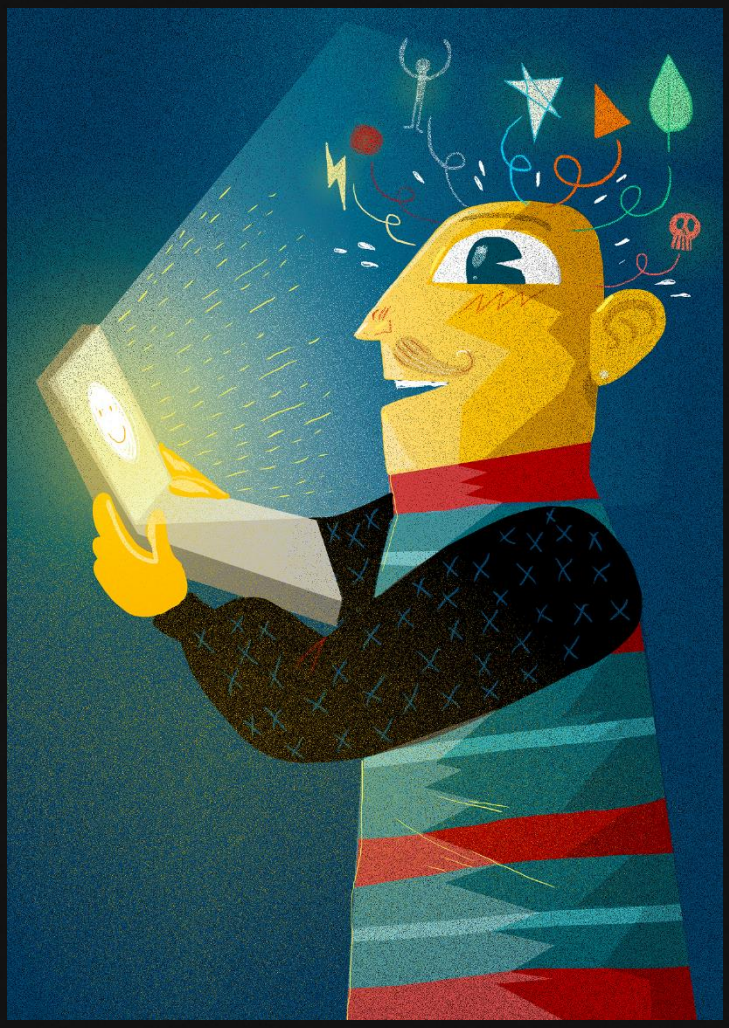
Game Environments



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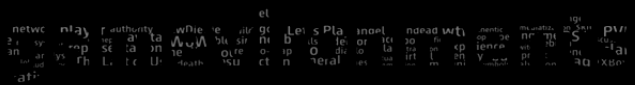

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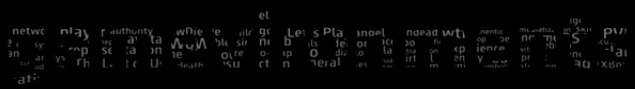

Peer-reviewed Article

The Allegorical Build. *Minecraft* and Allegorical Play in Undergraduate Teaching

Darren Wershler and Bart Simon

Abstract
An ongoing issue in game-based learning is the way in which knowledge might, or might not, transfer between games and the *real* world. One historically prevalent problem that game-based learning researchers have highlighted is the risk of students simply learning to play the game itself rather than learning the subject matter that the instructor is pairing with the game. In another scenario, a game might instead over-emphasize the subject matter and impose stricter rules, which in turn makes self-actualizing student-driven learning impossible. In this article we present a game-based teaching method where educators can address these issues by collapsing the *real* and the virtual into one another: *the allegorical build*. The allegorical build occurs when students use the relationships they have developed to in-game procedures in order to think about a range of other topics outside the game, as defined by the instructor. With reference to student work, personal interviews and other data, this paper describes the process of teaching with the allegorical build and the two techniques that underpin it *(infrastructural reflexivity* and *refamiliarization*). The method was tested in the context of a fully flipped pandemic-era version of a course on the history and culture of modernity; our findings show that the allegorical build was effective in creating an open space for collaborative critical thought and reflection on difficult and abstract course material.

Keywords: Minecraft, Allegory, Undergraduate Pedagogy, Refamiliarization, gamevironments

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Toward a Pedagogy of Allegory and Games

Imagine a situation where you know a fair bit about a particular academic area of study – for example, the history, culture and technology of modernity. And say you also know a thing or two about Mojang's *Minecraft* (2009), which, at this point, is still one of the best-selling video games in history. And say you also have a friend who knows something about *Minecraft*, but nothing about the theory and history of modernity.

What if there were enough connections between the two things that you started wondering if, under the right circumstances, you could use *Minecraft* to teach your friend about modernity? That is the possibility that we explored with Video Games and/as Theory – an undergraduate course at Concordia University in Montreal – from January to April 2021. We have been using *Minecraft* as the central game in this course on and off since 2014, but under pandemic conditions, with the support of the Concordia Lab for Innovation in Teaching and Learning (LITL), we decided to try something a little more adventurous.

We were curious about the utility of using a game as a teaching platform under pandemic conditions, and whether it might alleviate Zoom fatigue (Fauville et. al. 2021) and create a greater degree of student engagement. We are also interested in whether team-based student learning in such an environment can impart "future skills" (ESDC Canada 2021) like collaboration, planning, project design and management, interpersonal communication, and reporting. In these respects, our experience with teaching the course parallels other research studies on engagement and collaborative learning with *Minecraft* and other video games (Hébert and Jenson 2020).

The main research question we want to address in this paper is whether games can be used to facilitate learning about abstract historical and theoretical concepts, and what type of pedagogical and infrastructural frameworks this type of game-based learning requires. Digital game-based teaching often occurs (and is researched) in settings that focus on STEM subjects, history, geography, or other more *tangible* fields. Furthermore, such research is also often conducted in primary or secondary school settings. By using *Minecraft* in an undergraduate course on the history and culture of modernity, our research considers how games function in more abstract higher education environments. In order to contribute to the digital game-based learning discourse, this paper articulates the pedagogical approach that led to our course's design, the forms of student engagement and some of the outcomes of their projects, with the desire to ultimately bring our humanities and cultural studies approach to games into the field of game-based learning.

