Book Section:

Meskin, A (2018) Videogames and Creativity. In: Robson, J and Tavinor, G, (eds.) The Aesthetics of Videogames. Routledge Research in Aesthetics . Routledge , Abingdon, Oxon, UK , pp. 95-111. ISBN 9781138629585

(unedited penultimate draft)

Introduction

What is the relationship between videogames and creativity? Whether or not they are art (and some of them surely are), it is clear that the design and production of videogames can, and indeed typically does, involve creativity. What about playing videogames? On the one hand, videogames have sometimes been seen as a threat to creativity. A recent *Newsweek* article reports that 'It's too early to determine conclusively why U.S. creativity scores are declining. One likely culprit is the number of hours kids now spend in front of the TV and playing videogames rather than engaging in creative activities.'[1] On the other hand, defenders of videogames have touted their connection to creativity as a significant virtue. So, for example, writing in the *Guardian*, Lucy Prebble has argued that 'gaming is essentially private and individual (although it really doesn't have to be). It is creative, in comparison to the passivity of watching a film or reading a book. You are making choices and, often, are even designing the world yourself.'[2] Or, as the *Telegraph* put it succinctly, 'Videogames more creative than reading'.[3] And a recent scholarly overview of the benefits of videogame play states that 'video games seem to be associated with…enhanced creativity' (Granic, Lobel, and Engels 2014: 69), although the authors admit that the results of the quoted study leave significant questions unanswered.

Was *Newsweek* right to contrast playing videogames with engaging in creative activities? Or is there a significant (positive) connection between videogames and creativity? I shall argue that *Newsweek* was wrong. In fact, playing videogames often counts as a creative activity. The key linking concept is the notion of problem solving which is central to much videogame play and to many standard examples of creativity. But it is not clear, at least at this point, whether videogame play has any causal effect on creativity.

As the preceding discussion has made clear, it is useful when thinking about the connection between videogames and creativity to distinguish three questions:

> **The creation question:** How, and to what extent, is creativity involved in the production of videogames?
> **The causal question:** To what extent does videogame play promote or retard creativity?
> **The game play question**: To what extent does videogame play involve creativity?

I shall briefly discuss the creation question when I discuss the nature of creativity in section 1. My focus, however, will be on the causal and game play questions. The causal question is, of course, appropriately investigated by means of experimental and other empirical methods. In the first part of section 2, then, I discuss the empirical research relevant to the question. But I do not just report on those results. Philosophers often play a useful role by critically examining the assumptions, methods and results of empirical scientists. This is what I do in the second part of section 2, where I conclude that there is no clear evidence of a causal relationship between videogame play and creativity. In particular, I argue that extant studies are not well-suited to provide evidence relevant to the central causal questions about videogames and creativity. Section 3 focuses on the game play

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[1] http://europe.newsweek.com/creativity-crisis-74665 (accessed June 29, 2017)
[2] https://www.theguardian.com/technology/2012/feb/12/lucy-prebble-computer-games-playwright (accessed June 29, 2017)
[3] www.telegraph.co.uk/technology/video-games/video-game-news/9077458/Video-games-more-creative-than-reading.html (accessed June 29, 2017)

question. Whether or not videogame play causes an increase or decrease in levels of creativity, there is a separate question about whether videogame play *involves* creativity. I argue that, at least for many videogames, play does involve creativity. I pay specific attention to the significance of problem-solving in videogame play. I also address some potential objections to my argument. In section 4, I briefly discuss the question of whether videogames are more creative than ordinary forms of artistic engagement such as reading. I argue that although some authors (such as Prebble) overestimate the passivity of traditional artistic engagement, videogames do—in virtue of their interactive nature—offer opportunities for creative problem solving that are not available in more traditional artistic contexts. The final section comprises a brief conclusion. But, first, I need to say a bit about how to think about creativity.

1 Creativity

Unsurprisingly, philosophers disagree about the nature of creativity. Perhaps surprisingly, there is a standard view or, at least, a family of standard views which are rooted in Kant's discussion of genius (Kant 1790/1987: 175). Kant argued that genius cannot be understood entirely in terms of originality 'since nonsense too can be original'.[4] So some further valuable feature (being 'exemplary' in Kant's case) must be required.[5] Broadly Kantian accounts of creativity, then, hold that originality and value are central to (if perhaps not exhaustive of) creativity. So, for example, Matthew Kieran has argued that the ability to produce 'novel and worthwhile artefacts' suffices for what he calls 'minimal creativity' (2014: 125).[6] But the best known and most influential version of the standard view is Margaret Boden's who argues that creativity 'is the ability to come up with ideas or artefacts that are new, surprising, and valuable' (Boden, 2007: 83). Perhaps most influentially, Boden distinguishes two distinct kinds of creativity ('psychological creativity' and 'historical creativity') corresponding to two distinct ways something might be new; namely, new to the person who came up with it or historically new (83-84). Boden also characterizes three ways in which creativity can be surprising: by involving the combination of unfamiliar ideas, by involving the exploration of a conceptual space, and by the transformation of a conceptual space (84-89). It is the latter form of creativity, which involves 'someone's thinking something which, with respect to the conceptual space in their minds, they couldn't have thought before' which Boden holds to be the 'deepest' form of creativity (89). Boden is here thinking of changes of cognitive style which allow an agent to think or do something that was impossible given on the earlier style. Matthew Kieran (2016) offers the examples of 'the introduction of the epistolary novel in the seventeenth century or stream of consciousness writing in the early twentieth century' which allowed authors radically new literary possibilities.

