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PERSSON'S *MINECRAFT*

Lori Landay

"Create New World:" this is one of the things you can do every time you launch *Minecraft* (see Figure 49.1). When one of the more than 100 million people across the world who have purchased *Minecraft* does that, a brightly colored three-dimensional landscape comprised of one-meter cubes is procedurally generated. There are no instructions, only composer C418's music encouraging you to venture forth into a world of possibility. Like other sandbox games, *Minecraft* is about world-building; players interact with the game environment rather than pursuing a game-defined goal. Unlike other sandbox games, *Minecraft*'s procedurally generated worlds are endless, resolving before your eyes into areas that beckon to be explored, mined, built upon, goofed around in. The famously "blocky" look, reminiscent of LEGO bricks, hits a sweet spot between realism and abstraction, with enough detail to differentiate materials and plenty of room for the player or viewer to involve their imagination. The world is alive, with animals, other creatures, and plants that grow.

More than a Game

The Minecraft phenomenon, which emerged from the game Markus Persson created in 2009, encompasses a community of players, modifications (mods) of the game, servers on which to play it, instructions and tutorials, a platform for creative works about (and set in) the Minecraft world, and an educational tool, to name a few. In Persson's description:

> MINECRAFT is a sandbox fantasy adventure game set in a world made up entirely of one-meter blocks of different materials. The player can pick up those blocks and move them around, and use them to craft items and tools. Monsters can spawn in dark areas and during the night, which plays nicely into a general fear of the dark.
>
> (Persson, 2011: 24)

What began as a Java applet Persson posted on the indie game developer forum TIGSource has grown into the first virtual world to be adopted in the mainstream, and will shape the participatory media expectations of a generation. As of 2016, *Minecraft* runs on Mac, Linux, and Windows computers; Xbox 360 and Xbox One; Playstation 3 and 4, Playstation Vita; WiiU; and Gear VR. There is a *Minecraft: Pocket Edition* (2012) for iOS and Android mobile devices. It is developed in Java, which can be reverse-engineered by programmer-players to make mods, special versions of the game with new objects, graphics, and gameplay. And although Persson

Figure 49.1 Screenshots from *Minecraft*.

Figure 49.2 Screenshots from *Minecraft*.

did not set out to be a public figure, he became what *Rolling Stone* called "gaming's biggest rock star" (MacCallum-Stewart, 2014).

Minecraft is more than a game. "Minecraft is basically this generation's Lego or even this generation's microcomputer," says video game designer and scholar Ian Bogost (quoted in Mac, 2015). What is it about *Minecraft* that made it so popular and influential? In no particular order, (1) *Minecraft* is fun to play, see, and hear; (2) the core mechanics are easy; (3) players learn by doing; (4) players can advance and still be challenged because there are many ways to play in an infinite game; (5) it can be social; (6) it fosters creativity and exploration because there is no central goal; and (7) it is a platform. Many commentators have waxed poetic about *Minecraft*, but perhaps Peter Molyneux summarizes it best:

> "The gift was giving people a world to play with. *Minecraft* trusts in people's ability to find their own entertainment in a digital experience, to choose whether they're going to build or destroy. It is a glimpse into a new world of digital entertainment."
>
> (Cheshire, 2012)

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Developing a World

The origin story of *Minecraft* is well known, due to media coverage and the open development process that Markus Persson used from 2009 onward that integrated community input. At MineCon 2011, when the first nondevelopment version of *Minecraft* PC 1.0.0 was officially released, Mojang showed a video that began with a voice-of-God narrator comically booming over a black screen, "A man by the name of Notch had an idea: a cave game, a sandbox seemingly endless, an adventure that had everyone saying, 'Just one more block.' This man, that game, those blocks have brought all of you here to celebrate what has become *Minecraft*" (Hat Films, 2016). The video then shows key moments in the development: single player, multi-player, survival, leading up to the introduction of the iconic creepers (Classic), dynamic lighting, new sound engine, crafting (Indev version), infinite terrain, minecarts, tracks, dungeons, (Infdev), redstone, biomes, slimes, boats, survival in multiplayer (Alpha), the Nether, dispensers, beds, tamable wolves, weather, pistons, improved combat (Beta), and teasing The End.

Indeed, a man called Notch, a programmer working in the booming Swedish video game industry and also making his own games, did have an idea for a game, one that was inspired by elements of other games that Persson played and liked, such as *Dungeon Keeper* (1997), *RollerCoaster Tycoon* (1999), *Dwarf Fortress* (2006), and *Infiniminer* (2009) (Goldberg and Larsson, 2013). From May 2009 when Persson posted a Java applet for other players and game developers in the indie online community TIGSource onward, Persson's development happened in a public sandbox, with his peers providing feedback in the iterations that followed. Persson asked questions about possible features, responded to comments, and took polls. The name *Minecraft* was even suggested by a player on TIGSource. Persson didn't bother with instructions because he released the game on TIGSource, where people immediately posted examples of what they did in the game. The only place people could get the game was from Persson, and he kept the game open for modders to develop their own special versions of *Minecraft*, as long as they didn't sell them.

During the alpha stage, *Minecraft* was playable for free online and also in survival mode in its /indev/ form. Players purchased the game for half-price ($13) and got free updates afterward. Still working a day job at Jalbum, Persson speculated about his development process:

> "As for being a viable model, I don't know. What is? I definitely think you can get a long way by being fair to your customers and having a close relationship with them, and selling "pre-releases" while developing the game is a great way to both fund development and to gauge how well the things you've added so far works (both technically and commercially)."

> (Handy, 2010)

Persson made these comments weeks after he had to stop replying to every email he received because of the volume and about six months before he cofounded Mojang AB with Jakob Porsér and Carl Manneh in Stockholm, Sweden. It had been Persson's dream to support himself making the kind of games he wanted to make, and *Minecraft* offered that opportunity.

