an artwork will generally turn out to be completely trivial. This same point could possibly be made against videogame cognitivism. What do you learn from playing *Counter-Strike: Source*, for instance, aside from the mundane idea that teamwork is necessary to succeed? If the cognitive contribution of videogames reduced to such fortune-cookie platitudes, we should better abandon videogame cognitivism altogether. In that case, indeed, players wouldn't learn anything they don't already know. The cognitive content of videogames wouldn't be substantial and couldn't have, therefore, any real epistemic impact

(3) A final issue is the problem of justification (Gaut 2003; Stolnitz 1992). Even if one granted that videogames can produce non-trivial and true belief about the world, it seems that that those beliefs would never seemed justified. Indeed, videogames do no bother to explain why what they depict or express (if anything) is true. They do not construct arguments. Nor do they offer evidence.

For this reason, even if one acquired true belief from a videogame, one wouldn't be justified in believing it on the sole basis of playing that game. And this gives rise to a serious objection: videogames, even if they could generate true belief, would never produce *knowledge*. For knowledge, as we said, does not require merely that one believes something true, but also, that one is able to *justify* what it is that one truly believes.

As what precedes suggests, the claim that videogames deliver propositional knowledge does not seem the most promising. Let us, then, consider another strategy for videogame cognitivism: what I call the "experiential knowledge model".

§3- Videogames and experiential knowledge.

One could follow many aesthetic cognitivists in arguing that artworks yield a different sort of knowledge, that is often called "experiential knowledge"[6]. Experiential knowledge does not amount to knowing *that* a certain proposition is true. Rather, it is a matter of knowing "what it is like" to have a given experience or to be in such and such situation. According to many cognitivists, fictions could deliver this particular sort of knowledge[7] : reading Orwell's *1984*, for instance, could make you realize what it is like to live in a totalitarian state.

This argumentative strategy, clearly, is available to videogame cognitivists. Videogames, just like other fictions, excel in the exploration of subjective viewpoints. For instance, in the indie game *This war of mine*, you take up the role of civilians caught up in the middle of a war, the point of the game being to survive to pillagers, lack of food, disease, etc. Prior to playing that game, you may have a very blurry picture of the condition of civil populations during wartime. After playing that game, it does seem plausible to say that you have gained some specific knowledge of what the daily life of a war victim is like.

Of course, the proponent of this strategy will want to distinguish between *direct* experiential knowledge and *indirect* experiential knowledge. The first covers what it is to experience X, the second, what it is *like* to experience X. While playing *Grand Theft Auto V*, I have killed hundreds

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[6] "The acquisition of propositional beliefs and knowledge is just a minor component of all that may be learned from fiction" (Novitz, 2004: 995).

[7] See, e.g., Stroud (2008); Kajtár (2016), Walsh (1969).

of innocent civilians. I do not believe, however, that I have gained some direct experiential knowledge of what it is to be a murderer. Fortunately so. Surely, there is a massive difference between first-hand and imaginary experience of a situation. Of course, videogames only afford the latter. We adopt an attitude of pretense or of "make-believe" towards their fictional content. For the experientialist, this attitude allows us to experience certain situations in imagination only, a process from which knowledge could be gained[8].

This "experientialist" model, I think, has the merit of explaining why videogames could be cognitively relevant, even if they failed to deliver propositional knowledge. Still, this model has its flaws.

(1) A first issue is that it is uncertain that experiential knowledge counts as *knowledge* at all[9]. It is unclear, for a start, how it could be evaluated as true or false. Additionally, the problem of justification here again reappears. Although it seems correct to say that playing *This war of mine* gave me further insight on the condition of war victims, the game doesn't provide evidence that its depiction of "what it is like to be a war victim" is faithful to the facts. It could perfectly be, indeed, that this fictional representation is unreliable, partial, or inaccurate. Nothing, if we stick to the game itself, allows to prove that this isn't so. The problem, in brief, is that indirect experiential knowledge seems to lack proper criteria to qualify as knowledge[10].

