

Neogeography & the Gamification of GIS



In GiSPro August 2014 we reported on how children in Denmark were using open geodata from their mapping agency to add to Minecraft. Since then the GIS and mapping business have woken up to the opportunity that Minecraft presents in educating children in developing spatial skills. Martin Gregory, general manager, 1Spatial Asia Pacific explains.

Have you ever taken the time to look at what your kids are doing on Minecraft? We worry that our children should be outside, enjoying the sunshine, communicating in real life with their friends, not staring at a screen. But maybe they're learning something and sharing exciting ideas? Are they becoming neogeographers?

It used to fill me with horror to see my kids sitting intensely in front of a screen when they should be out on their bikes, fishing, swimming, doing things that I used to do and enjoy. However, I spent time recently actually looking at what's going on when they are engaged so intently for hours on end. I was quite surprised when I took a proper look at Minecraft; surprised that the kids were so involved in more of the 'sand box' games and getting totally engaged with this 3D virtual world.

Minecraft, for the uninitiated, is like digital Lego. It's fast to build worlds where kids can hook up with their friends, explore each other's worlds, go on adventures and acquire and look after animals along the way. There are even nasty characters called Endo Men who like to do battle, plus the ability to teleport from one place to another. All this sounds like pretty fun stuff, however, it can get quite sophisticated too.

A New Generation of Neogeographers

So how does this relate to the GIS sector? What is its potential? We assume it's got one, because Microsoft acquired Mojang, the maker of Minecraft, for US\$2.5 billion last September. So can we learn from Minecraft about how to bring game-like attributes to the user experience of other GIS tools? Should the world of spatial take advantage of the lessons of the gaming world? Is spatial being gamified?

I think from my perspective I think it certainly seems to indicate that the worlds of spatial, and what we know of traditionally as gaming, are converging. Although this may seem like an odd connection, there have already been some exciting projects. It also means that we have a new generation of neogeographers, who are already engaged and confident with location information. Perhaps this could help the more traditional geography, cartography and GIS sector to get involved and develop new applications.

Minecraft is leading in this area. It's enabling people, from children to senior citizens, to develop complex structures; everything from individual properties to all of the outside world. We can even start to go inside and get into the realms of Building Information Modelling (BIM), designing and managing internal spaces.

So yes, we're already seeing some interesting developments happening in Minecraft, involving gamelike attributes and developing new apps or services. Everything happens somewhere. It also happens IRL (in real life). So it makes sense to harness people's natural desire for socialising, learning, self-expression and achievement, and getting them involved in the development of their local areas. The gamification of GIS can help to bring people into the sector.

A Minecraft GB

Some of the most interesting developments along these lines are happening right across Europe and in Australia too. Ordnance Survey Great Britain has completed a project to re-engineer its OpenData products to create a Minecraft world of the whole country. It's 86,000 square miles and uses 22 billion Minecraft blocks. The key objective here is for OS to engage with a new type of user and at the same time drive the objectives for OpenData to foster new innovations.

Denmark has a very similar project which seeks to engage people in education. They have recreated the country in terms of roads, buildings and elevation models to create a virtual Denmark where gamers can explore their own residential areas and tear down and build new structures.

The Swedes have taken their national datasets, kept all the infrastructure and the physical features, but removed all the buildings. People are invited to register a building plot in a virtual world and create new structures according to what they want to see there. These things get a lot of interest: 45,000 people were involved in the Swedish project.

Volunteers Chart Change

Citizen science is also represented in the spatial sector through services like Tomnod (a website for volunteers to work together to identify important objects and interesting places in satellite images.). Recently 16,500 people helped with the Nepal earthquake relief effort by capturing change data from satellite imagery. Not surprisingly the UN are taking this initiative very seriously. They have an ambitious project to improve 300 public spaces in developing nations. It involves promoting sustainable towns and cities by involving young people in the planning of urban public spaces.

It turns out that Minecraft is the perfect tool for facilitating this. One example is that of a rubbish tip surrounding buildings. It was quickly modelled in Minecraft, allowing local people to propose new features for the space and engage in their communities' development. Often, through the involvement of schools, the ideas and designs come from children, unfettered by what has traditionally been possible; and pushing at the boundaries of GIS.

Here at 1Spatial, we can see Minecraft's potential as a collaborative tool for capturing community input. We've played with a new feature in Safe Software's FME which allows you to take spatial data – potentially even national datasets such as OSGB, Denmark and Sweden have done – and populate a Minecraft world. This opens up data to people who would otherwise not have the technical skills to work with it in the same way; FME could insert collected data and ideas from neogeographers and convert it back into a GIS or asset management system or a set of digital design drawings.

Spatial Concepts and Education

Finally, in Brisbane the Spatial Industry trade body, SIBA, is discussing how gamification could be a new educational method to introduce spatial concepts to a younger generation and encourage them to think about careers in master planning, logistics, transport, design or construction. The process allows people without a traditional grounding in the industry to test their ideas and dreams without the classic preconditions of what's possible and what isn't possible. Of course, many of these ideas won't make it. But as we all know from brainstorming, sometimes an off-the-wall idea can take off. Whether the ideas work ultimately or not, at the end of the day we now have a new way to have conversations, not only with each other but also the legislators as well.

So does that mean spatial is no longer special? Or does it mean that people of all walks of life and backgrounds can now be directly or indirectly involved in mapping in some shape or form? Minecraft has an estimated 125 million players, some of whom are young gamers developing advanced 3D skills. They are getting involved in location information, even if they don't see it in the same way as we do. We could even start to get data into the Minecraft environment, whether it's OpenStreetMap, Google Earth, BIM or national mapping, and begin that modelling process. Through Minecraft, we can see how FME could be used to engage with this generation; they can sift and play with the data, try things out, knock it all down and start again. We can engage with local communities and test out even the most outlandish ideas.

This new modelling technology, with the gamification of GIS, could be creating the workforce of tomorrow. If even just 1% join our industry, what a boon that would be. Perhaps we should be encouraging our kids in their screen time? Or perhaps even get involved ourselves? As technology makes it easier to play with the data, the location information sector could be about to step into a new world.

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