Minecraft, first as developed solely by Persson and then by Mojang (which means gadget, or thingamabob, in Swedish), was always part of the indie scene and community. Not only did people discuss *Minecraft* online, and share information on YouTube and in forums, but they created millions of works in *Minecraft* housed all over the Internet. Despite growing extensively beyond one developer discussing his game on a forum with players, the company Mojang continued to include the player/modder community through the forums and

@notch
Markus Persson

Minecraft Beta 1.6.5 is out. Let me know how it is.

Figure 49.3 A tweet from Notch.

other social media like Persson's tumblr blog, *The Word of Notch*, and especially Twitter. The company Mojang developed *Minecraft*, to be sure, but in collaboration with its player community. Development in a sandbox of a sandbox game led to a new paradigm of authorship. Scholar Adam L. Brackin argues:

> Authentic gameplay gives functional agency to the player resulting in emergent gameplay decisions, and if pushed far enough with non-linear and ergodic models of gameplay, effectively gives authorship to the audience. This shift in authority in *Minecraft* has driven Mojang's content development process itself.
>
> (Brackin, 2014)

The inclusion of the players goes beyond inviting feedback during the extended development phase and an End User License Agreement that encourages modding and content creation to require community resources to learn how to play the game. For example, Greg Lastowka calls "a consequence of Persson's lack of interest in writing" an instruction manual as "an ingenious design decision" because players find help in the multitudes of wikis, blogs, forums, and videos about *Minecraft*, all of which are easily accessible online, but are outside Mojang (Lastowka, 2012). Official Mojang Books (*Minecraft: Essential Handbook* (2013), *Minecraft: Redstone Handbook* (2013), *Minecraft: Construction Handbook* (2014), and *Minecraft: Combat Handbook* (2014)) are "packed with tips from Minecraft experts FyreUK, YouTube sensation Paul Soares, Jr., and redstone expert CNB Minecraft," superstars of the player community (Milton et al., 2014: 6).

One YouTube superstar known as Minecraft Chick ended up employed by Mojang as the "Director of Fun." An extrovert in a company full of introverts, Lydia Winters was happy to be in the spotlight, and terrific at conveying her enthusiasm. She explained her position:

> My task it not so much to run the community as to supply it with material and just support everyone out there. The community really runs itself, it was there before I came aboard and it has a life of its own. To try to control it or govern it in any way wouldn't work. It would only be weird to even try.
>
> (Arnoth, 2013: Kindle Locations, 491–494)

As scholar Esther MacCallum-Stewart concludes, "by fostering a close relationship with fans and players, Persson and Mojang created an environment in which their respect and debt to the community are apparently reciprocated through design" (MacCallum-Stewart, 2014: 139). The mods and features the community provided enhanced *Minecraft*, and only increased the players' social investment in the community.

The close and direct relationship with players is one of the elements of the "indie spirit" that *Minecraft* embodies. *Minecraft* is widely acknowledged as a breakout indie success. One person

developed a game outside of a video game industry organization, distributed it himself, hired like-minded people for a company he founded with friend/colleagues, and it has become one of the best-selling, most played video games of all time. By any measure of success—whether economic, popularity, recognition via awards, influence on its own field, ubiquity in the culture, inspiration of other works, or community participation—*Minecraft* is an indie game that made good.

It is hard to imagine a scenario in which *Minecraft* could have been developed inside the video game industry in which Persson had been employed. As Goldberg and Larsson write:

> At Midasplayer, Markus's ideas were too odd, and the game he wanted to make had nothing to do with those that had already proven successful. At Avalanche, a programmer couldn't just drop into the director's office and suggest a new project. In fact, when we ask his old bosses, they admit without hesitation that *Minecraft* would never have become a reality inside the walls of their companies. The idea was too strange, too difficult to fit into their existing product catalog. Most of all, it was untried. They would never have dared.
>
> (Goldberg and Larsson, 2013: 237)

Modes of *Minecraft*

Indie development shaped the content of *Minecraft*. Persson explained:

> Discussing with the players and listening to suggestions, I learned a lot about how the game could be played and what directions were most interesting to others. Usually, people played it in completely different ways than I did. For example, when I added more complex game rules to the basic game engine, it turned out a lot of people really liked the free building from the engine test, so I kept it around and called it 'creative mode.'"
>
> (Persson, 2011: 26)

Persson's access to feedback and willingness to develop based on it had major ramifications. The inclusion of both creative and survival modes (and the addition of adventure and hardcore modes, to a lesser extent) is one of the fundamental reasons *Minecraft* is open enough to encompass all that it has spawned. As scholar Sean Duncan concludes:

> *Minecraft*'s tensions between construction and survival have led it to be seen increasingly more as a gaming *platform*, one which is overtly afforded by the game's design and which has led to exciting experiments in games for learning, game play as an instructional space, and games as playgrounds for the exploration of artistic goals.
>
> (Duncan, 2011, 10)

With "cheats" enabled in the World Options, players can switch between construction and survival.

Gameplay stems from the core mechanic of *Minecraft*, placing and destroying blocks. Beyond that, in Survival Mode, secondary mechanics include crafting, mining, building shelter, and finding food. With the addition of the Ender Dragon and The End, there is a goal (although achieving it doesn't end the game, but leads back to the spawn point in the Overworld). Flexibility is a key characteristic of *Minecraft*. There are both single-player and multiplayer

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ways of playing, which means *Minecraft* is adaptable enough to support different kinds of players and different kinds of play. Moreover, a player can open his or her single-player world to others on a LAN (local area network) or on a server (hosted independently or through the monthly paid subscription service, Minecraft Realms).