(2) A second issue is the problem of proximity. To gain experiential knowledge from a fiction, what is represented must be something that one could possibly experience, relate to, or empathize with. The experientialist model suggests that the fictional content must somehow resemble or correspond to real life one way or another. But many videogames violate this demand. Think, for instance, of the classic arcade game *Pacman*. It seems unlikely that players may derive any experiential knowledge from this game. The reason for this is that its fictional universe does not portray scenarios or experiences that are relevantly similar to real-life ones. Thus, it seems that the

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[8] "The process of simulation is the primary means by which one can gain any type of subjective knowledge from a literary narrative" (Stroud, 2008: 20).

[9] Kieran (2005: 117); Lamarque & Olsen (1994: 373)

[10] "Part of what goes on when we identify with artworks is that they express feelings and attitudes psychologically close to us. But it doesn't follow from this that some kind of special knowledge is involved" (Kieran, 2005: 117-188).

experientialist view faces a problem of *range*: it only accounts for the cognitive value of *some* videogames.

Given these issues, the experiential model isn't perhaps the best course of action to defend videogame cognitivism. I will now consider a last possible way open to videogame cognitivists: what I call the "understanding model".

§4- Videogames and understanding.

Besides the propositional and experiential strategies, remains what Gibson has called "neo-cognitivism". This label denotes a family of views centered around "the denial that cognitive value is always a matter of truth and knowledge" (2008, 585).

I will consider, here, one of such views, which was put forward by Goodman and Elgin (1988), before seeing how it could be adapted to videogame cognitivism. According to Goodman and Elgin, knowledge isn't all there is to cognition. Questions, pictures, thought experiments, models, and artworks are as many examples of things that cannot be considered true or false. Yet, they may be engaging, interesting, daring, and thus, beneficial on the epistemic level. Epistemology, for Goodman and Elgin, can only account for this fact at the condition of focusing not on knowledge, but on *understanding*. The latter notion can be defined roughly as the capacity to "grasp" a certain theoretical or practical domain. Understanding isn't a matter of knowing truths or of compiling facts. It requires a capacity to see how various elements are related and to integrate them with other bodies of facts or theories. Understanding, in brief, consists in seeing "how it fits" and "how it functions" [11]. With this concept in mind, Goodman and Elgin argued that artworks, although they do not deliver knowledge, may advance our understanding in various ways. They may form or alter

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[11] "Understanding physics is not merely or mainly a matter of knowing physical truths. It involves a feel for the subject, a capacity to operate successfully within the constraints the discipline dictates or to challenge those constraints effectively. And it involves an ability to profit from cognitive labors, to draw out the implications of findings, to integrate them into theory, to utilize them in practice. Understanding a particular fact or finding, concept or value, technique or law is largely a matter of knowing where it fits and how it functions in the matrix of commitments that constitute the science. And neither knowing where nor knowing how reduces to the knowing that that traditional epistemology explicates. Aesthetic understanding is similar. It is not primarily a matter of knowing truths about art or truths that art discloses, but of using art effectively as a vehicle for exploration and discovery" (Elgin, 1993, 3).

categories of thought. They may push one to recognize patterns and features. They may bring to light previously unrecognized likenesses or differences[12].

Let me take an example of this claim applied to videogames. Imagine that you have never given any thought about artificial intelligence. If you play *Fallout IV*, you will encounter artificial beings exhibiting the appearance of conscious and sentient behavior, which are called the "Synths". Among the different factions present in *Fallout IV*, some have different ideologies towards the Synths. The Railroad fights so that society recognizes their freedom and autonomy. The Institute revendicates their enslavement. Lastly, the Brotherhood of Steel advocates their destruction plain and simple. It is up to the players to decide which faction -and ideology- they will join. Through this plot element, the player is offered conceptual categories, which can be utilized to think about actual issues surrounding the ethics of artificial intelligence. Although this opening up of conceptual categories has nothing to do with knowledge, it may, plainly, count as a cognitive achievement. This intuition can be captured if one says that *Fallout IV* makes you *understand* something about the moral status of AIs. The game opens up possibilities of thought, which may, in turn, help you understand aspects of the actual world.