The production of videogames often meets Boden's criteria for both psychological and historical creativity. Videogame producers produce new games and, most importantly, new kinds of games. These games and game-kinds possess financial, aesthetic and ludic value. Their production often involves combinatorial and exploratory creativity and, in some cases, perhaps even transformational creativity in which the development of a game required a change in thinking style. So, for example, consider the development of text-based adventure games such as *Colossal Cave Adventure* in the

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[4] The term 'originality' is used in both evaluative and non-evaluative ways. On either reading, is it plausible that it is not, alone, sufficient for genius. For a useful discussion of the complexities of the relationship between originality and value see Bartel (2010).

[5] For a discussion of Kant's 'original nonsense' argument which presents an alternative account of what Kant is doing, see Hills and Bird (forthcoming).

[6] More, on his account, is required for 'exemplary creativity'.

1970s, side-scrolling games in the early 1980s, open-world games in the mid-1980s, and movement-based games such as *Dance Dance Revolution* in the 1990s. The development of these games seems more a matter of 'changing the map' (i.e., transformational creativity) than merely exploring a pre-existing map (i.e., exploratory creativity.)

There are, however, a number of reasons to think Boden's account isn't quite right: First of all, it is not clear that creativity is an ability rather than a disposition (Gaut forthcoming). If a person has the ability to produce new and valuable things but is never disposed to exercise that ability it is not clear that they count as creative. Second, it is not obvious that creativity must result in ideas or artefacts (at least when those are narrowly construed) rather than actions. Dance and music improvisation often involves creativity and it seems that this may be the case even when they do not produce new ideas or artefacts. Third, the value condition is controversial because of cases of 'dark' or 'malevolent' creativity; for example, the creativity of a criminal or terrorist (Cropley, Kaufman and Cropley 2008). Finally, and most notably, the three conditions seem not to capture important agential feature of creativity (e.g., that it is a feature of intentional agents and that it is inconsistent with purely mechanical or accidental processes) (Stokes 2008, Gaut 2003, Gaut 2010).

Responding to some of these worries Berys Gaut has suggested that 'creativity is the capacity to produce original and valuable items by flair' (Gaut 2010: 1041, see also Gaut 2003: 151). What is meant by 'flair'? It turns out that flair is whatever it is that rules out various counterexamples to the sufficiency of the originality and value conditions (viz., the production of new and valuable things by non-agential or lucky or mechanical processes, or by agents who fail to use judgment or exercise evaluative capacities) (Gaut 2008: 1040-1041, Gaut 2003: 151). Again, on such an account, videogame developers will often count as exhibiting creativity since game design is typically not a mechanical or lucky process, and it involves judgment and evaluation. Some sort of account along these lines (with additional tweaks to handle the dispositional nature of creativity and the problem of dark creativity) is likely on the right track with respect to capturing a core folk notion of creativity.

Boden and others have noted that creativity is not 'an all-or-non affair' (Boden 2007: 84). In other words, 'creative' is a gradable adjective. But one thing that has, perhaps, not been attended to as much as it should have been is that 'creative', like 'tall' and 'short', appears to be not only a gradable adjective but, more specifically, a *relative gradable adjectiv*e since it admits of the modifier 'very' (Kennedy and McNally 2005). (In this way, it is contrasted with other gradable adjectives such as 'closed' and 'empty'.) 'Creative' is, then, a context-sensitive term. And this means that it will plausibly pick out different properties in different linguistic contexts because those contexts shift the standards for what counts as 'creative'. For example, what counts as creative for nine-year-olds might not count as creative for nineteen-year-olds. In fact, 'creative' is (like 'good' and 'similar') also a *multidimensional* relative gradable adjective (Sassoon 2013). Evidence for this comes from the acceptability of constructions such as 'creative in every respect', 'creative in some respects' and 'creative except for'. And this means that there is not just one scale, with a contextually varying cut-off point, for the application of the term, but multiple dimensions of creativity whose relevance is contextually determined. In fact, it is plausible that 'creative' is a *mixed* multidimensional adjective in which pragmatic factors determine how many of the dimensions of creativity are relevant to whether 'creative' applies in a particular context (Sassoon 2013: 340).

If this is right, then intuitions about whether the word 'creative' applies in various cases are not especially good evidence for the presence or absence of creativity since there are a very wide range of contextual factors which are relevant to its application. In other words, it will be unsurprising if we find significant disagreement, or at least apparent disagreement, in judgments about what counts as 'creative' due to these contextual factors. Different subjects may have different contrast classes in

mind, different dimensions in mind, and even different weightings of those dimensions. Judgments about cases, then, do not provide decisive evidence for and against theories of creativity. (Just as one wouldn't want to develop a theory of various kinds of intelligence entirely on the basis of judgments about whether 'intelligent' applied in various hypothetical cases.) We shall return to this point below.