Repeatedly in interviews, Persson has said he prefers to dig caves and explore in *Minecraft*; he does not build huge elaborate structures. That he still enabled those who prefer a different kind of gameplay than he does prevented him from making *Minecraft* just one thing and kept it a platform. There couldn't be a better example of how important it is for game designers to playtest and incorporate feedback into their iterative design process, especially when it is different from their personal preferences. Persson personified what game designer and educator Tracy Fullerton calls a "playcentric" approach to game design, which foregrounds the player experience through iteration based on feedback (Fullerton, 2014).

Vanilla and Modded *Minecraft*

Not only did Persson develop *Minecraft* with feedback from players, but players had more direct input in the form of mods, texture packs, maps, and other player-created content. "Audience-led production" like mods, all kinds of narrative, parody songs, tutorials, and more are the result of an international digital community co-creating *Minecraft*. As Redmond writes:

> *Minecraft* is a commercial franchise wrapped around a core non-commercial fan community. While the fan community does not legally own the franchise, this lack of formal ownership is also irrelevant. The reason is that fans co-produce, co-regulate, and co-distribute the videogame in close concert with the commercial franchise.
>
> (Redmond, 2014)

There is "Vanilla" *Minecraft,* the original game released by Persson and then Mojang. In *Minecraft*, a player, represented by the avatar Steve, destroys and places blocks in an algorithmically generated three-dimensional environment made of blocks of different materials (sand, grass, iron, leaves, wood, and so on). The generated natural world is categorized by biomes (ecosystems) demarcated by climate, with the geography, animals, plants, weather, and colors they nurture. "Mobs" of spawned creatures populate the *Minecraft* world, from animals that can be tamed, eaten, or killed for resources and villagers with whom players can trade to hostile monsters to fight or be attacked by, with or without provocation depending on the monster. The iconic creeper, for example, pursues players quietly to sneak up and explode, causing damage to structures and players. In contrast, wolves can be tamed, but if a player hits one wolf, the entire pack will attack. As *Minecraft* developed from Alpha to Beta to the Release version, more specific areas of the physical world were introduced, including the Nether and The End, each with its own battles to be fought against hostile creatures in order to find rare objects and achieve objectives.

Mods (short for modifications) change the game content from "Vanilla" *Minecraft* released by Mojang. Modding precedes *Minecraft*, but one could argue that within *Minecraft*, modding has become mainstream. The history of modding parallels the history of video games as an industry, first as part of an extension of programming that only experts could do; then as video games became big business, modding was in conflict with the intellectual property of the game companies. In the early 1990s, id Software built *Doom* (1993) in such a way that modders could create their own files without destroying the original game. As long as modders made it clear that their mods were not official id products, they were allowed by id to sell their

mods. id Software's policy, and its sustained success with shareware and other strategies that deviated from the rest of the video game industry, provided a model for Mojang, including their End User License Agreement (EULA). "Both companies were founded by developers who share many of the same values as the early hackers of the 1950s and 1960s" (Christiansen, 2014: Kindle Locations 505–506).

There are thousands of mods that provide additional content to modify the audiovisual, kinetic, and interactive aspects of *Minecraft*. Some are client-side files that players download to their computer that makes changes to the game's jar file; others are server-side mods that make administering privileges on servers. Mods have to be updated as new versions of the official code are released. A Google search for "Minecraft mods" returns over twelve million results; YouTube reviews of mods often include the URL of where to download the mod in the description. Bukkit, a *Minecraft* server mod for easier server creation and management, was acquired by Mojang when the company hired its four main developers in early 2012, signaling Mojang's commitment to multiplayer and mods (Bergensten, 2012). PC versions can be modded because the source code is in Java; the mobile version can also be modded, but because it is written in C++, it requires more steps, including jailbreaking an iOS device on which to play it. The console games cannot be modded, and mods cannot currently be installed on Mojang's server hosting service, Realms.

Invention, Completeness, and Consistency

In order for an imaginary world to be "believable and interesting," writes Mark J. P. Wolf, it has to have "a high degree of invention, completeness, and consistency" (Wolf, 2012: 33). Invention occurs in four areas: the nominal, cultural, natural, and ontological (Wolf, 2012: 35–36). Few existing things in *Minecraft* are given new names, so there is little nominal invention, but there is much cultural invention, with the creation of artifacts, objects, customs, technologies, and ideas. For example, crafting, the technologies of mining, enchantments, potions, the villagers' and other mobs' customs, the gliding wings (elytra), and many more items are only one aspect of cultural invention in *Minecraft*. Players are a fountain of cultural invention, both within Vanilla and in mods.

The realm of natural invention is where Persson's *Minecraft* shines. Although the iconic Creeper was invented accidentally, Persson's approach to world-building and game development was open enough that he embraced it. Persson serendipitously saw the potential in the coding mistake that generated a long, tall, green object instead the intended pig. "The way they moved had a very creepy feel to it, so I named them "Creepers" and painted them green. Turns out this was a good move, as Creepers have become something of an icon for the game by now" (3935Persson, 2011: 30). The sound they make also was the result of lucky experimentation, as composer Daniel Rosenfeld recalls, "That was just a complete accident by Markus and me," he says. "We just put in a placeholder sound of burning a matchstick. It seemed to work hilariously well, so we kept it" (Stuart, 2014).

The Overworld is similar to Earth geographically, but Persson also invented two other dimensions, replete with creatures—the hell dimension known as The Nether (full of mobs of zombie pigmen, ghasts, magma cubes, Endermen, and blazes) and The End (home of the Ender Dragon, Endermen, and shulkers).

There is also significant ontological invention, which "determines the parameters of a world's existence, that is, the materiality and laws of physics, space, time, and so forth that constitute the world" (Wolf, 2012: 36). The roughly twenty-minute day-night cycle, with night shortened if a player "sleeps" in a bed, is one example of an ontological invention that

shapes gameplay and player experience, setting up a norm that, for example, is absent in The Nether.