So far, I have simply sketched how Goodman and Elgin's concept of understanding could be put to work in order to show how videogames have an epistemic impact. I believe, additionally, that we can adapt the notion of understanding to the peculiar medium of videogames. To that end, one needs to remind that videogames have the characteristic feature of being "strongly interactive"[13]. They do not simply restitute a predetermined content, but let the player manipulate the structure of the work itself, to some extent. In videogames, stories are not simply told but need to be acted and set in motion. Challenges and puzzles are not abstractly presented but embodied: they need to be addressed contextually, through practice and action.

This defining feature of videogames, I contend, makes possible a specific brand of understanding, that I would like to call *pragmatic understanding*. Pragmatic understanding can be

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[12]"Like an experiment, a work of fiction selects and isolates, contriving situations and manipulating circumstances so that patterns and properties stand out. It may frame or isolate mundane features of experience so that their significance is evident. It may defamiliarize the commonplace, making us aware of how remarkable normal behavior can be" (Elgin, 2014, 232).

[13] Lopes (2001:68).

defined as *the ability to expand one's grasp of a subject matter through practice and agency in a fictional world*[14].

Let me offer an illustration. Take the principles of mechanics in classical physics, and especially the orbiting of bodies around planets. This is something you could learn about or come to know in a physics book or in a classroom. But you will also get acquainted with this if you play *Kerbal Space Program*, a simulation game where you build and launch rockets. An interesting feature of this videogame is that it features actual physical principles of orbiting mechanics, or at least, good approximations of them.

For a start, *Kerbal Space Program*, does not make you *know* any physical truths regarding gravitation or orbiting. Indeed, this game does not feature the learning of complex equations. It does not provide any evidence regarding the accuracy of its physics either. Still, playing the game can make you see how, roughly, gravitational pull works. It can make you *understand* some principles of actual rocket science through practice and trial. This does not imply, of course, that playing the game will or should replace what could be learnt in a book or classroom. Neither will it be enough to apply for a job at NSA. The game obviously implies a good deal of simplification regarding the actual principles of rocket launching. But this is, at the same time, a very efficient way of highlighting important features and mechanics, allowing the players to grasp them easily. By abstracting certain phenomena, and reducing them to repeatable, predictable, and controllable patterns, the game may highlight features which would otherwise have been ignored or much more difficult to seize.

In brief, *Kerbal Space Program* shows you in practice and contextually why some things work, and why some others don't. You get to grasp a simplified version of the principles at work behind rocket launching and orbiting. While this shouldn't count as knowledge, propositional or experiential, it is, plainly, a cognitive benefit. The concept of pragmatic understanding, I contend, allows to capture that intuition.

Another example might be useful. *The Walking Dead* is a point-and-click adventure game adapted from the eponymous comic books. The player controls a survivor amid a terrifying zombie

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[14] "Fictional world", here, is to be understood as "the collection of propositions fictional in [a] videogame "(Robson & Meskin, 2012: 208). Note, however, that it is debated to know whether all videogames are fictions (Juul, 2001, Tavinor, 2009). Time will not allow me to address this question.

apocalypse. Characteristic of this game is its rich narrative, which leaves open various choices for the players to make. The game especially abounds in ethical dilemmas. For instance, the players find at some point a car full of food, which their group of survivors is cruelly lacking. Now, everything in the game lets the players suppose that the owners of these goods are still alive and need these supplies badly. The game lets the players chose: either steal the food for their own survival, either leave it where it is.

