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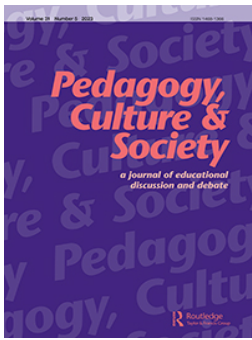
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Personal, pedagogic play: a dialogic model for video game learning

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ABSTRACT

Utilising data from semi-structured interviews ($n = 20$), this paper explores the educational function of internationally popular, blockbuster videogames, including the ways in which players identify and operationalise these learning experiences. It proposes a framework through which different learning experiences in mainstream, culturally significant games can be categorised, utilising dialogic learning approaches – drawn from application of – to position players in constant dialogue with the games that they play: a co-constructive pedagogy of videogames. We find that, in the context of popular videogames, implicit learning is relevant, present, and valuable alongside than explicit alternatives. Our contribution is to offer a reimagined dialogic typology which can help players, educators, caregivers and games scholars identify, utilise and research digital play-learning.

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Introduction

Many popular videogames are created for entertainment – their rich detail, storylines, and structure let players engage in endless hours of play. They do this by situating players in fictional or real-world settings, countering assumptions, presenting challenges to overcome, testing patience and comfort zones, fostering skills through repeated actions and serving as communicative platforms for connectivity between players across the world. Games routinely require engagement with scarcity via resource management and push at the positionality of players through virtual embodiment/engagement with characters of different classes, races, genders, levels of wealth and cultures that may be aspirational, unfavourable, or misaligned with personal experience. This propensity to cross cultural experience has contributed to digital gaming and a culturally responsive digital curriculum being identified as helpful in tackling embedded sociocultural challenges (Meston et al. 2023).

This all happens at scale, with 3.24bn players worldwide contributing to an industry worth \$200bn (Clement 2021). We interrogate these widespread, implicit, second-hand facets of mainstream video-gaming, considering the opportunities for education in elements of ‘gaming’ culture that are ancillary to entertainment. In this way, we build on

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Colvert's (2019) identification of digital game *design*, which shows 'a lack of theoretical frameworks nuanced or flexible enough' and make the same assertion with regards to digital game *play*.

Gros (2007) argues that content is a significant part of learning in games, but that blockbuster games (known as Triple-A titles) focus on user experience as opposed to educational value. They highlight that a drawback of such games, educationally, is that they are recurrently expansive in scale, requiring time to experience and understand, nullifying their use within formal classroom environments; the implication is that for a learning experience to occur it must be a *purposeful feature* of play, operationalised at the classroom level, with a 'debrief' (Crookall 2014). However, the popularity of video-games globally demonstrates that players are already investing time and money: we ask how these exposures could compliment, rather than replace, traditional teaching – by considering self-reported learning defined by players.

The contribution of this paper is twofold. Firstly, we respond to more top-down notions of learning from games by highlighting the value of a bottom-up approach, one which facilitates gamers' responses to the games they are playing and the value they are drawing from those experiences: a gamer-led – rather than educator-led – debrief, to use Crookall's 2014 terminology. The recent precedent for this type of approach can be found in Alexander's (2020) framework for dialogic teaching (see 'theoretical framework' below), and we find that, whilst beneficial to understanding play, increased gamer agency would further strengthen this typology.

Our second contribution builds on this by reworking the framing to focus on the dialogic significance of gameplay as an ongoing conversation between the player and the world, *where the video-game itself contributes to the conversation*. In adapting this framework to include bottom-up gamer reflections, we find that implicit learning is relevant, present, and valuable alongside explicit alternatives: what we offer is a reimagined dialogic framework which can help players, educators, caregivers and games scholars identify, utilise and research digital play-learning in games that were not designed for that purpose.

Before discussing our theoretical framework, our methodological process, our results and our conclusions, it is important to situate this paper in relation to extant dialogues on videogames and learning.

Literature review – game studies and educational applications

Triple-A videogames are not often designed for education: learning exists as a secondary outcome (Kardan 2006). However, as Borchard (2015, 453) contends, '... video games today have become social sense-making tools' that operate as 'spaces for defining and reproducing aspects of the world *we might, or might not want*'. Video-game narratives immerse players in unfamiliar spaces, places and contexts. It is this process of narrative development that Bass (2020, 313) believes can 'be utilised in order to foster social education with learning by reflection'. In this environment, players develop interactive dialogues with other players and with the game itself, 'rather than simply remaining observers' (Bass 2020), activating them in the production of knowledge. Consequently, games are an influential educational resource, offering the opportunity for 'learning that is characteristic of the culture of the information society' (Gros 2007, 28). Although

'serious games' – 'games used for training, advertising, simulation, or education' - situate videogames within learning already (Susi, Johannesson, and Backlund 2007, 3), most Triple-A games hold forms of serious and educational value, unlocked through dialogic engagement.