2 The Causal Question

Now that we have at least some grasp of what creativity amounts to, let us look at the causal question; namely, to what extent does videogame play promote or retard creativity?[7] The question has been studied by psychologists and game researchers but, I shall argue, the design and results of their studies leave it unanswered.

2.1 Three Studies

I shall not discuss every study about the causal relationship between videogames and creativity. But there is not, as a matter of fact, that much research that has been done on the question. The first two studies I discuss are two of the most frequently cited in the literature about videogames and creativity and the third study is one of the most recent ones in the area.

The Dance Dance Revolution Study

Hutton and Sundar (2010) used a videogame to study the influence of affect on creativity and the role of arousal in mediating that influence. Participants in their study played the 1998 'dance mat' videogame, *Dance Dance Revolution*, at three levels of exertion (low, moderate, and high) and had affect induced by a standard mood induction method (they were asked to identify emotions and then told they had succeeded –inducing positive affect—or failed—inducing negative affect). The main dependent variable was performance on a widely used paper-and-pencil test for creativity, the Abbreviated Torrance Test for Adults (ATTA). Overall ATTA scores (i.e., 'Creativity Index' and 'Creative Level' scores) were generated by combining measurements of four creative abilities (flexibility, fluency, originality, and elaboration, which are combined to produce a 'Creative Ability' score) with fifteen creativity indicators (e.g., richness and/or colourfulness of imagery).

Results were mixed. The study finds that 'a low or high level of arousal, rather than a medium level, improved the ability to process information or objects in different ways, in this sample' (299). In other words, on *one* of four creative abilities measured (i.e., flexibility), the researchers found an effect of arousal that 'approached significance' (ibid.) Turning to overall creativity scores (i.e., Creativity Index), the study showed a significant interaction between arousal and valence (i.e., mood): 'low arousal levels resulted in higher creativity scores only when coupled with a negative mood' (ibid.), and something similar is true about high arousal and positive mood in relation to overall creativity scores. As the authors put it: 'In practical terms, our study implies that after playing a videogame, those who are happy—and somewhat unexpectedly, those who are sad as well—tend to be more creative than those who are relaxed or angry.' (301)

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[7] The focus here is on psychological creativity rather than historical creativity.

I shall have more to say below about the way in which creativity was measured here. But even if we put concerns about the dependent variable aside, it is worth noting that the study does not do much to establish that videogame play generally improves creativity even under certain affective conditions. A 'physical' videogame which involves substantial exertion, *Dance Dance Revolution*, was used to induce various levels of arousal, and it is arousal level, measured by galvanic skin response, that is the relevant independent variable. In fact, because of the between-subjects design and the lack of a control condition in which creativity was measured in the non-play/non-arousal condition, the study provides no reason to think that videogame play increases creativity scores at all, even under the specified affective conditions. That is, the study did not explore the effect of valence on subjects who did not play the game and, hence, didn't exert themselves at all, nor did it look at individual subjects across different levels of exertion. It is, therefore, consistent with its results that playing videogames at any level tends to decrease creativity scores.

The Michigan State Study

Perhaps the best known research on creativity and videogame use is the widely-reported Michigan State study which explored technology use generally and its relation to creativity (Jackson et al 2012). Jackson and colleagues found significant and positive correlations between self-reported videogame use and creativity as measured by a test based on the Torrance Test of Creativity—Figural. In summary, the creativity test they used involved presenting subjects with simple drawings (an egg and an elf looking at its reflection) and asking them to perform various tasks in response (viz., generate a pictorial elaboration and a story in the egg case; come up with questions, causes and possible futures in the elf case). As in the prior study, fluency, flexibility, originality and elaboration were measured, although some other measures were also used.[8] Although no correlations were found between creativity scores and computer use, internet use and cell phone use, 'all types of videogames were strongly related to all measures of creativity except Racing/Driving games, which were related only to two of the six measures of creativity' (373).

The Genre Study

Yeh's (2015) study investigated the way in which different videogame genres (action and non-action) affected creativity performance. In this within-subjects study, participants played both an 'action' videogame (*Light Heroes*) and a 'casual' or 'non-action' game (*Clusterz*). Creativity was measured by a figural idea generation task. In brief, subjects were presented with an abstract line drawing and asked to identify 'what invention, artefact or any idea, real or imaginary' it represented (402). Subjects were 'encouraged to think of as many ideas as possible and to be as original as possible' in a five minute time period (ibid.). Scores were generated for four components of creativity—as in the prior two studies, flexibility, originality and elaboration were among those components—but Yeh uses the term 'productivity' instead of 'fluency' although they measure the same thing.

The results seem to support Yeh's hypothesis that playing videogames in the action genre produce higher creativity scores than does playing videogames in non-action genres, although she did not find this effect on all four components of creativity that were measured. As she puts it: 'overall, as predicted, creativity performance after playing the action game was better than those after playing the non-action game on the scores of originality, flexibility and elaboration' (403). But note that the

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[8] Factor analysis was used to generate four composite measures and two other measures were added (372).

hypothesis that received support has to do with a comparison between two types of videogame play, not between videogame play and non-play.