As we explain below, our approach draws on an old but powerful technique for making sense of representational media such as poetry and literature, but also image-based media such as painting or photography, in terms of their potentially allegorical relation to the material worlds that such media produce. An allegorical approach to teaching eschews conventional didacticism and simulation as modes of learning. Instead, it seeks to emphasize the learner's active role in forging a relationship between representation (in a video game for instance) and some aspect of the world. With respect to video games specifically, our concern is to develop an approach which takes us in a different direction to the increasingly dominant simulation mode of game-based learning. We do not want to use game media to simulate the world for the learner but rather to spark their allegorical imagination. In an old paper on the topic, Hans Christian Arnseth (2006) describes research on games

in education as following one of two trajectories: *playing to learn* or *learning to play*. Arnseth (2006) writes,

> "Regarding playing to learn, the emphasis is on learning, which is to say that some content or skill should be the end result of game playing. As such, knowledge and skills are treated as effects or outcomes. In regard to learning to play, on the other hand, the emphasis is on the activity of playing. As such, learning might be regarded as an integrated part of mastering an activity, in this case, gameplay."

This is a fair way of describing what have since become the dominate paradigms for thinking about games in educational contexts.

Playing to learn research often emphasizes quantifiable outcomes in terms of knowledge (test scores) or skills (performance) and tends to focus on the interactive and entertainment qualities of video games as positive sources of motivation and engagement in otherwise traditional learning contexts. Most previous research on the use of *Minecraft* in education falls into this camp (Nebel, Schneider and Rey 2016). Educators working mainly on the primary and secondary school levels have used *Minecraft* effectively for teaching concepts and conveying information in math, geometry, history, geoscience, art and language (Sharp 2017, Garcia-Martinez 2014). Their success is part of the impetus behind Microsoft's adapted version of the game, *Minecraft Education Edition* (2016), a platform which gives teachers greater control over the content of the game as well as lesson plans and a user interface for tracking student performance.

Learning to play research focuses instead on the intrinsically educational value of playing games, arguing that by playing a game for its own sake, students are, in a sense, learning how to learn. From this perspective, some scholars have contended that games make positive contributions to base literacy and numeracy skills, logic and

problem-solving, as well as social skills pertinent to collaboration, communication, emotional intelligence, ethical reflection, and creativity (Gee 2003, Banks and Potts 2010). *Minecraft* has figured prominently in this line of research because of its popularity, its relatively inoffensive content, and accessible sandbox style of play (Davis, Boss and Meas 2018). For instance, the base *vanilla* version of the game has been the cornerstone of the successful nonprofit Connected Camps program at the University of California at Irvine, which grew out of the MacArthur-funded Digital Media and Learning Initiative focused on the use of digital media in facilitating collaborative learning and creativity[i].

These twin paradigmatic trajectories in educational research on games have not altered much over the years. Our aim here is less to revisit or assess the literature on *Minecraft* than it is to suggest a third trajectory, which puts *learning to play* and *playing to learn* in the service of one another. Following past critical analyses of the relationship between games and learning (e.g., Linderoth 2010, 2012), our pedagogical model rejects the idea that gameplay on its own terms is enough to accomplish constructive learning, especially in formal educational contexts like schools or universities. At the same time, attempts to tether gameplay to defined (let alone measurable) educational goals result in the most problematic forms of gamification (O'Donnell 2014). What we are left with is gameplay on the one hand and educational goals on the other. We are not suggesting there is anything new in this; indeed, it is a concern that appears in much of the literature on games-based learning. In our context, our goal was to resist the reconciliation of gameplay to educational goals (and vice versa) as much as possible; to let them sit, perhaps uneasily, side by side, shifting the responsibility for learning from the teacher and educational designer to the students, who may, if they so choose, make their play educational (or not).

In our *Minecraft* course on modernity, the idea is not to play *Minecraft* to learn about modernity; nor is it about learning to play *Minecraft* in a class about modernity. Instead, our class is designed to put the two elements – modernity and *Minecraft* – into a potential allegorical relationship that must be activated by the students-as-players. Our intent was to scaffold this process by creating a situation where students moved between reading texts from the syllabus, listening to podcast lectures, playing *Minecraft* and talking about it all in course assignments and discussions on *Discord* (2015). While our general pedagogical approach might work with a variety of video games and interactive digital tools, in our experience, *Minecraft* provides an ideal platform with which to experiment and develop our ideas. Because *Minecraft* players habitually refer to their in-game creations as *builds*, we call our *Minecraft*-based pedagogical model for this course *the allegorical build*.

Research Methodology

In order to provide a nuanced examination of the allegorical build concept, we wanted to both provide insights into our own working processes as the designers of the course in which it was being used, as well as the students' experiences taking the course. The research presented in this paper is based on our work in the course *Video Games and/as Theory*, which runs from January to April at the Concordia University, Canada and focuses on the history and culture of modernity. Because of pandemic lockdown conditions, we ran the 2021 version of the course as a *fully flipped* class. The students spent the hours they would normally have been sitting in the classroom working in teams on our custom *Minecraft* server[ii], using it as a kind of experiential laboratory. At some other point in their week, they listened to the course lectures, which took the form of 30-minute audio podcasts, and did the course readings, which concerned various aspects of modernity rather than video games[iii].

During the course we conducted participant observations of student work, and logged our own experiences creating the course and its components. The course consisted of several class projects, and for each project we conducted unstructured interviews with individual students to get them to vocalize their work goals and experiences. When it came to student work in particular, we observed it both by looking at in-game activity and the students' building processes, as well as student conversation inside and outside the game.

As the instructor, Darren Wershler was more or less in constant contact with the students through *Minecraft* itself; university courseware *Moodle* [2002]; and the class chat rooms in *Discord*[iv]. While we both collaborated in the creation of the course and have worked on it together, Bart Simon's role in this research was to lead a separate research team that was more focused on conducting interviews and observing, while being less involved in the hands-on day-to-day execution of the course.

While *Minecraft* is a significant part of this research, observed in-situ game activity is not the primary focus of the study. A significant part of our data comes from observing students' text conversations in *Minecraft* and *Discord*. Through various pieces of middleware, we have connected *Minecraft*'s in-game chat to *Discord*; everything people type in-game shows up in the *Discord* server, and typing in the *Discord's #game-chat* channel results in the text also appearing to those who are currently in the game. This provides us with logs both of the students' general course conversations, as well as the text conversations students had while playing the game. In this paper, we present findings emerging from several class projects in the course and use our participant observations alongside interviews and selected chat data to

highlight some important themes we discovered during the projects. The specific details of our setup with *Minecraft* and *Discord* will be described throughout the paper.