Taking historical games as an example, recent work shows how students were inspired to expand their knowledge around historical time periods featured in consumed media (Bass 2020). Similarly, Hammar (2017) identifies how games not only cover history, but also teach us how modern society recasts the 'cultural memory' that exists about the past. Whilst questions are asked of the perpetuation of negative stereotypes in the pursuit of historical accuracy (Shaw 2015), this can be contextualised via debriefing which Lynch, Mallon and Connolly (2015) contend allows players to understand the context of their learning through untangling fact from fiction. Nonetheless, Chapman (2012) explains that there should not be a focus on historical accuracy, something that entertainment games sometimes lack, to understand game learning, rather that historical games, regardless of remit, allow for apperception with broader historical discourses via participation.

Prolonged participation with any craft or practice leads to perceived development and potential mastery. The motivation to return to a game can create a cycle of exposure to specific problems and solutions until they are assimilated (Gee 2003). Such motivation aligns with Nicholson (2014) who stresses the importance of allowing individuals to develop a feeling of mastery, where student-players identify meaning behind their actions through player agency. Garris, Ahlers and Driskell (2002) suggest that games must be able to harness two types of motivation – intrinsic and extrinsic – to be effective as learning resources and, vitally, produce a 'cycle' where players return to engage with the game because of enjoyment (be that 'fun' inner engagement or structured engagement through instruction or external application – we focus on the former).

Engaging games may also allow students to enter a state of 'flow' (Csikszentmihalyi 1990), whereby individuals become absorbed in an enjoyable activity they succeed at, with concentration and enjoyment key features (Admiraal et al. 2011). Squire (2003) found that games help students achieve 'flow' by providing them with clear goals and criteria-based assessments, alongside facilitating enhanced control over learning: having control over their actions offered players greater motivation to continue their engagement (Gee 2003).

Khenissi, Essalmia and Jemni (2015) argue that this harnessing of enjoyment is essential for games to become effective learning tools, which chimes with Prensky (2003, 2), who explains that:

on deeper levels they [students] learn infinitely more: to take in information from many sources and make decisions quickly; to deduce a game's rules from playing rather than by being told; to create strategies for overcoming obstacles; to understand complex systems through experimentation. And [...] they learn to collaborate with others.

Games develop social communities through virtual worlds, allow individuals to learn about wider society through a digital microcosm, and explore things that are not always explicitly taught in schools. This helps to answer questions that education systems may not deem worth answering, an area investigated by Williamson-Shaffer et al. (2005). In focusing on teaching facts, they argue that we obscure the context that players can learn by situating their new knowledge in the wider world. Games are important in enabling

a 'learn-by-doing' approach, acting without explicit instruction and allowing mistakes that have no real consequences: it is this, they argue, that is vital to the learning process, and something that entertainment games often have as a focus. With virtual worlds introducing players to new areas of history or culture that they were previously unaware of, games help 'learners [to] become active participants in history rather than simply remaining observers' (Bass 2020, 313), in a way that could not be accessed in the classrooms of previous generations. Our work takes these facets – such as intrinsic and extrinsic learning, or the values of engagement, context, freedom and failure present in entertainment games – to assess the degree to which young people are realising in-game learning during their casual and social play, and to consider how this can be complimentary to traditional teaching; in doing so we are proposing a deeper dialogic engagement, through a revision of Alexander's (2020) typology, of 'informal' learning contexts where gamers' experiences are situated at the heart of their learning ecologies (see Persico et al. 2019).

Theoretical framework

Before unpacking the methodological approach of the paper, it is useful to understand the theoretical backdrop of Alexander's typology Alexander's (2020), which is built upon Bakhtin's concept of dialogics in relation to learning. We argue that, in addition to informing learning approaches, a dialogic understanding of the interconnections between gamers and the games themselves helps in understanding the informal learning context of our participants and their insights into their own play. Whilst the application of Bakhtin to videogames is not new (see Jensen 2013), our position is that we need to move away from restrictive, temporary notions of videogames as 'magic circles' (Huizinga 1955, 10) to view videogames as offering learning opportunities in an informal quotidian sense outside of a formal educational context.

We focus on dialogue because dialogue sits at the heart of learning. From Socratic and Platonic dialogues, discourse has been a central tenet of education and critical reasoning and although other approaches to dialogic practice exist (Lefstein and Snell 2014; Mercer 2000), Alexander's typology underscores a performative element, which we might think of as akin to 'play', thereby opening up videogames as a site for meaningful learning-through-dialogue. Videogames as a cultural product directly reference and respond to games which have come before (through expectations and standards which contribute to genre for example) and provide commentary for games which come after: dialogics therefore represents a beneficial conceptual framing device to understand gaming as 'an inherently dialogic discursive space' (Alberti 2008, 267).