2.2 Problems with the Extant Research

As discussed above, the research about the causal relationship between videogame play and creativity is inconclusive. The *Dance Dance Revolution* study merely shows that levels of physical exertion (which can be induced by a videogame) can increase creativity scores under certain affective conditions. The Michigan State study found a correlation between videogame play and a creativity measure but leaves the causal question open. Yeh's genre study does address one causal question, but—at best—only provides evidence that playing action games leads to higher creativity scores than playing non-action games. It is consistent with this that playing any game at all decreases overall creativity scores. But the studies are not just inconclusive: there are additional concerns with regard to their capacity to provide useful information about the causal question. I focus on three such concerns: (1) the focus on single causes versus diffuse causes, (2) the focus on short-term and isolated effects rather than long-term effects, and (3) the way in which creativity is measured.

Single Causes and Diffuse Causes

Following Eaton's discussion of the harms of pornography (2007: 684-689), let us distinguish single causes (specific encounters with individual games) from diffuse causes (involving repeated exposure to games over an extended time period). An important weakness of some of the aforementioned experimental studies (the *Dance Dance Revolution* and genre studies) is that they focus on single causes; that is, one-off exposures to particular games. But, as is the case with smoking and pornography, the causal relationship between videogame play and level of creativity will almost surely be a dose-response relationship (ibid., 685). For example, it is likely that if there is a positive relationship between videogame play and creativity then that relationship will be such that an increase in exposure will produce an increase in effect. And, experimental studies which focus on single causes are not well-suited to discern the existence (or non-existence) of this sort of relationship.

Kinds of Effects

Relatedly, the experimental studies described above focus on discrete effects; i.e., measurements of creativity at a particular point in time. But interest in the causal question is, I suggest, primarily an interest in the long-term effects of videogame play. Compare the debate about the harms of pornography: the primary interest in the effects of pornography on its viewers has to do with its long-term effects, not the immediate physiological and affective consequences of one-off exposure to an instance of pornography. Again, laboratory studies such as the ones mentioned above, are poorly suited to discern the long-term effects of playing videogames.

Measuring Creativity

Hutton and Sundar used the ATTA. Jackson and her colleagues used the Figural version of the Torrance Test as the basis for designing their measurement tool. Yeh used an idea generation task which has similarities to the figural version of Torrance Test, and measurement procedures that are, in part, influenced by Torrance. But the Torrance Test and its kin are not good tests for creativity.[9] Consider the dimensions that the aforementioned tests measure: fluency, originality, elaboration, flexibility, and productivity. None of these measures seem suited to capture the evaluative aspect of the ordinary notion of creativity. Hutton and Sundar describe the abilities which the ATTA focuses on as follows: 'fluency is the ability to produce quantities of ideas relevant to the task instruction. Originality is the ability to produce uncommon ideas or ideas that are totally new and unique. Elaboration is the ability to embellish ideas with details, and flexibility is the ability to process information or objects in different ways' (297). As mentioned above, Yeh's notion of productivity is equivalent to fluency: 'Productivity: the total number of ideas generated within a 5-min period during the task' (2015: 402). Since none of these abilities are clearly linked to the production of items of value, it is hard to see why we should think that they measure creative ability rather than a component of it. Here is another way of seeing the point: a person could exhibit high degrees of fluency, originality, elaboration and flexibility by virtue of their ability to produce a large number of uncommon and highly detailed ideas across different categories without exhibiting creativity (if those ideas were all valueless). If so, the 'Creative Ability' score does not measure creativity.

The same is true of the various 'criterion-referenced creativity indicators' that Hutton and Sundar measure such as 'abstractness of titles', 'openness', 'future orientation', and 'humor' (297). Perhaps 'richness and colorfulness of imagery', which is an indicator associated with various verbal tasks, might be understood in an evaluative way by some scorers. But this is a very small factor in the overall creativity score. So it is implausible that the ATTA measures what we ordinarily think of as creativity.

A second reason why these tests fall short as a measure of creativity stems from their focus on discrete effects. They measure performance at a particular point in time. But creativity, I have suggested, is plausibly a disposition. If so, then any such test is ill-suited to measure it. (This is a slightly different issue than the worry about long-term effects since not all long-term effects are a matter of dispositions.)

Finally, the aforementioned tests of creativity do not even clearly capture the newness or originality condition that is central to creativity. This might seem odd since originality is one of the abilities that they explicitly measure. But consider the way in which the studies measure originality. In the ATTA, which was used in the *Dance Dance Revolution* study, originality is scored by counting the number of responses (verbal or figural) that are not on a list of common responses. The Michigan State University study measured originality by getting trained undergraduates how 'unusual and rare' responses were (Jackson et al 2012, 372). Yeh had two independent raters score responses on a five point scale from 'not original at all' to 'highly original' (Yeah 2015, 402). Perhaps the last study does measure originality, but the way the other two studies measure it should give one pause. Newness, after all, is not the same thing as being unusual or rare. The psychological newness of a response is consistent with its not being at all unusual or rare. And the fact that a response is unusual does not imply that it is psychologically new. These measurements of originality, then, do not seem to capture the element of newness which is involved in the ordinary notion of creativity.