Using *Minecraft* in Higher Education

In the *learning to play* tradition, Jeffrey Brand et al. (2014) write about *Minecraft* University, which was part of an undergraduate class on the *Computer Game Industry and Policy*, aimed at exploring the constructivist learning potential of the game in a course about the game industry. Students worked on a project to make a version of their university (Bond University in Australia) in the Creative mode of the vanilla game, attended lectures on the virtual campus and wrote papers about game industry topics, which they incorporated into their *Minecraft* world (as *book* objects in the game), with mixed success. The project is worth noting because while we start with the same intuitions about the advantages of using *Minecraft* in the motivation and engagement of students and the platform's overall accessibility and playability, our project is fundamentally different.

Many readers will of course already be familiar with *Minecraft* or even *Minecraft Education edition*. The game is incredibly popular; it commands cultural attention, and even those who have not played have heard about it or know someone who plays (Thompson 2016). *Minecraft* is easy to play but difficult to master; those who play it invest great amounts of time, often returning to the game again and again over several years. However, *Minecraft* is targeted at an audience of children and youth, which makes it somewhat challenging to use in a university setting. We ran the twin risks of infantilizing both our students and the subject matter of the course, but we

deployed the game in a way that would minimize this risk, as well as help actualize our attempt to provoke allegorical play.

The flipside of the risk of using *Minecraft* in an undergraduate classroom was a decided advantage: many students had a pre-existing understanding of the game either because they had played themselves or knew friends or siblings who played. At the same time, *Minecraft* does not read as a *gamer's* game (many self-professed *gamers* use it as a pejorative), so the problem of students not identifying as gamers and disqualifying themselves as *good-enough* players was abated. This prior cultural positioning of the game certainly helped us to overcome some students' hesitation (if not outright disbelief) that they would be playing a videogame all term, but we also worked hard to disabuse them of the idea they were playing a game for children. In our pedagogical approach with *Minecraft*, we required the students to A) play a custom modified (*modded*) version of the game, which we configured ourselves, and B) play the *Survival* mode of the game rather than Creative. Both of these pedagogical elements work in our efforts to destabilize students' assumptions about how to *do well* in the course as well as unsettle the ability for the instructor to maintain control over the forms that gameplay might take.

Modded *Minecraft*

Crucially, we do not use the vanilla version of the game in class. Instead, we use *modded Minecraft*, a catch-all term for instances of the game which rely on the PC/Mac java edition plus any number of additional free and sometimes open-source *mods* or addons created by players and developers from all over the world. Mod installation requires extra steps and some basic literacy with computers, but by mixing and matching collections of mods (called *modpacks*), it is possible to create an

almost infinitely customizable experience of the base game. Note that this is different from designing and building a game, or even a mod, to teach about modernity (though we have also been working on this process).

By playing modded *Minecraft*, we leverage the general cultural awareness about the game but avoid infantilization. Both the content of the mods and the challenge of learning how to play with them added a level of sophistication and maturity to the game experience – even more so because many mods are imperfectly coded and lead to server crashes and glitches with which the students must contend, significantly raising the bar on the degree of technical knowledge that is required of them. At the same time, the modded game is new and challenging even for those who have played the vanilla version for years. The use of mods also allows us to leverage and deepen the emergent and sandbox play qualities of *Minecraft* as there was so much more in the game than any one student would be able to experience. This sense of continuous and theoretically endless possibility had many students expressing interest in staying on the server to help with research long after the course had ended.

The most important reason for using mods, however, is due to the flexibility we required to configure game content and mechanics to better align gameplay experience with the syllabus of the course. We designed the modpack and the syllabus in parallel, choosing mods that might come into dialogue with the readings and vice versa.

For example, an important element of any course on modernity is a discussion of industrialization and its consequences. The mod called *Immersive Engineering* (2015) adds large mining and processing machines to the game, plus the ability to make

steel, and a power generation and circulation system similar to electricity, which can transform vanilla *Minecraft*'s generally late-medieval/early modern pastoral world into an early 19th century industrial environment, or a late 20th century steampunk revival of Victorian aesthetics. The mod (which is freely available and has over 69 million downloads) works in the game whether one is reading about industrialization or not, and the blocks and items of Immersive Engineering are available for students use as much (or little) as they like. Yet the inclusion of the mod opens allegorical possibilities which are not available in the vanilla game, such as an interpretation of Mark Fisher's (2018) arguments about capitalist realism (a version of late capitalism that has retreated from both present and future, and thus relies on archaic cultural forms) – one of the major themes of the course.

Survival Mode

As mentioned, we play the game in Survival mode rather than in Creative mode, which is how *Minecraft* is usually employed in educational contexts. The difference is critical for our pedagogical model. In Creative mode, there is no fighting, and you cannot die; you have access to all the possible blocks in the game to build with as you like. It is this mode that most commentators refer to when they talk about the creative and sandbox elements of play in *Minecraft*.

Survival mode is the normal mode of the game, and it is what creates the conditions of possibility for the allegorical play with which we are concerned. Students must mine and process every block they use, and they live with the constant threat of death due to carelessness or monster attacks (though we do use a mod that, in case of death, preserves their belongings in a neat grave for later retrieval). The core gameplay remains intrinsic to the experience we are asking the students to have, and

we do not wish to bracket this for some learning objective. In fact, the case is just the opposite: gameplay is a condition of the learning objective.

Playing in Survival mode also has an important secondary quality; it requires students to think about infrastructure, production, and sustainability as well as design. Building a city in our game meant building the *preconditions* for building that city as well: transportation networks, resource extraction sites, industrial processing facilities, power generation to run it all, and elaborate logistics systems to sort it. Students are forced to confront the affordances of the game and develop strategies for overcoming challenges (whether navigating through the world, defeating monsters, or building a house without falling). The question becomes how any particular line of thought in terms of the course readings and lectures might relate to those strategies. Without the need to deal with the challenge endemic to the modded Survival game, the experience would be entirely one-sided; in Creative mode, players impose their visions of the world without constraint from either the game or the course material. In sum, playing modded *Minecraft* in Survival mode in a university classroom creates the conditions of possibility for the allegorical build.

The Allegorical Build

Allegory is a powerful interpretive tool that has a long history of use in philosophical and critical thinking, from classical antiquity to contemporary materialist investigations of digital media and culture. It uses assemblages of events, actions, and objects as an occasion to think through complex ideas.