Alexander's theoretical framework is grounded in Bakhtin's understanding of dialogue and narrative. In terms of cultural artefacts, Bakhtin (2002, 262–3) focuses on the novel as a series of 'compositional-stylistic unities' that include narration, authorial speech, statements and descriptions, and character. Whilst different novels contain different contexts and content, they are unified as a 'heteroglossia', a product of multiple voices and interrelationships. Videogames, as contemporary cultural products similarly developed from a heteroglossic discourse (between gamers, developers, UX researchers, artists and sound designers for example) facilitate learning experiences by drawing on the diversity of perspectives highlighted earlier. Videogames are diverse spaces where humour and

satire are embedded, and eccentricity encouraged; this allies with Bakhtin in terms of 'mésalliances' – the marrying together of good and evil in new ways by positioning the protagonist on the wrong side of history or giving the player challenging and uncomfortable moral dichotomies to play with; and they offer 'profanation', where the hitherto unacceptable is embraced through play. For Bakhtin, cultural products become carnivalized when there is 'multi-toned narration, the mixing of high and low, serious and comic; the use of inserted genres - [...] retold dialogues, parodies on the high genres' (Bakhtin 1984, 108). By applying Bakhtinian dialogics to videogames, we underline the value of dialogue between gamer and game as heteroglossic and operationalise entertainment games' educational usefulness through dialogic pedagogies like Alexander's (2020); it is that operationalisation we turn to in the next section.

Method

Our method is comprised of an initial justification for a bottom-up social constructivist approach (see Adams 2006), followed by a detailed discussion of our process. The broader context of our methodology approach is that, in testing Alexander's typology, what we present is not an exhaustive framework since it is not possible to constructively interview about every popular entertainment digital game that has existed. When researching how players use existing popular cultural artefacts, rather than designing or prescribing artefacts and measuring their use after-the-fact, the responses we unpack cover a multitude of genres to enable participants to reference titles that have influenced them, this allowed us to do framework formation with responses across game styles and genres. It is a way to typologise how learning experiences are felt, understood, and used by players themselves in an informal sense, so without structured guidance or debrief, helping us to present the different modes through which videogame play is dialogically idea-forming.

Participants and process

More specifically, our data were collected through face-to-face interviews ($n = 20$) between September and November 2021. This followed full ethics approval and written informed consent was acquired prior to each interview taking place. Participants were identified using opportunistic sampling (Kemper, Stringfield, and Teddlie 2003): the team advertised the project amongst all undergraduate students at the host institution, stipulating that participants should be 'regular gamers' and from that sample those within the 'emerging adult' age bracket of 18–25 were then selected (Micallef et al. 2022). Of those participants, one participant identified as non-binary, five participants as female, and 14 as male. Interviews were designed to last an hour, with the shortest 45 minutes and the longest an hour and five minutes. All interviews were audio recorded and conducted by one of the research project leads (Denham and Spokes) before being transcribed by the research assistant working on the project (Veal).

The data were analysed thematically (Boyatzis 1998) using a hybrid inductive-deductive coding process (Fereday and Muir-Cochrane 2006). The pre-existing typology from Alexander (2020) indicated areas of focus for analysis around types of learning in particular (deductive) but given the dialogic approach adopted

it was important to respond to participants' reflections as emergent themes (inductive). Following a detailed check for transcription accuracy by the project team, data were coded and compared across interview transcripts, with corresponding themes closely aligned to the data themselves (Patton 1990) as well as Alexander's typology.

Alexander (2020, 131) identifies a set of six principles for seeing, encouraging and integrating Bakhtinian dialogue into teaching. They are: *collective* where learners, together with teachers, see learning as joint enquiry; *supportive*, where students 'express ideas freely' and are not fearful of wrongness or misunderstanding; *reciprocal*, through opportunities for shared ideas, communication and contrasting opinion; *deliberative*, seeing participants resolve differing opinions and develop reasoned arguments; *cumulative*, where these positions build to form 'coherent lines of understanding'; and *purposeful*, 'structured with specific learning goals in view'.

Alexander warns against considering these principles as discrete or isolated, accentuating overlaps and collaboration towards achieving certain goals. He argues that 1) *collective*, *supportive* and *reciprocal* intersect to form conducive classroom environments; 2) *reciprocal* and *deliberative* form ideas in context, 3) *cumulation* shifts 'talk' towards learning dialogue with ascending knowledge, arguments and ideas about the world, and 4) *purposefulness* 'square[s] the [Bakhtinian] circle' (131), principally by imposing goals and time limits to dialogue. Next, we test these four qualities to approach games as dialogic learning spaces.

Results and discussion

To discuss our results through the coded interview data, this section has been organised to follow Alexander's (2020) typology unpacked above. The data are presented through direct participant responses in the interviews, allied to existing research on gaming and learning. In doing this, we present both the affordances and limitations of the typology, and the value of developing a clear notion of the 'debrief' (section on purposefulness, below) in an informal learning content.

Collective, supportive and reciprocal: learning skills in a supportive learning environment

Participants placed education in a cycle with engagement – once something fails to test skill or resolve, it becomes stale. With statements such as 'a game most importantly has to engaging – that way it can teach you stuff, life lessons, facts' (P07), participants zeroed in on what Plass, Homer and Kinzer (2015) call 'behavioural' engagement. Engagement is a core quality of 'good game' design (Grace 2020, 12), and the first way in which popular gaming spaces double as supportive learning environments.