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[9] For other criticisms of the reliance on the Torrance Test in creativity research see Baer (2011).

3 The Game Play Question

So there is no good evidence that videogame play increases (or, for that matter, decreases) creativity. But, as I have already mentioned, this is not the only question about videogame play and creativity that is of interest. I turn, then, to the game play question: Does videogame play involve creativity? Or, alternatively, is videogame play a creative activity?

3.1 Creativity in Game Play

Let us put aside various non-standard cases: the creative use of cheat codes, glitches and bots (Hamlen and Blumberg: 2015), creative game talk (Wright, Boria and Breidenbach: 2002), and the creative construction and modification of avatars in social virtual worlds such as *Second Life* (Ward 2015: 122-126). What about ordinary game play? Is it creative?

Of course, one sort of ordinary videogame play, the kind found in sandbox and world building games such as *Minecraft* and *Terraria*, clearly allows for a high degree of creativity. *Minecraft* gamers, for example, build virtual computers, cities, art works, buildings and more. I will not focus on this sort of game play below because there is not, it seems to me, any substantive question about whether this sort of videogame play is creative—for example, on any reasonable account, the sort of complex building that takes place in Minecraft's 'Creative' mode is straightforwardly creative.[10] However, it is worth noting that the account of creative game play I offer below may well apply to these games as well.[11]

One might wonder whether engagement with videogames involves creativity because they are games. But playing games is not inherently creative. Snakes and Ladders does not allow for creativity, nor do other luck-based games such as the card game War. Tic-tac-toe might allow for a very limited amount of creativity while learning the game, but it cannot be said that play generally involves creativity. Creativity also seems largely absent from games based on physical skill such as *Operation*.

Nor are videogames creative merely in virtue of their (strong) interactivity.[12] Videogames are strongly interactive in that they prescribe that user/player responses determine features of the game's display (Lopes 2010). But interactivity alone is not enough for creativity. There are many works of art which are interactive which do not typically involve creativity. Consider, for example, Anish Kapoor's large mirrored sculptures. These works of art are interactive because viewers' actions affect what they look like for a time (Lopes 2010, 45), but it is not clear that those actions are standardly creative in any way. And for a clear example of interactivity without user creativity, consider a hypothetical art work which meets the criteria for being interactive, because it prescribes that responses determine its display, but only allows for only two simple audience responses (e.g., flicking a switch or not).

The key concept that sheds light on the creativity involved in much videogame play is *problem solving*. Again, my focus is not on whether playing videogames improves the ability to solve problems (there doesn't appear to be much evidence either way), but, rather, with whether game

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[10] For a discussion of the art of, and in, *Minecraft*, see the Vox YouTube video 'Minecraft isn't just a game. It's an art form': https://www.youtube.com/watch?v=-Of_yz-4iXs.
[11] Thanks to Grant Tavinor for encouraging me to think harder about these cases.
[12] For discussion of the weak/strong interactivity distinction, see Lopes (2001).

play *involves* problem solving.[13] Perhaps Granic, Lobel and Engels put it too strongly when they claim that 'problem solving seems central to all genres of video games' (2014, 69); nevertheless, problem solving is standard for many, perhaps most, of those genres.[14] And problem-solving is, arguably, closely linked to creativity.

I would not go so far as to claim that 'creativity is a form of problem solving' (Gaut, quoted in Woerner 2013: 4-5). There are examples of creativity (e.g., in the case of dance or music improvisation) that do not seem to involve problem solving. It is surely possible to produce new and valuable things non-mechanically and non-luckily even when one is not solving a problem. Nor are all examples of problem solving creative—mechanically generating a solution, or accidentally stumbling on one, does not count as creative.

But when problem solving involves producing a new and valuable solution in a non-mechanical, non-accidental way, it is plausible that it counts as creative. And videogame play, or at least much of it, involves just this sort of activity.

Perhaps the most straightforward games to consider in this context are puzzle-platform games such as *Portal, Fez*, and *Monument Valley* in which problem solving is front and centre. But many, although perhaps not all, other genres of videogames involve puzzles and/or other forms of problem solving. Consider the indie RPG, *Undertale.* It contains numerous problems to solve; e.g., how to defeat the Mad Dummy, an incorporeal creature who initially appears to be immune to attack. *Istrolid*, a science fiction strategy game, requires the player to design a fleet that will defeat her opponents. Team-based first person shooters, such as *Team Fortress 2*, require players to figure out successful strategies for defeating the other team or achieving objectives (e.g., capturing a control point). *Super Mario Brothers 3D World*, a popular platform adventure game, requires users to solve puzzles (e.g., by manipulating a playable character through holes and across gaps) in the Captain Toad levels.[15] Survival horror games, such as *Silent Hill*, as well as other forms of the broad action adventure genre, typically involve puzzle-solving as well as the solution of large scale problems such as how to survive. More generally, boss fights—which appear in a wide range of videogames— often involve (very difficult) problems to be solved.

Obviously, I cannot address every genre of videogame nor every game. But the claim I make is not meant to be a universal one. Rather, it is the more modest claim that for most popular genres of videogames, problem-solving is a standard or generic feature. A common definition of problem solving in psychology holds that it is 'is cognitive processing directed at achieving a goal when no solution method is obvious to the problem solver' (Mayer 1992).[16] This, I claim, characterizes much videogame play. And it is this feature which is at the basis of much of the creativity involved in videogame play.