Perhaps the most significant aspect of ontology in *Minecraft*, though, is redstone, a material embodiment of a force; it is an element with the properties of electricity. Players build mechanical and electrical devices with redstone, from simple constructions such as toggles and switches to turn on lights or set off TNT to building working clocks, elevators, self-building constructions, and even graphing calculators. Redstone dust can be laid out like wires in circuits; redstone circuits can power pistons that push blocks to open doors or create game mechanics like traps; and clocks and other signal controllers regulate complex contraptions or devices.

Redstone is one of the ways the high degree of agency in *Minecraft* reveals itself; as a simulation of the principles of circuitry, it works very well, and it is in the fun, accessible *Minecraft* virtual environment in which kids have already become comfortable and empowered. It demonstrates how players can continue to use *Minecraft* as their skills and interests grow. Studies have demonstrated how children achieve social recognition through mastery of skills like redstone in *Minecraft* (Dezuanni, O'Mara, and Beavis, 2015). Redstone has aspects of all four of Wolf's categories of invention: nominal (renaming electricity), cultural, natural, and ontological.

To return to the three necessary qualities of invention, completeness, and consistency, *Minecraft* may appear incomplete with its low-res look and simple animations, but its world gives the "illusion of completeness" (Wolf, 2012: 39). A *Minecraft* procedurally generated world from the infdev version forward has "infinite" maps, which as Persson clarified in a blog entry, are "not infinite, but there's no hard limit either. It'll just get buggier and buggier the further out you are" (3935Persson, 2011). One YouTuber, known as Kurt J. Mac, is walking to the "Far Lands," the place on the *Minecraft* map where the glitches happen. He started in June 2011, filming several times a week, and has traveled the equivalent of 2,266 kilometers as of May 31, 2015, which is "only 18.06% of the way to reaching the Far Lands located at 12,550,820 meters" (Farlandsorbust.com, 2016) (Parkin, 2014). There is something quixotically noble about his trek that garners attention. In *The New Yorker*, Simon Parkin speculates:

> By one measure, Mac's endeavor is motivated by the same spirit that propels any explorer toward the far reaches of the unknown. Today, we live in a world meticulously mapped by satellites and Google cars, making uncharted virtual lands some of the last places that can satisfy a yearning for the beyond, as well as locations where you are simply, as Mac puts it, "first."

> (Parkin, 2014)

Lastly, when we consider consistency, we have to wonder, does the world ask to be taken seriously? Recall the anecdote about how Persson and Rosenberg judged their placeholder sound for the creeper to work "hilariously well, so we kept it" (Stuart, 2014). *Minecraft* is a ludic world that uses inconsistencies as part of its aesthetic, similar to how inconsistencies in how the town of Springfield in *The Simpsons* are represented are used as sources for comedy, "or merely place the desire for variety and humor above the need to be consistent" (Wolf, 2012: 43).

Wolf clarifies, "How imaginary worlds work (when they are successful) depends on how they are constructed and how they invoke the imagination of the audience experiencing them" (Wolf, 2012: 17). One of the ways *Minecraft* invokes the imagination is through its audiovisual and kinetic aesthetic. It looks "retro," simplified, blocky, and abstracted. *Minecraft*

is distinct from games with realistic graphic styles that edge toward photorealism or hyper-realism, super intense shaders to create the look of different materials, or mocap and facial animations for expressive avatars. The one-meter cube (and the other shapes like flowers, rugs, plates, etc.), the pixelated approach to color, the ability to only place or destroy one block at a time, and the lack of avatar customization all dial down the intricacies of both other games and real life. All avatars move the same, whether they are a first day noob or have been in *Minecraft* for years. Time in the day and night cycle, physics, and the relationships between materials, people, and animals are all abstracted, whether in crafting, the tools used for mining, or using animals for resources for food or wool.

When you select the camera position to be able to look at your avatar, it looks back at you quizzically. Or that's how I see it. The facial expressions never change, eyes don't move, so it must be what I bring to the moment when my gaze meets my little *Minecraft* stand-in. Comics creator and theorist Scott McCloud claims, "when pictures are more abstracted from 'reality,' they require greater levels of perception, more like words" (McCloud, 1993: 49). Therefore, although the abstracted kinetic and audiovisual aesthetic in *Minecraft* is simplified and relaxing because of its distance from reality and connection to cartoons and comics, that makes room for greater engagement in perceptual and imaginative activity. As McCloud says when a circle with two dots and a line are shown, they are commonly interpreted as a face; "icons demand our participation to make them work. There is no life here except that which you give to it" (1993, 59). We become involved in *Minecraft*, then, partly because its audiovisual and kinetic aesthetic—the feel of the game—gives us room to do so. In Marshall McLuhan's terms, *Minecraft* is a cool medium, invoking our participation.
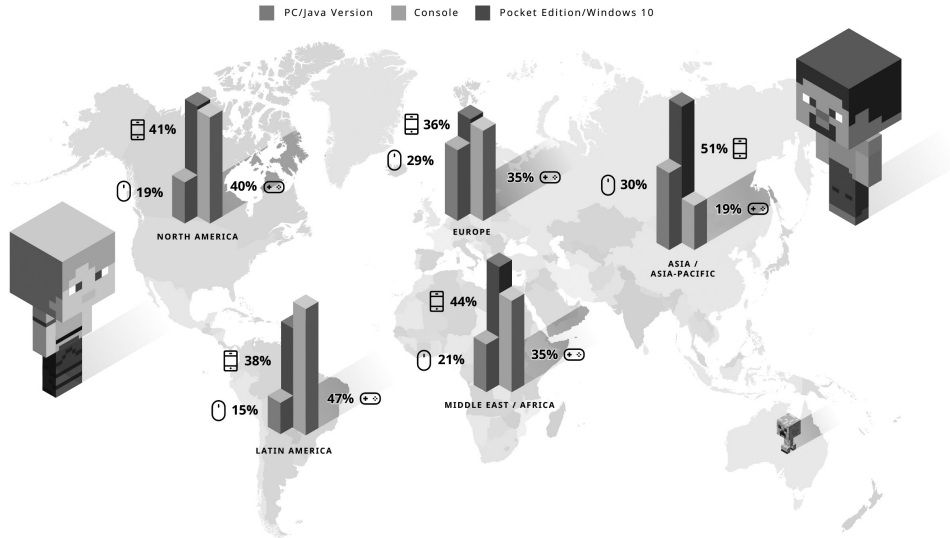
Music

