8-1-2013

Crafting minds in Minecraft

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At some stage, career teachers experience the feeling of a growing distance between them and their students. Probably their students sense it too. This is inevitable and natural. After all, as educators age and their student cohorts remain within a narrow range of ages, the relative age gap widens. The gap sensation can also be caused by a seismic generational shift and by a change in life circumstances (like having one's own children). Technology may produce growing distance between teachers and learners too and being dynamic, it may seem the most profound. Naturally, many educators want to resist but sense the need to embrace at least some innovations.

Resistance to adopting the latest media fad, computer game or digital platform is not just about technology avoidance. For many educators, resistance is about survival, fending off exhaustion, avoiding distraction and a myriad of other 'taxes' on physical and mental resources. Dedicated educators well know demands like retooling for the National Curriculum, and compliance with ever more standards leaves little room for teaching innovation.

Minecraft and the Innovation Problem

Not surprisingly, as innovations such as ebooks, interactive whiteboards, social media and computer games seem to beg for the attention and favour of educators, many resist. The problem is that as they resist innovating, pangs of separation, ageing and generational change may creep into consciousness. Finding a gem, something 'easy' and yet 'profound' to reach and inspire ever younger learners, becomes more than just a little victory. Minecraft, the seemingly ubiquitous and suspiciously cultish block building game (think Lego for the 21st Century), may be just one such gem. Teachers who love adventure, downtime and a narrower age gap between them and their students, but also need to conserve energy, are discovering (and rediscovering) how much fun it is to build – almost anything – with blocks.

It is vital to know just how big an opportunity *Minecraft* is for educators: The United Nations Habitat program is using *Minecraft* in 300 villages around the world to help village residents imagine urban renewal and how to build badly needed infrastructure. The program is called Block by Block. Mojang, the small 25-person company of, well, computer geeks, and UN-Habitat have partnered to give villagers computer access and *Minecraft.* Local residents are given minimal training and re-create their villages literally by placing virtual blocks in the game. According to the partnership (blockbyblock.org):

"Block by Block" is a new collaboration with UN Habitat and Mojang (developers of Minecraft). "Block by Block" aims to involve youth in the planning process in urban areas by giving them the opportunity to show planners and decision makers how they would like to see their cities in the future. Minecraft has turned out to be the perfect tool to facilitate this process. The three-year partnership will support UN-Habitat's Sustainable Urban Development Network to upgrade 300 public spaces by 2016. The first pilot project in Kibera, one of Nairobi's informal settlements, is already in the planning phase."

Two points become immediately apparent. The first is that *Minecraft* is accessible – almost anybody is capable of using it after a very short orientation that can be done with simple written

instructions. To putt too fine a point on it, even technology-resisters and digital immigrants can use *Minecraft.* The second point is that what a person can build in *Minecraft* is nearly limitless from representations of the real world (like Pyramids and ruins) to wildly imaginative fantastic worlds such as ... the solar power station of the 23rd Century or habitats on Mars.

Minecraft 101

Minecraft is what game experts call a "sandbox" game and really is only a game when set up by the user to create challenges and winning and losing conditions. For many educators, it is a very simple, computer-aided design environment used for teaching, and a big dose of 'street cred'. Players use cubes with different textures like soil, sandstone, wood and wool to build in a real-time, computer generated 3D environment that features a day and night cycle and weather. Environments are called "worlds" and there are hundreds of thousands of these hosted on servers around the real world. In addition to building, players can explore, mine and gather resources, and survive against threats. The game has two modes; creative mode allows players to build and explore, while survival mode requires players to take shelter at night or combat a range of different creatures referred to as "mobs".

One more feature of *Minecraft* bears special mention: Redstone. Redstone is a source of energy and energy transfer that allows locomotion. One of the greatest challenges for educators is to demonstrate processes. Redstone can become a teacher's best friend by allowing models and systems to be illustrated graphically and dynamically. Redstone, circuits, switches and objects team up to create everything from drawbridges to doors to flying machines and more.

How To Craft Minds

With basic knowledge of what *Minecraft* is and what it does, two concerns come to mind: 1) How long does it take to learn and 2) What are teachers doing with it?

Learning Curve

Anyone who uses complex technology like many computer games knows that mastery is less important than playful exploration. So it is with *Minecraft.* It is less important (and professionally undesirable) to devote hundreds of hours to using this technology. The economical among us will jump in and pick up the basics in an hour or two. From there, using this simulator tool becomes a matter of purpose matched with scale. The bigger the purpose, probably the bigger the investment. The good news is that there are so many books, YouTube videos and wikis around *Minecraft* that learning how to design increasingly complex learning experiences is just a mouse click away.

Lesson Plans

Minecraft serves two potential objectives as a learning and teaching tool. The first is as an 'affinity space'. Education scholar James Paul Gee wrote in 2004 *(Situated Language and Learning: A critique of Traditional Schooling)* that informal and alternative learning environments often work better than formal and traditional learning environments to encourage participation and deeper engagement in learning content. They do this because they create a sense of shared purpose and identity, bridging gaps – like those that otherwise form between teachers and students – around age and technology awareness.

The second potential objective is as a simulation environment. *Minecraft* is being used by educators in STEM subjects to show how atoms become stable and unstable, to illustrate the features of cells and to help students visualise mathematic equations. For educators in language, history and the arts, *Minecraft* can be used to help students experience historic locations, artistic periods and architectural traditions.

Minecraft was used recently in a Media Industry class at Bond University, inspired by the Block by Block initiative. Students were shown the central building on campus and then asked to build the rest of the campus. Lectures were held in the virtual campus and students were taught the concepts of virtuality and disruptive innovation in one fell swoop. The initiative received national press attention when the real-world campus was closed due to flooding in February, but the virtual campus was open for class. What was originally a casual idea to improve student engagement soon became a lesson for Author Dr. Brand who was the classroom teacher: students not only participated more, they met assignment deadlines more uniformly and took seriously the content of their work. One of the formal assessment requirements was to turn research essays into books embedded in the Minecraft campus.

Yes, books can be embedded into a world. Once "published" the books are forever fixed in the world and can be read by visitors. The prospect of having students from around the world read their work gave the assessment some importance. But the prospect of having them read their work inside a world they created, to be evaluated by others, created new importance for fidelity, accuracy and creativity. And the teacher was respected, even when he accidently broke blocks instead of placing them when 'playing' with his students. The gap between the 50-year-old and the 20-year-olds was something less than 30, in this case.

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