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[13] For a brief discussion of some of the relevant literature on videogame play and problem solving, see Granic, Lobel and Engels (2014, 69-70).

[14] And many theories of games seem to make problem solving central to them. So, for example, Bernard Suits (2005) argues that 'playing a game is the voluntary attempt to overcome unnecessary obstacles.'

[15] An editor who shall go unnamed suggested that it might be easier to just reference the spin-off game Captiain Toad: Treasure Tracker.

[16] One of the editors of this volume suggested that this might be an odd definition insofar as it would seem to exclude intuitive geniuses from the category of problem solvers. I don't think this is quite right since such geniuses might be intuitive in some domains but not others. But it also doesn't seem that odd to think that intuitive geniuses do not engage in the psychological process of problem solving. In any case, I wouldn't put too much weight on the definition. Let's just say that this sort of cognitive processing is standard in videogame play.

3.2 Objections and Replies

The modesty of the claim means that pointing to some videogames, or entire classes of videogames, which do not involve problem solving is no objection to my argument. I agree that there are some games which do not involve problem solving. Perhaps, for example, some racing games do not involve it since their solution methods are obvious. Similarly, some shooting games, such as *Marksman: Long Range*, may involve pure skill rather than problem solving. If this is right, then playing these games may not involve creativity. (Perhaps some such games allow for creativity in some other way.)

A more significant challenge to my claim might focus on creativity's value condition. Is it really the case that the problem solving involved in videogame play typically produces something of value? If not, it would be a mistake to count it as creative. And, after all, it would seem odd in many cases to call videogame play 'creative'. This challenge can be met. There are a range of different values that can be realized through videogame problem solving. The solution to a problem might, for example, possess *aesthetic value* in virtue of its elegance or simplicity.[17] Or it might possess *cognitive value* if it is clever or insightful. Finally, an instance of problem solving might possess *attributive value* of various kinds (as in 'a good strategy' or 'a good move'). Of course, a sceptic might argue that these good strategies are not, in fact, really valuable, but—as discussed above—some finessing of the value condition is required to handle cases of 'dark creativity' and, presumably, that will handle this issue as well. Furthermore, we should not be impressed by resistance to applying the term 'creative' to these activities. As discussed above, 'creative' is highly context-sensitive and, hence, our judgments about the application of the term are not a good guide to the presence or absence of some degree of creativity.

It might be objected that only good or great videogames involve creative problem solving. This is far too strong a claim. Perhaps good and great videogames typically involve *more* creative problem solving than mediocre or bad ones. But playing the latter involves some problem solving and a limited amount of creativity. Again, resistance to characterizing play in such cases as 'creative' may stem from the context-sensitivity of the term. (If the contrast class is videogames in general, then the standard for what counts as 'creative' may be high enough to exclude its being predicated in some cases. But this provides no reason to think that the relevant property is entirely absent.) Of course, it might be the case that truly disastrous 'failed' games (e.g., Atari's *E.T. The Extraterrestrial* and ZX Spectrum's *Squij!)* don't engender any creative play because they are almost, or entirely, unplayable, [18] but this is consistent with my generic claim.

A final challenge to my claim allows that videogame play may often involve problem solving but denies that sophisticated videogame play involves creativity. Experienced gamers, it might be suggested, already know how to solve the problems they face in new games. In fact, it might be suggested that experienced gamers typically don't even confront problems insofar as the methods

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[17] For examples of discussion of various elegant and inelegant solutions to problems in the team-based multiplayer online first-person shooter *Overwatch* see http://tay.kinja.com/overwatchs-symmetra-overhaul-teleports-her-in-the-right-1789283655 and https://kotaku.com/1787113637.
[18] See https://www.theguardian.com/technology/2015/oct/15/30-worst-video-games-of-all-time-part-one (accessed July 2, 2017) and https://www.theguardian.com/technology/2015/oct/16/30-worst-video-games-of-all-time-part-two (accessed July 2, 2017).

they need to use in order to achieve their goals are obvious.[19] Perhaps. It would be interesting if it turned out that game play was creative in novices but not experts. But I am sceptical. Perhaps experienced gamers do know, in some sense, how to solve the problems they face. That is, the general method may be obvious. Nevertheless, I claim that in ordinary cases there is another sense in which they do not know how to solve the problems; that is, at least when they first face them. Although the general method may be obvious, the specific method is not. In other words, experienced gamers often know the solution-types to the problems they face, but they do not, if I am right, know the particular, or token, solutions. To get a sense of what I am talking about, consider that changing heroes (i.e., switching characters) mid-game is often a smart strategy when playing *Overwatch*.[20] That general problem solving method (i.e., that solution-type) may be known to any experienced *Overwatch* player. Nonetheless, the specific way in which that method could be used in a particular context (i.e., the token solution) may be unknown to the experienced player and, hence, may invite a creative solution. Something similar may happen when an experienced player, playing a new game, confronts an unfamiliar token of a problem type with which they are familiar.