After the long dalliance of Romanticism with the symbol (Brittan 2003), a figure which is supposed to stand for something else (often something absent and transcendent)

in a relatively stable and often unproblematized manner, late modern thinkers like Walter Benjamin (Cowan 1981) retrieved allegory from a state of relative underuse as part of their attempts to address the immediate material messiness and jarring uncertainties of their world. Postmodern (De Man 1997, Jameson 2002) and contemporary (Galloway 2006, Wark 2007) critical theorists extended and amplified this work, using allegory as a device to interrogate first modern culture and then contemporary digital phenomena, notably video games. As such, allegory provides an appropriate framework for our course, which foregrounds the tensions that emerge out of studying modernity from an early 21st century perspective.

In his book that deals most extensively with the concepts of modernity and modernism, Fredric Jameson (2002) writes extensively about allegory. Citing the work of Paul De Man, who helped to reinvigorate critical interest in allegory, Jameson (2002, 107) notes that allegory is a way of dramatizing the rejection of what he calls "a naïve and representational immediacy" during the process of interpretation. For Jameson (2002, 113), allegory does not evoke something transcendent, or even a static object; it is a process that takes place in time, and necessarily involves "unavoidable and indispensable" moments of initial misrecognition of the objects we are studying. That is, allegory is the process of critical thinking itself, in which our initial (naïve, historical, representational) assumptions about the literal meanings of some object or phenomena often prove to be too convenient, and we find that we have to put them into tension with some more reflexive and provisional ideas (Jameson 2002, 113), because "no single thought or theory encompasses any of them" (Jameson 1991, 168). For example, using allegorical methodology, we might begin with the idea that an individual work is somehow exemplary of something – say, that *Minecraft* might be a "frozen allegory" (Jameson 2002, 125) of modernity as a whole. That initial assumption would then be troubled or even possibly dispelled by

a second realization (that *Minecraft* is a fully digital object and has far more to do with present attitudes about history than with the lived past), even as we begin to realize that the larger allegorical process concerns learning how to think critically, by putting these ideas in relation to each other.

One of Jameson's students, Alexander Galloway, specifically took up allegorical methodology as a way of thinking about video games. Galloway's (2006, 87) search for techniques of analysis appropriate to video games begins with Jameson's (1991, 168) description of "allegorical interpretation as a kind of scanning," arguing that this description opens the path for a "digitization" of an allegorical approach that would neither add to the endless stack of hermeneutic interpretations and readings, nor make claims to demystify the work by revealing some ostensible hidden meaning (Galloway 2006, 86-87). Galloway (2006, 91) describes video games as "control allegories," arguing that video games do not hide their systems of control; if anything, they flaunt them, meaning that there is no need for demystification. Think for a moment about the grid that surrounds and positions everything in *Minecraft*, making it findable, legible, and useful (Simon and Wershler 2018). The grid is one of the master control techniques of modernity, but digital culture perfected it in the form of the database. We learn to play the game, literally, by aligning ourselves with the grid and synchronizing our behaviour with the game's control systems.

The form of the control system of any piece of software is an *algorithm*: a specific set of instructions for solving a particular type of problem. Algorithms do not have to be performed by computers; you can do them when you are doing long division or following a recipe. But computer programs are implementations of algorithms in particular coding languages. To do well at a game, you must make some inferences about what its algorithms specify and then meet those specifications as best you can.

As you learn to play a game like *Minecraft*, you are becoming what Bart Simon (2015) calls "close to the code" meaning that you are developing a sense of the results that various algorithms produced in the game itself. This does not mean that you *understand* the code or would recognize it if it's suddenly appeared in front of you on the screen. What it means is that you are effectively building allegories of the game's algorithms. Galloway and his contemporary and occasional collaborator Mackenzie Wark cram the two words together into a portmanteau and call this process an "allegorithm" (Galloway 2006, 91, Wark 2007, 31-32).

While playing video games, we construct allegorithms by conducting experiments. In the low-resolution voxelized world of *Minecraft*, players feel as if they have more control over the conditions that produce the world as they experience it ... that things are somehow testable. There is a long tradition of videogame players engaging in *theorycrafting*: semi-empirical experiments in particular game worlds in order to answer questions about the algorithmic procedures of the game, when they could be answered definitively by reading the code (Paul 2011). One of our team members, Nicholas Watson (2017), coined the term *procedural elaboration* as a description for such activities in *Minecraft*, where the production of descriptive procedural knowledge through experimentation is a form of gameplay in itself, rather than a means toward the development of instrumentally effective strategies.

This, typically, is where a game studies approach would stop. What we want to think about with this course goes one step further, considering the relationship of the allegorithm to the critical readings and course lectures. *This* relationship is what we refer to as the allegorical build: the moment when students use the allegorithm to think about a range of other things, in this case (but not necessarily), a series of core readings concerning the theory and history of modernity.[v]

Our course syllabus was deliberately designed to scaffold the long process of the allegorical build. It presents students with the choice of one of four possible ways to fulfil course requirements, ranging from largely independent research and writing to various combinations of group project-based work and written assignments, with groups persisting over the duration of the term. All students participated in an initial warmup exercise, which both provided some instruction in basic *Minecraft* procedures, and gave them a low-stakes sense of how they would be marked in the class. Each group then chose from the syllabus one or two project themes to develop and submitted a short proposal for approval. These project themes are associated with the topics of one or more readings from the syllabus. Completing a given assignment requires both a given team's in-game project and individual reflection papers from all team members.

The allegorical build is not speedy. It begins with hesitations and the realization of misperceptions, then slowly but deliberately negotiates its way through a series of in-game activities and critical readings toward a third thing. That third thing is not simply a theoretically informed understanding of the game (which would be the goal in game studies); nor is it a better understanding of the critical material (a media-historical or cultural studies approach), but an ongoing, intensive form of learning in which the theoretical and philosophical potential of the readings is doubled by the experimental and technical milieu of procedural elaboration in the game, transforming both components in the process (Parikka 2010, 96). In order to describe how the allegorical build takes place, we need to think about the role of material experience in our pedagogy, and how our specific ideas about course design create the conditions under which learning occurs. To that end, we make use of two more concepts: infrastructural reflexivity and refamiliarization.