As simplified and blocky as the visual, kinetic, and sound effect components of *Minecraft* may be, the music is something else entirely. Daniel Rosenfeld (aka C418) composed a score that not only doesn't sonify the blocky look (which would have been chip tune audio from the eight-bit era), but is counter to how most video games are scored. The result is stunning. Rosenfeld used the software music sequencer and digital audio workstation Ableton Live, Moog Voyager and Prophet 8 synthesizers, and multiple plugins to compose the music he describes as "acoustic and orchestral" (Ramley, 2014). The minor keys encourage players to take their time, explore, venture down, and build. Rosenfeld has described the music as expressing loneliness, but to me it is more spacious, calm, and lightly enveloping. The layered textures of sound parallel the environment. Rosenfeld made music that hints at an aesthetic experience that perhaps is not fully articulated in the game until The End, but is there to be discovered. Analogous to how the simplification and abstraction of the visuals ramp up the player's active perception, Rosenfeld has found that players ascribe meaning to the music that plays when something significant happens, even though the action has not triggered the sound.

Rosenfeld became involved with *Minecraft* because he, too, was part of TIGSource, and got to know Persson online there. He recalls:

> We met on irc [internet relay chat], through TIGSource. He had presented *Minecraft* as a tech demo and no one seemed to think much of it. Just as much as he was a show-off with his tech in the channel, I was a show-off with my music. He got interested in it and after a short discussion we agreed that I would make music for *Minecraft*.
>
> (Indiegames.com, 2011)

MINECRAFT

**MAYBE IT'S TIME TO CHILL WITH THE MINECRAFTS.
WE'VE SOLD IT 100 000 000 TIMES ALREADY.** ┐(˘▽˘)┌

| ■ PC/Java Version | ■ Console | ■ Pocket Edition/Windows 10 |

NORTH AMERICA
41%
19%
40%

EUROPE
36%
29%
35%

**ASIA /
ASIA-PACIFIC**
51%
30%
19%

LATIN AMERICA
38%
15%
47%

MIDDLE EAST / AFRICA
44%
21%
35%

MINECRAFT HAS SOLD MORE THAN 106,859,714 COPIES TO DATE

If each person that bought a copy formed a nation, it would be the 12th most populous in the world, behind Russia, Japan and Mexico.

1. China	1,382,323,332	**5.** Brazil	209,567,920	**9.** Russia	143,439,832
2. India	1,326,801,576	**6.** Pakistan	192,826,502	**10.** Mexico	128,632,004
3. U.S.	324,118,787	**7.** Nigeria	186,987,563	**11.** Japan	126,323,715
4. Indonesia	260,581,100	**8.** Bangladesh	162,910,864	**12.** Minecraft	106,859,714

Figure 49.4 Graphic from Mojang, 2016.

Persson's indie approach to development included choosing someone for the music and sound because he liked what he did, and then let him have relatively free reign (Indiegames.com, 2011).

Celebrity

I first understood that Markus "Notch" Persson was famous, that it was possible for a game developer to be famous, when I heard my twins and their friends talking about him. At first I thought they were talking about a kid they knew, maybe a new Swedish student at school who was good at *Minecraft*, a game we all liked. Then I heard words like "coder," "made Minecraft in two days," "Fedora," and "our Mom will install your mods." I realized they were talking about Notch, the creator of *Minecraft*. It was 2012, and they were seven years old.

Notch, the persona they knew, developed alongside *Minecraft*. As Notch, first he was the developer and distributor in 2009, then the personification of Mojang in 2010. As the *Minecraft* community flourished, he became well-known as the developer in gaming circles, and also imagined as a character in fan videos and stories. At the first MineCon, when Mojang released the official beta version of *Minecraft* in 2011, Persson pulled a cardboard mockup of a *Minecraft* lever in the joyous and adoring company of 5,000 players. Although he handed off the lead developer role to Jens "Jeb" Bergensten shortly after at the end of 2011, he continued to

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grow as a media celebrity whose fame exceeded gamer culture at the same time that *Minecraft* pushed gaming into the mainstream media. When he announced that he was leaving Mojang and selling his shares to Microsoft, he explained:

> I've become a symbol. I don't want to be a symbol, responsible for something huge that I don't understand, that I don't want to work on, that keeps coming back to me. I'm not an entrepreneur. I'm not a CEO. I'm a nerdy computer programmer who likes to have opinions on Twitter.
>
> (Persson, 2014)

Nevertheless, Persson's role as symbol was his most significant contribution beyond creating the game (surely his most momentous input). As Arnroth writes:

> It is not only the game that attracts players, Markus does too. He has become the gaming industry's first modern superstar, an idol who makes children dream of becoming game developers. Markus is someone who proves that developing games can be its own form of rock and roll, with its own kind of stars, and fans for that matter. Where the majority of game developers remain anonymous, Notch has become synonymous with one of the world's most played games.
>
> (Arnroth, 2013: Kindle Locations 171–175)

During his time as the key public figure of *Minecraft*, Persson often discussed his celebrity. In 2012, he revealed: Because the company kind of started from me just working on my own, I kind of became the public face, so it's kind of become that way almost by accident. And I do like it because I really like talking to people and like meeting people and stuff, but what I really identify myself as is more of actually, a programmer, not even game designer.