4 Videogames versus Reading

Playing games is, then, often a creative activity. But is it really the case that videogame play is, as Prebble stated, 'creative, in comparison to the passivity of watching a film or reading a book'? That is, are games more active and creative than viewers and readers? It is not clear that this is the case. In the first place, it is a mistake to think of watching a film or reading a book as passive pursuits. They might be (largely) physically passive, but reading and viewing are not by any means psychologically passive.

Notice, first of all, that accusations of passivity are usually directed at junk, popular or mass art (i.e., kitsch), not high art (see Greenberg 1939 and for extensive critical discussion see Carroll 1998). But while it might seem tempting to think that the consumption of junk or popular fiction is a largely passive activity, it is odd to characterize the consumption of 'high' or 'serious' fiction as passive. Moreover, this temptation should be resisted even in the case of popular fiction. Reading or watching popular fiction are not passive endeavours. Noël Carroll (1994) has pointed out that although works of junk fiction (romance, westerns, mysteries, etc.) are designed for easy consumption, ease does not entail passivity (238). In fact, he has argued that the cognitive and affective activity involved in the consumption of junk fictions (that is, their ability to 'exercise our cognitive, emotional and moral powers') is the primary source of the pleasures they provide (237). More recently, Alan Goldman (2011) has argued that mystery fictions possess significant aesthetic value in virtue of their capacity to promote imaginative, interpretive, emotional and perceptual activity. If this is right, then it is a mistake to characterize the consumption of narrative fiction as necessarily, or even generically, passive.

So reading and viewing are not passive, not even in the case of junk or popular fiction. But this leaves open the possibility that videogame play is less passive (i.e., more active) than watching or reading. Aaron Smuts (2005), for example, argues that 'Given the interactive nature of video games, there is simply no room for the charge of passivity. Video game players are anything but mentally or intellectually passive during typical game play.' Perhaps there is something to this. Videogames are

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[19] A number of audience members at the University of Stuttgart made this suggestion in response to an earlier version of this paper.

[20] http://www.pcgamer.com/overwatch-beginners-guide/

strongly interactive and, in virtue of this, prescribe that users make a wide range of decisions or choices. When it comes to conscious and intentional activity, then, they may typically engender more activity than reading or viewing. This might be basis for a claim that game play has an advantage over the ordinary consumption of narrative along one dimension of creativity. Perhaps there are simply more possibilities for creative decision making in the case of games than in the case of books and films.[21]

But this is not the only dimension of creativity. (Remember the multidimensionality of 'creative'.) Audiences for works of fiction typically exhibit some degree of creativity—in virtue of coming up with new and valuable ideas non-accidentally and non-mechanically. More specifically, audiences exhibit creativity in virtue of, among other things, exploring metaphors, constructing and refiguring their models of fictional worlds, and identifying and considering themes (Carroll 2014). Now it is also the case that players of many videogames engage in this sort of creative activity. Most videogames are, after all, fictions (Meskin and Robson 2012) and, as such, require—at a minimum—players to actively construct a model of the fictional world in which they are playing. But it may be that if we focus on this sort of creativity, works of literature often have an advantage. So, for example, they may possess richer metaphors and themes and, hence, require readers to come up with more valuable new ideas than do ordinary videogames. Maybe. We should be careful to compare like with like—there are thematically rich videogames (*Bioshock*, *Undertale*) and thematically impoverished ones (take your pick among the team-based first person shooters) just as there are works of great literature and works which do not possess interesting themes. That being said, I think it is reasonable to say that, along one dimension of creativity, reading serious literature (and watching serious films) may beat videogame play.[22]

The upshot is that Prebble's claim may be too strong. Videogame play may be more active and, perhaps, more creative along one dimension than reading or watching, but the latter may often be more creative along another dimension.

5 Conclusion

I have argued that there is a close connection between videogame play and creativity. For most genres of videogames, player creativity is typical or standard. This stems from the centrality of problem-solving in those genres. On the other hand, the jury is still out as to whether there is a causal link between videogame play and creativity. On my reading of the available evidence, it is simply not clear whether playing videogames (or even certain kinds of videogames) enhances, diminishes, or has no effect on, creativity. Finally, I have argued that although engaging with serious literature or film may be more creative along some dimensions than playing videogames, videogame play may be more creative than reading or watching along other dimensions. If I am right, it is a mistake to contrast playing videogames with creative activities.[23]

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[21] Grant Tavinor (personal correspondence) suggested that I might be underselling things a bit here; i.e., that world-building games, in particular, might prescribe a categorically different kind of activity than is prescribed by ordinary fictions. Perhaps this is right. Again, my primary focus here is on other sorts of games: I don't think *Minecraft's* 'Creative' mode is typically criticized for encouraging passivity.

[22] My hypothesis is that this is a contingent matter rather than a fact about the nature of the two art forms. Thanks to Jon Robson for pressing me to clarify this point.

Works Cited

Baer J (2011) 'How Divergent Thinking Tests Mislead Us: Are the Torrance Tests Still Relevant in the 21st Century? The Division 10 Debate.' *Psychology of Aesthetics, Creativity, and the Arts* 5 (4), 309-313.