Infrastructural Reflexivity

In their work on community and affinity, James Paul Gee and Elizabeth Hayes (2012) emphasize the importance of *well-designed spaces* that constitute the learning system around a particular cultural practice for learners of all types. We pay an enormous amount of attention to the design and infrastructure of that space. As a result, one of the things we are certain of is that we can establish extremely high levels of engagement via our competent use of *Minecraft*, and *Discord* – platforms familiar to and beloved of students. This in turn created the conditions of possibility for learning. Our pedagogy fuses material and allegorical practices; that is, material practice in the game becomes the occasion for thinking about something else *in addition to* the game.

One of the concepts we have developed to help describe the conditions of possibility for learning outcomes is the idea of *infrastructural reflexivity*. We do *not* desire to make the platform for learning flawless and therefore invisible. Rather, we *want* bugs and glitches to occur, because they foreground the material conditions of learning and action. We are very concerned, for instance, to allow for multiple pathways for thought, play and collaboration (which glitches and bugs and emergent phenomena allow), but we also want to hedge those in with a particular set of concepts and ideas conveyed in the reading and lectures about modernity and various modernisms. Importantly, these concepts emphasize the need not only for experimentation, but also the real likelihood of failure. Throughout the course, we accepted and even encouraged failure to learn as a possible outcome; allegory always allows for subsequent rethinking because it recognizes error as part of the process. What matters is the qualitative experience of learning that some students had. Importantly, we never tell the students to stop playing. Some students only ever played; they never developed much allegorical capacity. But without risking that some students

would just think that they got away with playing *Minecraft* in university for a term, we would not have had the possibility of the allegorical build occurring at all.

Refamiliarization

The other concept that helps to explain why the allegorical build can occur is Johanna Drucker's technique of *refamiliarization* (2008). Victor Shklovsky's modernist technique of *ostranie* (1917), which Svetlana Boym (2005, 586) translates as both "distancing" or "dislocating," and "making strange," was based on the premise that defamiliarization might have the power to transform everyday life into something new. But Drucker points out that, in a 21st century context when "everything is already made strange, de-contextualized, thrown out of relation to the system of which it is an expression" (2008, 29), there is little if anything to be gained from further estrangement and/or denunciatory critique. What she suggests instead is

> "that we recover the networks and circumstances of production – of meaning, value, work, ideology. Forcing and forging these networks of association brings them to the fore." (Drucker 2008, 41)

As in ostranie and various other modernist defamiliarization techniques, the goal of refamiliarization is to undo the articulations of perception and cognition that use surface effects and simulacra to blind us. However, as Drucker notes, surfaces are also material, and we need to understand how they are produced and how they work. The point for her is to reconnect people with "what we already know" (Drucker 2005, 31) – that we are always embedded in systems of power relations where all manner of forces and agents continually enact their interests (Drucker 2005, 30) and produce us as subjects (Drucker 2005, 41).

We favour refamiliarization because Drucker (2005, 33) emphasizes that it "is always flawed, unfinished, and partial" – both like our objects and the modes of analysis we habitually employ, including allegory. So, the question might be, what do we already know that we can connect to games in order to break out of the discourse that says *Minecraft is a game for kids/people with ASD/architects*, or arguments about gamification, educational technology, retro aesthetics and the exhaustion of culture?

In practical terms, refamiliarization is *not* the same as returning to normal, because after COVID-19, normal is gone. Instead, refamiliarization is a very material practice of "making un-strange" (Drucker 2005, 20). By focusing on the process of becoming, it reveals what we first take as static objects to be events (Drucker 2005, 30). For Drucker, this literally introduces "room for play in a bureaucratically managed universe" (Drucker 2005, 42): a possibility space where before there had been no alternative.

Refamiliarization in *Minecraft*

As we have described, playing *Minecraft* in our class is not playing *Minecraft* as most people know it because we use a modded version of the game, consisting of both amateur mods we have selected, and several mods programmed by our own team. Modded play itself is refamiliarizing. We begin with what the players already know and then extend outward, providing context by articulating the game to other objects, people, discourses and institutions in culture. In this sense, refamiliarization functions in a manner similar to allegory.

One of the first challenges for many of the students was the deliberately broken aspects of the technology – which was a large part of our pedagogical process. As expert consumers of digital media, students expect a consumer-quality encounter

with enterprise-grade software: they feel entitled to continuous uptimes, easy installations on any hardware and glitch-free play. Conversely, most *Minecraft* mods are incomplete and will never be finished. Further, they routinely cause conflicts with each other, which can and does cause individual client packages and sometimes the whole server to glitch, slow and crash, even on high-end hardware. For us, moving away from the expectation of seamless experience is a way of introducing complexity, and delineating the difference between being a customer and being a student. Working in a slightly broken environment is also a constant reminder to students that we are not engaging with a simulation of some sort; because the servers crash and the mods glitch, players can never confuse the game with the world. Modded *Minecraft* is always on the verge of breakdown, which forces players (students and otherwise) to attend to the conditions of production as well as the symbolic content. As per Drucker's theorization, combining mods into one pack allows for the occurrence of unexpected, emergent behaviours, which pay off in terms of teachable and theorizable moments.

Because we have been pursuing this research for many years, we know how to provide the resources for dealing with brokenness rather than running away from it. By framing learning with game play, we reduce the stress that comes with brokenness; it is okay to lose your life to a glitch when you just come back to life again. But students also began to see that their experience as a class member involved being embedded in a network of mutual obligation. If they were not mindful, their in-game projects could literally keep other students from being able to play and therefore complete their class work. Conversely, their initial acts of generosity toward each other resulted in a cooperative environment, with teams regularly providing not just advice, but physical, material and emotional aid for each other's group projects.

Refamiliarization in the Classroom

Teaching online during a global pandemic was defamiliarizing enough that keeping students from checking out entirely was an immediate and pressing task. Choosing *Minecraft* and *Discord* as platforms was a deliberate technique for fostering student engagement; many of them know and have used these platforms for years. We had to make sure we had their attention before we could risk anything.

The class began as a kind of open conspiracy: many of the students were in a sort of *I can't believe we are playing a game for class* mindset, because the time on-server was not directed or organized except by group structure and their own project proposals. We developed this approach years ago, when Darren regularly began classes by assigning students Pierre Bayard's (2007) "How to Talk About Books You Haven't Read" as a way of moving them from hermeneutics and close reading into thinking about the ways that materiality, power relations, and regimes of circulation position objects in culture. The initial sense that students have of *getting away with something* is just the beginning of them doing work that is actually *harder* than regular classroom work. Our pedagogy leans heavily on the agency of learners; refamiliarization is about helping students to realize the agency they already have.