Sustained engagement can teach general things that one could pick up from most forms of popular culture, including language, by playing in a different dialect, or general facts about the world as passive additions to gaming dynamics. There was disdain for games that teach 'facts' as a *modus operandi* – participants critiqued deliberately

educational games like *Brain Training* (2005) as for ‘old people or kids’ (P20). Facts can be learned passively simply by exposure:

P04: For me it was learning just random facts like the history games it was learning history. We went to the pub quiz and there was a flag round and I knew all of them from that.

P04 can identify national flags as general knowledge that has had life application. They demonstrate further examples of this typology, including immersive stories that provide lessons in context, history and social skills. Sometimes these facts are basic realities of life, like scarcity and resource management, that are skills operationalised through structured play. Of significance here is that these ‘facts’ can be communicated to the player precisely *because* the environment does not attempt to teach them, only to hold their attention long enough for knowledge to be assimilated.

There was evidence that these environments facilitate what could be categorised as ‘workplace’ skills, or abilities and competencies that are usually applicable to gainful employment. Patience was identified as a learnable ability in *Ark: Survival Evolved* (2017) where ‘there’s a lot of time-consuming steps with crafting and gathering materials. It can take an hour with each thing like “oh go get some wood” and “where’s this dinosaur?”’ (P05). De Aguilera and Mendiz (2003) underscore positive cognitive effects associated with gameplay including developing attention span (cited here as ‘patience’), problem solving, decision making and strategic planning. Both active problem-solving and strategic planning (resource/inventory management) were elements easily recognised in games by participants:

P03 :Problem solving is definitely a skill I develop through playing the game because you have to think on your feet and think ‘I’ve got this this and this to work with’ and I’ve got to decide when to use things.

P07: Everyone has access to the same things, it’s how you use your resources and how you deal with situations.

Having to compete with equal resources via calculated decisions on the best way to employ them – inventory management and planning, repeatedly arose – with time pressure present in many game dynamics requiring the development of systematic thinking (P3). P07’s comments refer more to how games set a standard of resources, like a time limit on an exam, forcing ingenuity and creativity when navigating through space. In this way problem solving is learned in dialogue with the game, where a restricted environment (assets, resources, options) is presented alongside an objective, and the choices made with those properties alters their trajectory through the sandpit-like spaces.

Open-world environments are well described in this typology as the most *supportive*, whereas games with pre-defined pathways carved out by their developers are *collective*: the process by which the game is navigable exists as joint enquiry: the player learns how to manipulate the environment and the game responds by scaling the difficulty, scope or challenge-type akin to *Dialogic Instruction* (Nystrand 1997). For example, games like *Counter-Strike: Global Offensive* (2012) require good performance to expedite decision making:

P17: In terms of what I've learned, just playing as I want to play, is pressure. Weird as it sounds a game putting pressure on you. You're about to lose the game if I don't act right now, things like that. And decision making, making really quick decisions and making the best decisions, I'd say I learned that a lot from CS.

P11: stress management because you can't let it get to you. Something that I've learnt over time. [...] communication is the most important thing.

P17 states that games which put pressure on the player also act as safe spaces to allow the development of abilities to cope. The dialogue between the game and player exists between structured pathways, restricted choices and time pressure, where managing 'decision making' and knowing how and when to 'act' are developed as attributes. For P11, this lesson involves 'communication' more broadly in managing stressful situations, a clear example of video-game learning as dialogue. P18 expands, citing 'lying' as a facet of people and relationship management:

P18: It did make me a better liar though, I can formulate my words more, I can think more on the spot. If I'm annoyed it makes me be able to put on this mask which shows that I'm not annoyed. And I put it down to [games] as they [...] allowed me to control my spoilt little brat-ness. I've come far – it helped me form a better relationship with my parents. Just playing these and having those transferable skills from videogames.

Both *supportive* and *collective* spaces become *reciprocal* by extending collaboration, shared ideas and contrasting opinion, akin to 'Dialogic Enquiry' (Wells 1999). These qualities comingle in the skill of 'lying' as people and relationship management – assessing which messages will be well received by fellow players, or the game itself, and using that to develop the game towards joint objectives. Skills are developed through the supportiveness of these semi-anonymous, relatively risk-free environments, where the player cannot be seen, is free to make and discard connections at will, and is afforded space to experiment with 'how to talk to people':

P04: I was very shy when I was younger, but not anymore. When you're playing videogames, people can't see your face. You don't have that stage fright [...]. People are just listening. People get a lot of comfort from that, and you learn how to talk to people without that extra pressure.