> (Persson and Hecker, 2012)

He articulated a keen awareness of the difference between public and private selves in this quotation in a 2012 *Wired* article: "Being worshipped, Persson says, 'is a bit weird. I guess people feel like they kind of know me. The game developer me, or the Twitter persona, that's Notch. It's a censored version. The real me is Markus.'"

Celebrity in the age of social media is about accessibility. In her study of Twitter use among electronic dance music (EDM) subculture and celebrities, scholar Anaipakos explains, "fans form emotional attachments with celebrities and attempt to begin relationships with them and other fans" (Anaipakos, 2012: 40). In 2012, Notch had 660,000 Twitter followers. By November 2016, he had 3.8 million. Around the time Persson was ready to sell his share of Mojang in 2014, he had experienced not only the adoration of fans, but also criticism, meanness, and hate. Persson's final post on "The Word of Notch" blog concludes, "This is what I want to do. I want to do smaller games that can fail. I want to experiment and develop and think and tinker and tweak." (Persson, 2013). Persson has tried to put *Minecraft* behind him, and shows as much interest in EDM on Twitter as he does in gaming.

Minecraft after Persson: Jeb and Microsoft

Jens "Jeb" Bergensten has established himself as an excellent lead developer, with a knack for redstone much appreciated by my sons and their friends, who were delighted to be guided

through the 2015 Hour of Code by video of him. Fickle lads, they've forgotten their earlier attachment to Notch and moved on. In an interview, Bergensten articulates his understanding that *Minecraft*'s strength lies in its flexibility of many modes:

> If you compare the core vanilla game to what you can do with mods, it looks like we are really holding back. That's actually the case. And the reason for that is when we add things to *Minecraft*, we're trying to partly go slowly so that people can adjust to the changes, but we're also trying to remember that we need to grow slowly in all directions. So some people like Creative mode, some people like exploring, some people like fighting, and some people like Redstone.
>
> <div align="right">(Peckham, 2016)</div>

Despite Jeb's leadership and the continued success of *Minecraft*, there was a lot of fear expressed in the Minecraft community forums and across social media about Microsoft's purchase of Mojang in 2014 for USD $2.5 billion (Hernandez, 2014). To be fair, before the sale, the forums contained a considerable amount of complaining about the features that were added, that they ruined the original *Minecraft* experience, or conversely, that they were not as advanced or exciting as the mods. People have prematurely predicted *Minecraft*'s demise for several years now.

As of this writing, Mojang and *Minecraft* have been owned by Microsoft for over two years. So far, so good. There have not been fundamental changes to Vanilla *Minecraft*, and certainly not the kind of changes some in the community dreaded. The updates have added new features to keep all the ways people like to play in *Minecraft* growing, slowly, as Bergensten said. The head of Microsoft's Xbox division Phil Spencer expressed his understanding that Microsoft purchased much more than a game. He said, "You don't own Minecraft. You curate it" (Bishop, 2015).

There have been expansions, however, in the transmedial, educational, social, and technological areas of Minecraft beyond the game/platform, such as the server hosting service Minecraft Realms, increased attention to Minecraft.edu, the dramatic demos of *Minecraft* augmented reality applications for the HoloLens, the launch of the narrative game, the continued development of the *Minecraft* movie by Warner Bros., and expanded licensing agreements for toys, books, and other merchandise. Although Mojang is spearheading new entries to the transmedial storytelling that continues to flourish across community-created video, comics, fiction, poetry, maps, servers, songs, and mods, *Minecraft Story Mode* (Telltale Games, 2015) tells one of the stories in the Minecraft world, and so will the Minecraft movie (Warner Bros., release date 2019). Mojang Chief Operating Officer Vu Bai explained, "We don't want any story that we make, whether it's a movie or a book, to create some sort of 'this is the official Minecraft, this is how you play the game' thing. That would discourage all the players who don't play in that way," says Bui. "When coming up with a story, we want to make sure it is just a story within Minecraft, as opposed to the story within Minecraft" (Dredge, 2016). Mojang's Creative Communications Director Owen Hill sees the importance of avoiding explanations to keep the mystery of *Minecraft* so players can keep inventing their own mythology. "Mojang and Telltale are quick to stress that *Story Mode* is *not* the official story of *Minecraft*. It cannot be an official canon or mythology, because no such thing exists" (Moss, 2016). *Minecraft* has always been an experience based in interiority and subjectivity; the imaginary world is one where many players' stories happen; even as Mojang makes more exterior, less interactive *Minecraft* experiences with *Story Mode* and the movie, it holds onto its characteristic openness.

For education, after a successful beta, the promising *Minecraft: Education Edition* was released in eleven languages in fifty countries in November 2016, for $5 per user per year, or through licensing models. It builds on and replaces MinecraftEdu, the version of a Minecraft server that Mojang asked New York City school teacher Joel Levin to create in 2011; it was developed by Aleksi Postari and Toni Paavola (Institute of Play, 2012) (Services.minecraftedu.com, n.d.). Essentially a mod that gives teachers certain administrative privileges over the maps and student player accounts, *Education Edition* is in some ways a new kind of learning management system. It also fosters sharing pedagogical strategies and learning from other teachers; it has sets of lesson plans available for three different age groups: 5–9, 10–13, and 14 and up. The educational use of *Minecraft* has been well-received among teachers and students worldwide, and also met with some suspicion that a game can be a learning tool.

One type of transmedial representation that Mojang has not allowed are professionally built *Minecraft* maps by companies like BlockWorks hired by Disney, *The Guardian*, and the Royal Institute of British Architects to promote a product, place, or movie (Moss, 2016). This is a smart move by Mojang, one that will prevent *Minecraft* from being dotted with the boring, empty builds purchased by corporations that proliferated in the virtual world *Second Life* (2003) at the height of its hype cycle, which many individuals copied in their own builds, reinforcing a culture of consumerism and consumption that sadly prevailed as the controlling metaphor (and business model) of that virtual world. "We want to empower our community to make money from their creativity, but we're not happy when the selling of an unrelated product becomes the purpose of a *Minecraft* mod or server," explained Owen Jones, Mojang's director of creative communications (Hill, 2016).