Of course, this is but an instance of a classical moral problem, regarding the conflict between personal interest and moral duty. As such, you could find about such a dilemma in philosophy paper or encounter it in a novel or movie. But the modality under which this issue is presented to and experienced by the video game player is different. Contrarily to what would go in philosophy papers, novels, or movies, the *Walking Dead* does not let the players passive in front of this problem. One is not simply wondering what the characters will or should do. Indeed, the games corners *you*, forcing *you* to choose and to choose quick. It is up to you to decide. And your choice, interestingly, will not be without consequences on the narrative of the game, forcing you to reflect upon your past deeds.

This, I think, is yet another possible example of pragmatic understanding: the game lets you reflect on a given network of issues by making you an actor, rather than a mere spectator, of the narrative. After a particular playing, you may come to believe that moral prescriptions are context-sensitive or even perhaps that they have no existence once society has crumbled. You may wonder if actions are to be evaluated as moral or immoral in terms of an utilitarian calculus. You could also get to think that deontologists are correct when they insist that moral duties are absolute and that some actions are wrong *per se.* Whatever it is that you will learn, here, will be learnt through practice. The *Walking Dead* delivers some insight about a particular ethical issue by letting you experience it in a risk-free environment and entertaining context. Learning about ethical dilemmas by playing *The Walking Dead* isn't perhaps as good, and shouldn't claim to replace, the taking of Ethics 101. But the game is nonetheless able to increase your grasp of ethical issues, perhaps in ways that wouldn't be accessible to more traditional learning. The model of pragmatic understanding, I suggest, could account for this sort of cognitive achievement.

Conclusion

I have sketched several possible strategies available to videogame cognitivists and tried to see how the case for this view could be made. Although I have presented these strategies as mutually exclusive, they could perhaps be reconciled. One could maybe devise a *disjunctive* account for videogame cognitivism. In that case, the cognitive value of a videogame would lie *either* in their capacity to induce propositional belief/knowledge *or* their propension to yield experiential knowledge *or* in their ability to produce some pragmatic understanding[15]. While this view sounds promising, it has the inconvenient of being vulnerable to all of the aforementioned challenges. Knowing how videogame cognitivists could address those is a topic for another paper.

It should be noted, finally, that none of what I said implies that videogame cognitivists have to pretend that individual playings of a videogame will necessarily turn out to be cognitively valuable[16]. The claim that videogames possess a cognitive value does not entail, either, that their cognitive content is always praiseworthy, for it clearly may be inaccurate, trivial, confusing or offensive[17]. Indeed, videogame cognitivists needn't defend that *every* player will *always* benefit epistemically out of *every* videogame. They just need to hold the following points: (i) that (most) videogames may have an epistemic impact and (ii) that they do so in a medium-specific way. To this generic claim, I suggested to add (iii) that the pragmatic understanding model is the most apt to capture points (i) and (ii). The cognitive value of videogames, I propose, lies in their making players understand various subject matters, theoretical or practical, through practice and agency in fictional worlds.

Games

COUNTER STRIKE : SOURCE. Valve, PC, 2004.
CRUSADER KINGS II. Paradox Interactive, PC, 2012.
CUPHEADS. Studio MDHR, PC, 2017.
FALLOUT IV. Bethesda Game Studios, PS4, 2015.

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[15] I want to thank Becky Davnall for this suggestion.

[16] Players might engage a videogame with an inappropriate attitude, which could prevent them from understanding what the game is about, what it represents, expresses, exemplifies, etc. Playing *This war of mine* jokingly, for instance, would probably prevent one from understanding what the game is about or what it seeks to express (I thank Nathan Wildman for this suggestion).

[17] Videogames may lead us astray, invite us to form dubious categories, or draw false analogies, entrench stereotypes. But the fact that they do so, however, is already a solid sign of their possible epistemic impact.

GRAND THEFT AUTO V. Rockstar Games, PS4, 2013.
KERBAL SPACE PROGRAM. Squad, PC, 2011.
PACMAN. Namco, Arcade, 1980.
TETRIS. Nintendo, Gameboy, 1989.
THE LAST OF US. Naughty Dog, PS4, 2013.
THIS WAR OF MINE. 11 bits studios, PC, 2014.

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