Djohari and Higham (2020) contend that, in dialogic teaching settings, peer-moderation (instead of educator moderation) reduced self-censure and allowed for better reflection on moral and social values. This is what we have found in video-game play, where the freedom to explore and express amongst peers impacts positively on engagement with ideas about the world. It is here that we can see the forging of a dialogic learning environment existing at the intersection of the *collective*, *supportive* and *reciprocal* (Alexander 2020) between players and the games themselves.

Reciprocal and deliberative: operationalizing skills in dialogue with the game and players

Games arguably provide the modern workforce with skills that are valued in the 21st century, including creativity, maths, and computer literacy (Annetta 2009; Williamson-Shaffer et al. 2005). Gros (2007) details how games can have a positive influence on the

ability to read, use images and diagrams, develop spatial skills, and multitask. Having identified this trend in earlier research, it is important to understand which attributes obtained during play can be operationalised in broader environments. To start, we return to teamwork to see how dialogic learning experiences are further developed in-game.

P02: being part of the team [. . .]. If I'm ever leading a group of people, I'm almost used to doing that in strange way. When you're in that competitive mood it doesn't feel like just a game [. . .] like co-ordination.

Reciprocal actions where ideas are shared and interrogated, and *deliberative actions* where differences of opinion are resolved help learners place what they have obtained in context, and in positions that can be of use (Alexander 2020). P02 described this as co-ordination, having the confidence to lead and instruct in any dialogue, this requires careful listening. P02 recognised that a team is effective when a leader listens and draws upon the strengths of a collective, valuing the skills and perspectives of a group of protagonists, something which P01 mirrored:

P01: there needs to be one person in charge [. . .] Because every little detail helps, if someone calls out something I'll always take that into consideration. [Are you a better leader now from playing League?] definitely.

P02: always have confidence in what you're saying and the strategy you're telling people to do. And listening to your team members so they always feel heard, so they feel like they belong there.

Through dialogue, and the presence/resolving of different opinions, both placed what they had experienced (the strategic, collaborative approaching of a task together) in context. P01 operationalised this as something that can be shared, or applied to their life outside of games – they are a better leader because the role of a 'shot-caller' is to listen and make decisions based on listening. Prensky (2003, 2) similarly finds that players can 'take in information from many sources and make decisions quickly; [. . .] create strategies for overcoming obstacles. And [. . .] learn to collaborate with others'. Further, P14 was able to isolate this into a lesson:

P14: we had a guy that joined our team who was very young. [We said] 'how good is your map-reading?' because that's [. . .] essential for the game and he was like 'I have not a clue!' and we had to sit there for a good hour and a half and teach him how to read grid coordinates, contour lines – [. . .] an ordinance survey tour. He was telling us how he wasn't doing well in geography, the last test he had to do was map-reading and planning a route. [. . .] he passed the test and he was like, 'if I hadn't had been in this group then I wouldn't have passed!'

P14 shows how online play, dialogue, and shared objectives culminate in skills acquisition and development, the likes of which Annetta (2009) and Gros (2007) advocate. In this example, there is an essential attribute necessary for gameplay that can be provided by a community of players in dialogue with each other and their game. P14, on behalf of the learner, could recount how this *deliberative* and *reciprocal* play-environment fed concrete abilities that were applied outside of play.

This is the culmination of themes discussed so far: leadership and map-reading skills developed in-game, allowing an individual to operationalise attributes outside of the play-space. By getting lost in-game, having to re-trace, rework and adapt their

approach, the player approaches the task of map reading more effectively the second time around. This evidences an effective dialogue when we place the game itself in a *deliberative* relationship with the player. Should the player pursue an incorrect pathway, the (often) invisible hand of software is there to guide them back and provide a learning opportunity via trial-and-error. Moreover, videogames increasingly adapt their difficulty to that of the player resulting in a greater sense of accomplishment when attained. P08 saw success and applicability to the outside world in first-person-shooter games, where firing a gun is the main mode of play and shot accuracy is the obstacle:

P08: I improved skills and my reaction time actually increased because I got to do sport shooting in real life and these games gave me more of a sort of reaction time. They've got so realistic you can apply it to real life. [. . .]. I did find it did improve a lot of skills I had outside of the videogames. When you're in a competition you just have to trust your instinct and it's the same in videogames.

Garris, Ahlers and Driskell (2002, 446) propose 'four characteristics of games that makes them engaging educational tools: challenge, fantasy, complexity and control' where motivating forces such as challenge and curiosity should be fundamental in game design. In the context of *Call of Duty* (2003), P08 saw shooting as the challenge, the complexity being its difficulty and similarity to real life guns, and this type of input being the main way to exert control over the space. These motivating forces can be harnessed in two ways: intrinsic (the individual willingly plays the game because it is enjoyable) and extrinsic (the individual values the outcome/rewards of the game) (Garris, Ahlers, and Driskell 2002). For P08, both types of motivation were interwoven – that of enjoying shooting in-game (intrinsic), and the ways in which this player-game relationship is operationalised for use with real life guns (extrinsic).