One of the best examples of refamiliarization at work has to do with events in the very first week of class. Some students figured out access to the server a couple of days early and, being students, immediately began building at the spawn point, where all players appear for the first time. One of the first things one of the students built, in the interest of being helpful, was an amphitheater for the class, complete with lighting and a screen at the front. On the first day of class, almost all of the

students filed their avatars into it and just stood there, waiting for something to happen. Eventually, they worked it out in chat that we had not built the amphitheater and had no intention of lecturing to them.

What happened next was key, because we had envisioned the course as an exercise in peer collaborative knowledge production. From our perspective, the allegorical build would happen in groups, or not at all. Without any prompting, another student jumped into voice chat and, while others fended off the undead hordes that arrive at nightfall, began holding an impromptu workshop on rudimentary *Minecraft* skills: punching trees to harvest wood, which can then be turned into a basic set of tools. We spoke to the student briefly after class, thanking them and asking if we could announce that they would continue the workshop in next class, but providing no direction about how to do so.

At the beginning of next class, we discovered that the student had transformed a nearby field into a procedural workspace, with neatly divided plots for each of their peers, containing a water source, a bit of fertile farmland, and enough supplies in a chest to construct a tiny house, a bed, and plant a food supply. This emergent act of generosity and leadership set a tone for the rest of the term, which was characterized by the same sort of reciprocity, with teams trading each other for necessary materials, and frequently making and distributing gifts for each other. In this instance, refamiliarization was about the students realizing that they were part of a group with similar goals and similar worries.

The Allegorical Build: Class Projects

As a result of regular discussions in various class *Discord* forums during the course of the week, we were soon getting the sense that the students were beginning to allegorize the readings. The hard evidence of successful allegorical builds began to arrive in the reflection papers accompanying the first group projects. The quality of the allegorical build changed significantly over time, as we passed through the initial building phase, the midterm reflection papers and the end-of-year writing, so we will provide some examples from each of these phases of the class in turn.

Habitat 67

It is easy enough to show students some images or provide them with readings about a topic like modernist architecture. Consider Moshe Safdie's Habitat 67, for example. This iconic Brutalist housing development in Montreal is a frequent touchstone in courses on modernism and architecture, so it was not surprising when several groups expressed interest in using it as a research object, and one eventually settled on building a version of it. If we had been conducting the class in *Minecraft*'s Creative mode, the students could have attempted to simulate this sprawling and complex concrete structure in order to derive a 3-dimensional sense of the use of materials, and the arrangement of space and light. The experience would already be a different experience from simply reading about Habitat – closer to working with Computer-Assisted Design (CAD) software or constructing an architectural maquette. But in *Minecraft*'s Survival mode, the blocks that players use to create Habitat 67 (or any structure, for that matter) must come from the landscape, and they require various sorts of processing. For example, in our modded game, students needed to construct and power machines in order to turn sand and gravel into concrete. Their structures must also be protected from wandering monsters, some of which are able to blow up buildings and otherwise wreak havoc with student work. The practicalities

of the game required the students (working in groups and discussing their strategies) to adapt their understanding of Safdie's architectural experiment to a fictional world where the consequences are allegorically related to (rather than a simulation of) the actual material and cultural context in which Safdie was working. The idea is *not* to literally represent a real-world context. Instilling infrastructural reflexivity – that is, reminding students that they are playing a game – is a way of pointing out that there are always gaps between models and their historical referents. What we want to do is create the cognitive and imaginary space for students to consider the differences as well as the similarities, to research their chosen objects on their own and formulate interpretations tied both to the course material (which serves as a starting place for thought) and practical experience of trying to accomplish something in the game despite the various challenges it presents.

As one student writes reflexively in a paper on the project:

> "Translating Habitat 67 into our *Minecraft* world ironically undermines almost every notable element of the real life building, beyond its iconic appearance. At the core of Habitat's modern allure is the way in which it was constructed, with modular elements assembled in a factory, then stacked one on top of the other with the help of a crane. This standardization and quick assembly were cornerstones of the building's modernism, which is completely undermined by our *Minecraft* homage. Forty blocks in the air, teetering on the edge of some hastily erected scaffolding, counting each L shape's outline out block by block, I wished that I had the ability to preassemble our units on the ground, and pop them into place. My teammates, blocks in hand, filled in the units, again, block by block, and then it was once again time for me to count out the outline for the next floor. This act, of placing each block by hand, felt like traditional craftsmanship, and hardly the modernist exercise this building is meant to embody. In this way, our Minecraft build is a tribute to a modern approach to home construction that it can, in many ways, never be." (student, Personal Interview, 16 April 2021)

This is the kind of thing we are looking for. In this passage, the student uses the material experience of building a version of Habitat by hand in the game as a way of highlighting one of the core elements of modernist architecture: industrial prefabrication. Prefabricating the modular housing of Habitat by simulating the actual methods employed in its construction is not a literal possibility in the game. However, through their reading and practical game activities, students are able to interpret and imagine the difference that prefabrication made as a facet of modernity writ large. Such an interpretation would not be as forthcoming in Creative mode, where the feeling of *traditional craftsmanship* would be obviated by the pull-down menus of blocks one can place with impunity. Still other events related to the construction of Habitat in Survival mode. Fighting off monster invasions and travelling to the End (a dangerous and difficult-to-access in-game dimension) in search of End Rods (rare materials the students used to create interior lighting that would suit Habitat's modern design aesthetic) became occasions for thinking through acting in the game. In such scenarios, students are always split between the concerns that playing the game *as a game* requires, and the course framing in which those concerns are situated.