Bartel, C (2010) 'Originality and Value.' *Hermeneia* 10, 66-77.

Boden M (2007) 'Creativity in a Nutshell.' *Think* 5, 83-96.

Carroll N (1994) 'The Paradox of Junk Fiction.' *Philosophy and Literature* 18 (2), 225-241.

Carroll N (1998) *A Philosophy of Mass Art*. Oxford: Clarendon Press.

Carroll N (2014) 'The Creative Audience: Some Ways in which Readers, Viewers, and/or Listeners Use Their Imaginations to Engage Fictional Artworks.' *The Philosophy of Creativity : New Essays* edited by Elliot Samuel Paul and Scott Barry Kaufman. Oxford ; New York : Oxford University Press, 62-81.

Cropley DH, Kaufman JC, and Cropley AJ (2008) 'Malevolent Creativity: A Functional Model of Creativity in Terrorism and Crime.' *Creativity Research Journal* 20 (2), 105–15.

Eaton AW (2007) '*A* Sensible Antiporn Feminism.' *Ethics* 117 (4), 674-715

Gaut, B (2003) 'Creativity and Imagination.' In *The Creation of Art: New Essays in Philosophical Aesthetics*. Eds. Berys Gaut and Paisley Livingston. Cambridge: Cambridge UP, 2003, 148–73.

Gaut B (2010) 'The Philosophy of Creativity.' *Philosophy Compass* 5 (12), 1034–1046.

Gaut B (forthcoming) 'The Value of Creativity.' In *Creativity and Philosophy* edited by Berys Gaut and Matthew Kieran. Routledge.

Goldman, A (2011) 'The Appeal of the Mystery.' Journal of Aesthetics and Art Criticism 69 (3), 261-272.

Granic I, Lobel A*, and* Engels RC (2014). 'The Benefits of Playing Video Games'. *American Psychologist*, 69 (1), 66-78.

Greenberg C (1939) 'Avant-Garde and Kitsch.' *Partisan Review* 6 (5), 34-49.

Hamlen KR and Blumberg FC (2015) 'Problem Solving Through "Cheating" in Video Games.' In *Video Games and Creativity* ed. GC Green and JC Kaufman. London: Elsevier, 83-97.

Hills, A and Bird, A (forthcoming) 'Against Creativity.' In *Creativity and Philosophy* edited by Berys Gaut and Matthew Kieran. Routledge.

Hutton E and Sundar SS (2010) 'Can Video Games Enhance Creativity? Effects of Emotion Generated by *Dance Dance Revolution*.' *Creativity Research Journal* 22 (3), 294-303.

Jackson LA, Witt EA, Games AI, Fitzgerald HE, von Eye A., and Zhao Y (2012). 'Information technology use and creativity: Findings from the Children and Technology Project'. *Computers in Human Behavior*, 28, 370–376.

Kant I (1790/1987) *Critique of Judgment*, trans. by WS Pluhar. Indianapolis: Hackett.

Kennedy C and McNally L (2005). 'Scale structure and the semantic typology of gradable predicates." *Language* 81 (2), 345–381.

Kieran M (2014) 'Creativity as a Virtue of Character' in Scott Barry Kaufman and Elliot Samuel Paul (eds.), *The Philosophy of Creativity* (New York: Oxford University Press, 2014), 125-144.

Lopes DM (2001) 'The Ontology of Interactive Art' *Journal of Aesthetic Education* 35 (4), 65-81.

Lopes DM (2010) *A Philosophy of Computer Art*. Oxford: Routledge.

Mayer RE (2002) *Thinking, Problem Solving, Cognition* 2nd ed. New York: Freeman.

Meskin A and Robson J (2012) 'Fiction and Fictional Worlds in Videogames.' In *The Philosophy of Computer Games*, edited by John Richard Sageng, Tarjei Mandt Larsen & Hallvard Fossheim. Dordrecht: Springer Press.

Sassson GW (2013) 'A Typology of Multidimensional Adjectives.' *Journal of Semantics* 30, 335–380.

Smuts A (2005) 'Video Games and the Philosophy of Art.' *American Society for Aesthetics Newsletter 25 (1), 1-3.*

Stokes D (2008) 'A Metaphysics of Creativity.' In *New Waves in Aesthetics*. Eds. Kathleen Stock and Katherine Thomson-Jones. Basingstoke: Palgrave Macmillan, 2008, 105–24.

Suits B (2005) *The Grasshopper: Games, Life and Utopia*. Ontario: Broadview.

Ward TB (2015) 'Content, Collaboration, and Creativity in Virtual Worlds.' In *Video Games and Creativity* ed. GC Green and JC Kaufman. London: Elsevier, 119-136.

Woerner C (2013) 'Creativity, Ethics and Education: An Interview with Berys Gaut.' *Postgraduate Journal of Aesthetics* 10 (1): 2-17.

Wright T, Boria E and Breidenbach P (2002) 'Creative Player Action in FPS Online Videogames' *Game Studies* 2 (2). Retrieved at http://www.gamestudies.org/0202/wright/.

Yeh CS-H (2015) 'Exploring the Effects of Videogame Play on Creativity Performance and Emotional Response.' *Computers in Human Behavior* 53, 396–407.