This work shows how games must harness both types of motivation to be effective as learning resources and that a cycle of repeated engagement is crucial to helping to create a state of 'flow' (Admiraal et al. 2011) that keeps players coming back for more via the harnessing of enjoyment (Khenissi, Essalmia, and Jemni 2015). It is the interaction between both intrinsic enjoyment and extrinsic applicability that provides this game with educational qualities. In our data it was a reliance on extrinsic motivation without intrinsic – understood as the deliberate teaching and learning of facts and skills at the expense of enjoyment – that disconnected players from their dialogue with the game.

Cumulative: forming opinions about the world

There was consensus that 'facts' are dubious; whilst it is possible to learn them it is difficult to trust them. For this reason, games that claim factual accuracy are 'annoying' (P20) yet as Squire (2005) notes, titles like *Civilisation* (2016) can promote learning by requiring players to have knowledge of the game's external context. Games acting as a source of educational inspiration outside of the gaming context is echoed by Bass (2020), who found that students were inspired to learn more about historical time periods of games they had played. In Alexander's 2020 dialogic typology, this is where games and players shift their 'talk', skills and context towards arguments and ideas about the world. In the first instance

we can refer to ‘facts’ once again, and the way in which gameplay as a dialogue can prompt realisations about the world that were once elusive:

P01: in *Fallout* I learned that there’s wires under the oceans in real life. Hundreds of massive wires [...] and, well, must have been the way once you’ve actually thought about it. I never thought how we’re all connected.

Here we see how the game offers space for the player to look at the world in a different way. Whilst it is not uncommon for people to muse on how power, or internet, navigates its way across oceans, this ‘fact’ becomes *cumulative* when it is *play* that prompts the player’s introspective reasoning, and establishes new ways of seeing when it comes to the world that they occupy.

For P02, this involved an alternate perspective on the world – one from the position of vulnerable and marginalised positionality in the game *Shelter* (2013), which recreates the narrative of a refugee attempting to care for her children. They recalled ‘the reason that game stuck in my mind is because it [...] made me want to read and know more about it’ (P02). This represents a process that contrasts with classical classroom methods: being placed outside of one’s comfort zone in simulation prompted further research after the fact. It calls into question a strong media metanarrative that playing difficult experiences, like sexism or racism, is always – and by definition – a bad thing, since there exist contexts where having a conversation about difficult subjects can lead to the formation of more rounded opinions about the world. This theme is most easily spotted in history games:

P04: The parts I didn’t get taught about like Roman, Greek, Egyptian history. [...] ‘this is how women went around in the 1800s’, like the *Assassin’s Creed* games.

Hammar (2017) says that games not only educate players on history but teach us about modern society’s perception and cultural memory of earlier times. This is how we interpret comments that refer to ‘philosophical or historical stuff’ (P03) contained within playable, fictional past worlds where we can develop moral interpretations. Or the observations of P04 on how women may have dressed, or been treated differently in the 1800s, which reflects implicit learning opportunities through engagement with representative worlds in games.

Our participants used historical games to explore the provocative differences from that which we know, with the caveat that representations are only partially recreations. Alexander (2020, 129) refers to ‘understanding’ as the ‘product of encounters between different ways of making sense’. This is visible in the encounter between a contemporary player and different ways of being/seeing, or a perceived outdated morality shown in games. P03 presents a useful example:

P03: [In *Xenoblade Chronicles*] there’s a race war going on. [...] You have to come to the realisation that the people who are fighting are wrong and they shouldn’t have conflict in the first place. The story is how these robots are evil and they’re portrayed throughout the game like these murderous beings. You come later to their side of the world and learn that they’re actually nice people and they’re just living their life. [...] If it’s written properly, it can pose some philosophical questions.

P03 uses *Xenoblade Chronicles* (2010) to describe ‘philosophical questions’ – moments when some games, via interactive storytelling, pull the rug out from beneath the learned assumptions the player has developed. Through a trope like ‘good vs evil’ – analogous to

Bakhtin's chronotopes (Bakhtin 2002) – and by forcing the player to pick a side, the game/player dialogue can accentuate prejudice, positioning them as agentic in multiple pre-conceptions. The moment of revelation was therefore a powerful learning experience for P03 because they recognised their complicity in the dialogue. P03 identified these tropes of objective right and wrong as 'portrayed in different media', showing awareness of the multiple voices that exist around us, highlighting the intricate relationship between dialogue and citizenship (Varga et al. 2020), or how play allowed early years students 'practice in empathy' (Waite and Rees 2014).

The most pronounced and repeated empathic reflection was that of the nature of work, labour and capitalism:

P05: [Sims] If you don't keep on top of your job and arrive on time you can get fired and then you won't have money. If you have kids in the game, neglect them, they get taken away. Kind of depressing when you think about it. Whilst your sim is at work you can't even do anything. [. . .] You still have to pay your utility bills, even if your house price goes up and then you lose your job you've only got what you've got in your money pot.