The Village

In another class project, students took on the task of modernizing a *Minecraft* village. In an interview, one student had the following reflection on her thoughts about this process:

> "The Slack and Wise piece [2015] was about colonialism and stuff like that – it got a lot of wheels turning, because of like our proximity to the village and how I had already started going over to that village and taking their stuff. And I feel like there had already been discussions in class and in lectures about entitlement to resources. And I leaned into that, you know, I was like, I'm just gonna, like, go over to the village, I'm gonna steal all their terracotta they're

> not using it, they don't care. Um, and then. So yeah, we, you know, these wheels started turning about having a project that involves the village and our entitlement to the village .... But like, you know, we were talking about our plans for the village and then the prof. was like, oh, like, make sure you do all this research about, like raids and about zombies and like you're talking about including rail lines, but like villagers don't use rails, like, they'll get stuck in them, but it's not useful for them. And I was like, Yeah, no, that's the point. And I like wrote this paragraph about, like, why the fact that our improvements are useless to the people, or people, you know, to the moms that live in the village is like, kind of the point of the project." (student, Personal Interview, 16 April 2021)

Here the student moves fluidly between the course reading, the comments of the professor to consider the game procedure of monster invasions (the need for walls or lack thereof); rail transport in the context of a lecture on modernity and logistics; and the students' experience of playing with the *Minecraft* village as if they were colonizers, while thinking imaginatively about the lives that the NPC villagers might live (including the last bit about the *moms that live in the village* – an indirect reference to the writing of Carolyn Marvin (1988) on technology and domesticity, also on the syllabus). What is also important in this case is that the village project developed over almost half the duration of the course, so that the students could iterate on their interventions with the village in response to their group conversations and their developing understanding of the course material.

This example contrasts with more discursive analyses of *Minecraft* as reinscribing settler-colonial ideologies through its mechanics and representational politics (López, de Wildt and Moodie 2019, Dooghan 2019). On its own, the game may certainly be understood this way, but when playing allegorically, it becomes possible to critique, re-interpret and potentially contest – or re-inscribe – the dominant ideology of the game, as in the case of the student above, who did so consciously. Crucially, however, the student was not told how to interpret *Minecraft*'s village dynamics, but was

instead presented with a variety of textual and discursive resources with which she could formulate her own critique, as well as test it against her experience of the game on the one hand, and textual accounts of the relation between colonialism and modernity on the other. The texts and class discussion drew the student's attention to different aspects of her gameplay, and her gameplay focuses and sharpens her understanding of the text.

Allegorical pedagogical strategies like this eschew the didacticism of the claim that *Minecraft* reproduces settler-colonial ideologies and racism by asking students to explore these issues themselves, scaffolded by the instructor, the class discussion, and the syllabus. Critical understanding comes from experiential play of the game in relation to a conceptualization formulated by the student. It is this situation which may open the possibilities of *Minecraft* counter-play of the kind articulated by Marleena Huuhka (2019).

The Murder Hole

When, in addition to their building activities, students start writing to meet the formal requirements of the course, the allegorical build enters another phase. One of the kinds of builds that appear on many *Minecraft* servers is called a mob grinder. These are structures that players create in order to safely process (*grind*) monsters (*mobs*) for the resources and experience points that they drop on their death. It would not surprise anyone familiar with the game that there is a project on the course syllabus called *Meatpacking I,* for which the instructions are simply *Build some sort of mob grinder*. What we paired this project with on the theoretical side was *Mechanization and Death*, from Siegfried Giedion's *Mechanization Takes Command* (1970). Over the span of half a century, writers like Giedion, Vilèm Flusser (1999), Bernard Tschumi (1996) and David Edgerton (2007) have looked at this topic from a variety of different

fields, concurring that slaughterhouses exemplify both the triumphs of modernity and its worst failures, often simultaneously.

Predictably, there are several such structures on our server, designed to process everything from chickens to Endermen. Most of these mob grinders are constructed according to a deeply pragmatic, unadorned aesthetic, out of whatever materials happen to be lying around. The one the students dubbed the *Murder Hole* is different in several key respects. It is a traditional, fully functioning zombie grinder[vi], which produces both the loot that zombies drop and grants the player operating the device the experience points (XP) that killing zombies generates (acquiring XP is crucial for other game procedures, like the production of enchanted objects). As in a cutaway illustration or an anatomical model, the Murder Hole is constructed in a specific manner utilizing transparent blocks that makes its inner workings visible to the operator, though they would normally be hidden. Even the Murder Hole's decorative elements (raw meat, slime of various sorts, hanging vines, candles, skulls and bones) have a pedagogical purpose, demonstrating the queasy relationship between spooky kitsch and mechanized slaughter in the game. In sum, its design effectively turns the average *Minecraft* mob grinder into a teaching tool.

All of the student reflection papers that concerned the Murder Hole made reference to Giedion's work, and were articulate about the similarities and differences between slaughterhouse architecture in-game and in historical circumstances. So far so good; here was evidence of the success of the allegorical build, in print. But where we sat up and took notice was when we realized that the best reflection papers we received on this project were allegories not for Giedion's work, but for other readings on the syllabus: Heidegger's (1977) "The Question Concerning Technology" and Sam Binkley's (2000) "Kitsch As Repetitive System." The sophistication of the analysis is

impressive. In a paper on kitsch, the student sums up the complex nature of what they have produced:

> "Our capacity for emulation in *Minecraft* is limited by the blocks available to us. As a result, while we've conveyed a 'familiar 'message' of slaughter, the subtextual layer of cultural significance is somewhat lacking (143) [...] while our imitation evokes the sentimental value that kitsch places on feeling, players are an extra layer removed from the reality we have tried to emulate. They bear witness to not just an imitation, but an abstraction of an imitation of reality; thus, they must search deeper in the decorations we've used to discern the kitsch aesthetic we aimed to provide." (student, Reflection Paper, 18 March 2021)

Meanwhile, the Heidegger paper concludes:

> "From Heidegger we can see that the essence of technology predisposes players towards this revealing by mining their worlds into being. Though each played world is brought-forth by its players, the sheer inexhaustibility of the game, by virtue of its near-infinite capacity for generation, suggests that no framing could ever fully encapsulate it. Small comfort, I'm sure, for the zombies we already have at our standing reserve disposal." (student, Reflection Paper, 18 March 2021)

When we suggested that the allegorical build was a third thing, this sort of thinking is what we had in mind. In these papers, which serve as an expression of these students' potential (certainly not the only one, but the one most visible to academics), the game is not reduced to a prop to support the reading, and the readings do not become the justification for play.

The allegorical build became even more evident, and more sophisticated, in the work that came in at the end of term. As a final example, we turn to another student project: Plandemonium.

Plandemonium

As we described earlier in this paper, students in the class were assigned to groups based on their choice of one of four possible profiles, which defined the relative proportions of written and group work they wished to undertake. For the Planners, the grade breakdown consisted of the mandatory warmup exercise plus a single, term-length construction project with a written report due at the very end. Their project was to convert a village into a recognizable modern architectural style, while ensuring that all of the procedures that normally occur in a village having to do with the AI-powered Villagers remained functional. The group drew students with a mix of competencies: three strong *Minecraft* players who were also skilled academically (including both the player who built the ampitheatre and the one who built the peer classroom), and two new players who were inexperienced with *Minecraft* and in the middle of the class academically.