It will be interesting to see what directions Microsoft takes, or tries to take, with the *Minecraft* imaginary world. Mark J. P. Wolf speculated that *Minecraft* could become part of the Windows operating system (Wolf, 2015). I foresee an operating system assimilated into a *Minecraft*-like interface, perhaps mediated with HoloLens augmented reality, with real-time webcam-enabled facial and body animation of avatars. The so-called Minecraft Generation might easily perceive Windows as another mod, another mode.

The "mine" in *Minecraft* originally refers to the act of mining, a core mechanic in *Infiniminer*, but to the kids I've observed in person, online, and in videos, they love *Minecraft* because "it is mine." The worlds they build, the adventures they have, stories they create, games they play, friendships they make, and social interactions they encounter are all theirs. The transformational experiences in the *Minecraft* imaginary world(s) each player and all the players together have made are places where they bridge the gaps between the actual limitations of everyday life in a physical world as children or other individuals and the empowered agents they can be in their imaginations. Their participation in the imaginary world is part of the process that makes the actual world "mine."

References

Anaipakos, J. (2012), *Celebrity and fandom on Twitter: examining electronic dance music in the Digital Age*, M.A. thesis at the University of Texas at Austin.

Arnroth, T. (2013), *A Year with Minecraft: Behind the Scenes at Mojang*. 2013–06–26 ed.: Paradox Interactive. Kindle Edition.

Bergensten, J. (2012), "Minecraft Team Strengthened!" *Mojang*, [Blog] available at: https://mojang.com/2012/02/minecraft-team-strengthened/ [Accessed 10 Nov. 2016].

Bishop, T. (2015), "Xbox leader Phil Spencer on Minecraft's future, the PS4, Microsoft's eSports plans, and more," *GeekWire*, available at: http://www.geekwire.com/2015/xbox-leader-phil-spencer-on-the-sony-battle-minecrafts-future-microsofts-esports-plans-and-more/ [Accessed 10 Jun. 2016].

Brackin, A. L. (2014), "Building a Case for the Authenticity Vs. Validity Model of Videogame Design," *Understanding Minecraft: Essays on Play*, Community and Possibilities, 191.

Cheshire, T. (2012), "Changing the game: how Notch made Minecraft a cult hit," *WIRED UK*, [online] available at: http://www.wired.co.uk/article/changing-the-game [Accessed 12 Aug. 2016].

Christiansen, P. (2014), "Players, Modders and Hackers" in N. Garrelts, ed., *Understanding Minecraft: Essays on Play, Community and Possibilities*, 1st ed. McFarland, Kindle Locations, pp. 505–506.

Dezuanni, M.; O'Mara, J.; and Beavis, C. (2015), "'Redstone is like electricity': Children's performative representations in and around Minecraft," *E-Learning and Digital Media*, 12(2), pp.147–163.

Dredge, S. (2016), "Minecraft movie will be 'large-budget' but unlikely to arrive before 2017," *The Guardian*, available at: https://www.theguardian.com/technology/2014/oct/08/minecraft-movies-youtube-mojang-licensing [Accessed 5 Sep. 2016].

Duncan, S. (2011), "Minecraft, Beyond Construction and Survival," *Well Played*, [online] 1(1), pp. 9–30. Available at: http://press.etc.cmu.edu/wellplayed [Accessed 30 Oct. 2016].

Farlandsorbust.com (2016), "Minecraft Far Lands or Bust—An expedition in search of adventure, exploration and now, for charity!" available at: http://farlandsorbust.com/about.html [Accessed 15 Sept. 2016].

Forums.tigsource.com (2009), *Minecraft* (alpha), available at: https://forums.tigsource.com/index.php?topic=6273.0 [Accessed 12 Aug. 2016].

Fullerton, T. (2014), *Game design workshop*. 3rd ed. Amsterdam: CRC press, p. 1.

Goldberg, D. & Larsson, L. (2013), *Minecraft: The Unlikely Tale of Markus "Notch" Persson and the Game That Changed Everything*, New York, NY: Seven Stories Press.

Handy, A. (2010), "Interview: Markus 'Notch' Persson Talks Making Minecraft," Gamasutra.com, available at: http://www.gamasutra.com/view/news/27719/Interview_Markus_Notch_Persson_Talks_Making_Minecraft.php [Accessed 17 Aug. 2016].

Hat Films, (2016), *The evolution of Minecraft*. YouTube, [online] available at: https://www.youtube.com/watch?v=t0eqSgkDuW0 [Accessed 3 Nov. 2016].

Hernandez, P. (2014), *The Internet Reacts To Microsoft Buying Minecraft*. Kotaku.com, [online] available at: http://kotaku.com/the-internet-reacts-to-microsoft-buying-minecraft-1635040451 [Accessed 9 Jun. 2016].

Hill, O. (2016), "Let's Talk Promotions Built Into Minecraft," *Mojang*, [Blog] available at: http://mojang.com/2016/05/lets-talk-promotions-in-minecraft/ [Accessed 20 Jun. 2016].

Indiegames.com (2011), *IndieGames.com—The Weblog Q&A: C418's Minecraft—Volume Alpha Soundtrack*, [online] available at: http://indiegames.com/2011/05/c418_minecraft_volume_alpha.html [Accessed 18 Nov. 2016].

Institute of Play (2012), MinecraftEdu: The Craft of Digital Citizens, [online] available at: http://playmakers.instituteofplay.org/minecraftedu/ [Accessed 5 Sep. 2016].