Here, P05 describes relatively universal adulthood in *The Sims*. This observation is *cumulative*, emerging via trial-and-error interactions with the playspace, where attempts at action (quitting one's job, liquidating assets) are rejected for whatever reason (rising property values). *The Sims 4* (2014) goes as far as to restrict the player during working hours either by mitigating action or providing repetitive tasks to complete, exposing the utility of time as a resource under capitalism. That many games are effectively 'capitalism simulators' echo the findings of Denham and Spokes (2018) where these themes are obscured beneath a playable narrative of violence in Triple-A titles.

Not all players will take away lessons from these play experiences. To counter this, Lynch, Mallon and Connolly (2015) stress the need for a 'debrief' after play to understand the context of what has been learned, detangling the factual and fictional elements of the story.

Purposefulness: or lack thereof

'Debrief' (Crookall 2014; Lynch, Mallon, and Connolly 2015) is mirrored in the fourth element of Alexander's (2020, 131) typology:

Classroom discussion, though valuable and even enjoyable in itself, differs from everyday social discussion in that it is a means to an educational end. It must therefore square the circle of a Bakhtinian commitment to dialogue as theoretically unending with a time-limited commitment to the student's understanding and mastery of specific ideas.

This is where our interpretation of this framework differs from Alexander. For us, games are an unending process of dialogic play, not a structured educational experience with time limits and learning outcomes. Our participants were firm on this point: games should not strive to be educational on purpose, a point of no-return that undermines enjoyment and delimits flow. The inference is that effective forms of learning in videogames are implicit, that educational play is illusive in that to strive for it is the first step in the process of losing it, and to have it is to provide a space in which personal growth can be achieved through sustained engagement. The illusory nature of education in videogames is captured by P01 stating: 'games were made to be entertainment and that should be their primary

focus’, and that within ‘every game you do learn passive stuff’ which is most valuable in assimilating knowledge. P19 showed us how these lessons, without a formal debrief, can offer lived experiences in ways that traditional education neglects:

P19: if in GTA you buy a house, you learn about taxes and how to pay mortgages. Because school doesn’t teach us anything. My only view of how to pay a mortgage or buy a house is through videogames. My brother does own a business [in the game] and he literally picks apart like ‘oh if I do this, I can’t pay my employees’, so it teaches him quite a bit of responsibility. He really does think ‘oh so I’ll make so much from this job and if that’s the case then I can then spend it on this for the next job’.

The realities and responsibilities of bill-paying, business management, taxation and ‘opportunity cost’ would be received without enthusiasm in a traditional classroom lesson by many. They exist in mainstream gaming though, perhaps most visibly in the plethora of free-to-play mobile games such as *Clash of Clans* (2020) and *Homescapes* (2020). Elsewhere these themes are widespread, hidden beneath more conspicuous interpersonal violence. It is the presence of these violent themes, approached without a structured debrief, that participants saw as a primary obstacle to mainstream classroom adoption:

P04: I don’t think it would ever work – parents would never be happy. If you find a good way to implement it that’s fantastic. I really love coming out of a situation and feeling like I’ve learned something. If it’s in and subtly [...] that’s not going to make people think ‘this sucks and I don’t want to do this’.

Without debrief, videogames pedagogy remains a space of stifled opportunity, one where sustained engagement with learning materials is hamstrung by reputational factors and low exposure to structured modes of operationalisation. A Bakhtinian parallel is that of written fiction, where personal reflective growth and learning without debrief is a well-respected pastime, and tutor-assigned reading of stories with debrief is mainstream practice. Certain texts may fall foul of media and governmental censorship, alongside resistance from caregivers, but the prospect for education through gaming both with and without debrief can be seen. When it comes to narrative-heavy games, the parallels were clear for participants:

P07: Videogames have the ability to tell stories better than movies. They can portray stuff better than books. They have every benefit: music; they have visuals; they have sound design; interactivity. They benefit from every form of media possible [...] Engagement is the most important fundamental aspect of media, which I think is the issue with movies – it’s harder to engage an audience.

P07 argues that education and attention-paying (engagement) are co-produced, and the risk of debrief in this setting is that immersion might be broken. For educators then, and those interested in games pedagogy, our analysis of this data and application of this model suggests that the task at hand is the reverse of what convention might assume; we need to identify learning opportunities in games which already exist and are already being played by the audience whom we wish to have a learning impact on. We need to produce materials which can ‘square the circle’ after the fact rather than to encourage players to

engage in certain ways with specific games, or to design games with the specific goal of learning in mind. This is a shift away from gamification towards accessing existing cumulative lessons and completing that conversation with the appropriate audiences.

Conclusion

This dialogic typology for videogames is informed by dialogue-based engagement, building on Alexander (2020) and heutagogy. Self-directed informal learning, however, takes place both within and outside of the environment of video-game play. Throughout this framework are dialogic interactions between individuals and the games they play. Players voluntarily enter a dialogue with the game which continues once they leave the game-space and these dialogues proliferate with friends, work, or hobbies. Once an individual is invested in a dialogue with a game, they do so in a frame which promotes both explicit and implicit learning. We might see explicit learning typified in the near-universal ‘tutorial’ phase of a game, a necessity that unlocks the main narrative, but implicit learning is more complex.