True to their name, from the beginning, the Planners *planned*. In addition to screenshots of developing builds and the usual phatic communication about who was where on the map doing what, their *Discord* channel was full of links pointing to possible sources of inspiration from the annals of modern architecture; maps of possible building sites; lightboard sketches of working designs; brainstorming summaries; constructive feedback; screenshots and even and readings on non-hierarchical decision-making processes that had influenced the way they wanted to run their group.

By the time they located a site for their city (which they eventually named *Plandemonium*), they had decided on a project largely influenced by Kisho Kurokawa, Kawazoe Noboru, Kikutake Kiyonori, Otaka Masato, and Maki Fumihiko's *Metabolism 1960: The Proposals for a New Urbanism* (1960), and the Nakagin Capsule Tower,

constructed in 1972. They had examined and debated the merits of Brutalist, Deconstructivist and various site-specific projects along the way, all of which influenced their final work. They were also acutely aware of the dialectic of failure that is an inextricable part of modernist experimentation and dug in with relish, as this exchange in *Discord* indicates:

Planner Student Member A:	"Ooooh, yes. I really like the idea that we can maybe go beyond what's expected of modernism. Or rather the standard understanding of modernity and go into the movements that were trying to sprout against the time."
Planner Student Member B:	"ya me too. i don't want to just rebuild a failed modernism. the point of modernism is that things can be organized better. it's unachievable. but our failure should be valiant." (Discussion on Planners *Discord*, 15 February 2021)

The Metabolist city itself was a hugely ambitious project, requiring vast amounts of infrastructure to produce. The group researched, tested and leveraged the affordances of the mods we had selected for the class to make them operate in a completely unexpected and emergent way. Briefly, they captured, bred and trained a vast number of bees which, in modded *Minecraft*, can be employed in the fully automated production of the rarest resources in the game. It is complex and difficult, but in the span of a couple of weeks (these students spent hundreds of hours each on the server over the term), they constructed a gargantuan processing facility and had managed to produce wealth beyond the dreams of *Minecraft* Croesus. We are still trying to figure out how to talk about it, but the subject sufficiently large that it will require its own paper to address.

The final city was aesthetically pleasing in *Minecraft* terms, and also true to the spirit of Metabolist architecture. As with all utopian projects, it was necessarily a failure in some senses, but a resounding success in terms of shifting the boundaries of the thinkable for the students ... and providing them with new tools for thinking in the process. What mattered to us most, though, was what happened in chat as the Planners sat down to write their papers.

Our hypothesis about the allegorical build suggested that what we would see was the students applying the skills they had developed in-game to the task of producing academic work, and happily, that is exactly what happened. They used the same spaces and the same collaborative techniques to describe the implications of their work in terms of both class readings and their own secondary sources. There are clear and explicit examples of peer scaffolding in the chat as well. The academically stronger students not only suggest secondary sources to the others and offer encouragement, but collectively and collaboratively work through entire sophisticated arguments with them. As a result, though there was some range in quality, all of the papers were much better than we expected them to be.

Conclusions

Games as instructional technologies are able to do much more than engagingly deliver didactic course content. If we leverage the allegorical play element that exists in all games (because the worlds depicted in games are not real) we may open up space for collaborative critical thought and reflection on difficult and abstract course material. The idea of the allegorical build as pedagogy is to open spaces of interpretation within the game that both enrich play and are inflected by the course material. The student-player remains the key agent in this story, bringing these

elements together (or not). All that we can do as instructional designers is set the conditions of possibility for the student's engagement in allegorical terms.

More polemically, we contend that most educators do not use games to their greatest potential in classrooms, because they assume that games are about moments that are more fun than the actual work. That dichotomy kills the potential of using games for learning. What we saw in this class is a flat ontology in action: academic research, game playing, cultural theory, thinking and shit-posting all exist on the same plane. This is, emphatically, not gamification, but a lesson in refamiliarization: cultural techniques can be rearticulated to different ends, serious and unserious by turns. Brokenness is the precondition for learning. When offered a well-scaffolded opportunity to interpret their actions, students as players will become players as students.

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[i] Further information can be found on the project's website: https://connectedcamps.com/.
[ii] After years of running our *Minecraft* instances on whatever hardware was handy, we have a secured a dedicated high-end server for this project at meloncube.net, a speciality hosting service for Minecraft worlds. Because we use a modded version of the game, play is frequently resource-intensive and can result in significant downtime without a powerful machine as host.
[iii] The final course syllabus is available here: http://residualmedia.net/wp-content/uploads/2021/07/2020_11_24_ENGL398B_syllabus_v10.pdf.
[iv] *Discord* is a social media network that allows anyone to create public or private channels that support text, image, streaming video and audio communication. It is extremely popular among students, and we have been using it to supplement our teaching and research for several years. We also use various pieces of middleware to connect *Minecraft*'s in-game chat to Discord; everything people type in-game shows up in the Discord, and typing in the Discord's *#game-chat* channel results in the text also appearing to those in the game.
[v] This is a more qualified approach than the stance Wark (2007, 31-32) takes in *Gamer Theory*, where the allegory proper refers to the relation between "the intuitively knowable algorithm of the game and the passing, uneven, unfair semblance of an algorithm in the everyday life of gamespace [the world outside the game]."
[vi] Naturally occurring *Minecraft* blocks called *spawners* generate mobs in a 9×3×9 area around them when a player is within 16 blocks of them. Making a Zombie spawner involves creating a dark room with a Zombie Spawner in it and a space where a player can activate the spawner without coming in direct contact with the Zombies it makes. Part of *Minecraft*'s procedural mechanics is that mobs will swim upstream, so a waterfall inside the room acts like an elevator, carrying the Zombies up to an overhead corridor where a second stream of water pushes them along a hallway to a chute, where they fall back down to the player's level to the inside of a narrow booth. The Zombies take enough damage in the process that they can be easily dispatched with one swing of a weapon when the player attacks them through a narrow slit, which is placed so the Zombie can't return the blow. Under the Zombie's feet, a device called a Hopper collects the items the Zombie drops on its death and funnels them to a chest. The XP orbs that a player earns after slaying a monster flow through the slot to the player.