Lastowka, G. (2012), "Minecraft as Web 2.0: Amateur Creativity in Digital Games," *Amateur Media: Social, Cultural and Legal Perspectives*, [online] available at: http://works.bepress.com/lastowka/6 [accessed 03 Jul. 2017].

Mac, R. (2015), *Inside The Post-Minecraft Life Of Billionaire Gamer God Markus Persson*. Forbes.com, [online] available at: http://www.forbes.com/sites/ryanmac/2015/03/03/minecraft-markus-persson-life-after-microsoft-sale/#41ba252d4f28 [Accessed 23 Mar. 2015].

MacCallum-Stewart, E. (2014), *Online Games, Social Narratives*, New York: Routledge.

Milton, S., Soares, P., Cordner, T., Farwell, N. & (Organization), F. (2014), *Minecraft Combat Handbook*, New York: Scholastic.

Minecraft.gamepedia.com (2016), *Timeline of events—Official Minecraft Wiki*, [online] available at: http://minecraft.gamepedia.com/Timeline_of_events [Accessed 12 Aug. 2016].

Minecraft: Education Edition (2016), *Minecraft: Education Edition Available Now! | Minecraft: Education Edition*, [online] available at: https://education.minecraft.net/011116announce/ [Accessed 1 Nov. 2016].

Mojang, (2016), *Amazing Minecraft Stats*, [image] available at: https://media.mojang.com/file/1f255035c065e33fd12c9ba552327f0fda983e83/AMAZINGMINECRAFTSTATSGONEWRONGYOUWONTBELIEVEWHATHAPPENNEXTCOMPILATION2016.jpg [Accessed 22 Oct. 2016].

Moss, R. (2016), "Meet 'Minecraft' Builders Who Craft Impossibly Detailed Virtual Worlds" *Rolling Stone*, [online] available at: http://www.rollingstone.com/culture/news/meet-minecraft-builders-who-craft-detailed-virtual-worlds-w430506 [Accessed 5 Nov. 2016].

Moss, R. (2016), "The unlikely creative relationship behind Minecraft: Story Mode" Gamasutra.com, [online] available at: http://www.gamasutra.com/view/news/255574/The_unlikely_creative_rela-tionship_behind_Minecraft_Story_Mode.php [Accessed 22 Oct. 2016].

Notch, (2009), "*Minecraft* (Alpha)," *TIGSource*, [Blog] available at: https://forums.tigsource.com/index.php?topic=6273 [Accessed 20 Aug. 2016].

Parkin, S. (2014), "A Journey to the End of the World (of Minecraft)" *The New Yorker*, [online] available at: http://www.newyorker.com/tech/elements/a-journey-to-the-end-of-the-world-of-minecraft [Accessed 22 Nov. 2016].

Peckham, M. (2016), "Exclusive: 'Minecraft' Luminary Jens Bergensten Talks About the Game's Future," *TIME*, [online] available at: http://time.com/4568843/minecraft-exploration-update-jens-bergen-sten-interview/ [Accessed 18 Nov. 2016].

Persson, M. (2011), "Mojang's Minecraft," *Game Developer Magazine* 18(2), pp. 24–30. Available at: http://twvideo01.ubm-us.net/o1/vault/GD_Mag_Archives/GDM_February_2011.pdf [Accessed 16 Jul. 2016].

Persson, M. (2011), "You know what's fun?" *The Word of Notch*, [Blog] available at: http://notch.tumblr.com/post/9896830082/you-know-whats-fun [Accessed 16 Jul. 2016].

Persson, N. (2011), "Minecraft Beta 1.6.5 is out. Let me know how it is," 28 May, Mobile.twitter.com, [online] available at: https://mobile.twitter.com/notch/status/74494300163022850 [Accessed 11 Jul. 2016].

Persson, M. (2013), "So that's what I'm going to do," *The Word of Notch*, [Blog] available at: http://notch.tumblr.com/post/58707926941/so-thats-what-im-going-to-do [Accessed 5 Sep. 2016].

Persson, M. (2014), "I'm leaving Mojang," *Pastebin*, [online] available at: http://pastebin.com/n1qTeikM [Accessed 7 Sep. 2016].

Persson, M. and Hecker, C. (2012), "A Fireside Chat with Markus 'Notch' Persson," *GDC*, [video] available at: http://www.gdcvault.com/play/1015830/A-Fireside-Chat-with-Markus [Accessed 11 Aug. 2016].

Ramley, Z. (2014), "We Spoke to the Minecraft Composer Who Makes A Living Off the Gaming Community," *Thump*, [online] available at: https://thump.vice.com/en_us/article/we-spoke-to-the-minecraft-composer-that-makes-a-living-off-the-gaming-community [Accessed 18 Nov. 2016].

Redmond, D. (2014), "The Videogame Commons Remakes the Transnational Studio" in N. Garrelts, ed., *Understanding Minecraft: Essays on Play, Community and Possibilities*, McFarland, Kindle Locations, pp. 179–181.

Services.minecraftedu.com. (n.d.), "What is MinecraftEdu," *MinecraftEdu wiki*, [online] available at: http://services.minecraftedu.com/wiki/What_is_MinecraftEdu [Accessed 5 Sep. 2016].

Stuart, K. (2014). "How Daniel Rosenfeld wrote Minecraft's music," *The Guardian*, [online] available at: https://www.theguardian.com/technology/2014/nov/07/how-daniel-rosenfeld-wrote-minecraft-music [Accessed 29 Oct. 2016].

Wolf, Mark J. P. (2012), *Building Imaginary Worlds: The Theory and History of Subcreation*, New York, NY: Routledge.

Wolf, Mark J. P. (2015), "Crafting and Mining True Interactivity: Building a World of World-Building," response paper on the panel "Minecraft: More than a Game," March 29, 2015, Society for Cinema Studies Conference, Montreal, Canada.