Firstly, we have types of learning that occur primarily as lessons communicated from the game – often simplistic messages aimed at upskilling in ways that progress play, routinely applicable outside of play-space. Players also engage in supportive learning environments through types of challenge: achieving a certain goal with restricted resources, interacting with the player by closing off some avenues and opening others, creating a back-and-forth collective interaction towards abilities like problem-solving or time-management.

Secondly, we have demonstrated how these dialogues progress outside of the play-space, to (in)form conversations with the wider world, where players take skills like map-reading and apply them through physical negotiations and dialogue with others.

Thirdly we have a process by which these internal and external conversations about how the world operates are fostered into beliefs about life more generally. This occurs when games position players as having conversations from competing perspectives, or by embodying positionalities that are not their own. Here is where our data speaks to media narratives that videogames, and video-game violence, are wholly damaging to society. This idea can be countered by the heutagogical position of the player in relationship with the game: if it is possible to learn violent behaviour by playing a video-game it must be equally or more possible to learn, via altering one’s position in space, that violence takes many forms, or that being a recipient of, or enacting violence, feels uncomfortable depending on the disposition of the player.

Whether that more desirable lesson is made clear or not was discussed in the fourth instance – the need (or lack thereof) to square the circle. In the same way that dialogue can be teacher-student (Alexander 2020), dialogue between games and their players are informed by distinctive power dynamics. Although it is the player who chooses to begin and end interactions with the game, the game itself reproduces a series of pre-determined rule-based systems (Jull 2011). Contemporary game design often attempts to obfuscate such power dynamics by providing the player with the perception of agency, allowing a more self-directed role within the dialogue. These attempts at obfuscation are valued by players in terms of replayability. Our

participants revealed that games' ability to aid learning exists largely in their reluctance to do so, but it is in these power dynamics that debrief (Lynch, Mallon, and Connolly 2015) is most visible in gaming. There is rarely an explicit 'debrief', but the games popular amongst our participants do share the structure of directing play along pre-defined pathways. More importantly, they use established tropes, with easily recognisable consequences in their dialogue options, pushing back in familiar and often painful ways to make play challenging.

In many cases, this practice forced introspection on our participants in a way that could be considered the squaring of the circle. For example, established tropes include the ability of women to break glass when screaming in *Lego Jurassic World* (2015), where male characters cannot do so, or not being able to play as female characters in many action games – something our participants picked up on critically as it rubbed against the limits of their imagination and artificially restricted what they could achieve through play. Restrictive devices often serve to make games challenging enough to be playable but can also leave critical feelings of unfairness and injustice that strengthen resolve against such typecasting or pigeonholing. Similarly, the sorts of experiences highlighted in *The Sims 4* (2014) allowed our participants to recognise the degree to which their wider lives, aspirations and opportunities were potential controlled by the need for established forms of capital accumulation.

In debrief, we find the underlying contribution of this paper. In the case of digital games, organic play, and the freer engagement with stereotypes, injustices, or altered positionality, can be effective at evoking lessons about the world without structured debrief. The absence of formally structured or educator-led debrief is facilitating of those enlightening experiences, given its links with engagement, exploration, embodiment, and enquiry. Ultimately, we are advocating for altering Alexander's framework to draw more concretely on the bottom-up experiences of gamers, in line with in Persico's et al. 2019 argument about the importance of 'informal' learning contexts where gamers' experiences are situated at the heart of their learning ecologies.

There are some limitations to the findings. One limitation is that 'debrief' is difficult to pin down. Videogames, in their varying narrative and play styles, can incorporate educational elements with varying degrees of implicit, or sometimes explicit, debrief baked-in. Some titles deliberately lure players into introspection that could be considered as debrief – but most mainstream, widely-played AAA games do not force a critical agenda – something that our participants reflected on positively. Factoring in the diversity of experience and engagement is therefore a challenge to operationalise. Speaking of operationalisation, there is arguably an important reflection to be made about the methodological process of interviewing which could itself be considered a type of debrief. To further develop the framework, it would be beneficial for future work to explore other methodological approaches to understanding gamers' experiences.

However, the implications we have outlined are clear. There is demonstrable merit in, and opportunity for, educators working from the bottom up to illuminate existing lessons in the gaming young people enjoy, rather than imposing lessons from the top down via gamification. In future, this work can be supported through dedicated pedagogies of popular, Triple-A game franchises. Our contribution is to provide a way of seeing these existing lessons via four stages of educational attainment that are currently being had in mainstream, popular, blockbuster videogames, and to underscore how these experiences

are organic by necessity. Our contribution suggests that an important pathway in games and learning is to have participants self-identify and apply lessons that may have been had in gaming, with games that are not traditionally thought of as learning platforms as a way to complement existing pedagogic-ludic approaches.

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