THU: Edutainment: The use of informal games in the formal education of Autistic students. (Lucy Spalding)

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Dr Simon Ball
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The aim of the project is to develop a methodology to successfully include autistic secondary school students in learning via the use of games whilst also being suitable for their neurotypical peers. I work for an online school which has a high number of autistic learners mixed in with neurotypical students so any approach taken needs to be suitable for all students. Students with autistic spectrum disorders (ASD) have been shown to learn more effectively by visual means (Christinaki et al., 2013) and learn more readily on a computer than from standard books (Williams et al., 2002). ASD individuals are also more likely to play and engage with video games than their neurotypical peers (Mazurek & Engelhardt, 2013). A survey of my students indicated that the vast majority of them engage in video games for a significant number of hours per week and therefore the games-based learning approach is likely to appeal to all learners.

It was decided to target history and a number of open-source history games were evaluated for interest and educational content but all fell short. From here three distinctive routes were taken.

Firstly a literature search suggested that games-based learning is currently mainly used for skill acquisition instead of knowledge(Carter, 2001; Christinaki et al., 2013; Pierce et al., 2002) and this was confirmed by my own survey results. It was therefore decided to investigate the application of game mechanics to make 'standard' education more fun. A number of gamification strategies were examined, however the literature on gamification shows many negatives to such systems (Werbach, 2013) as not all student respond to games in the same manner. For example, some may respond well to leader-boards whereas others may be de-motivated by competition.

The second approach was inspired by a student who decided to attempt to recreate buildings studied in a lesson on medieval architecture in the sand-box game, Minecraft, leading to the investigation what else could be taught in Minecraft. There is an educational version and an autism-friendly version of Minecraft also available suggesting it may be of significant use. Students expectation of games are high and the cost of producing engaging games is time consuming and expensive. However is possible to utilise existing games such as Minecraft for educational purposes. Although the use of Minecraft in the classroom has not been tested within the scope of this project there are a number of pilot projects hoped to be tried out in the

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coming months.

The last approach was to try and address the practical gap; students who study online can miss out on the practical work that takes place in a standard classroom environment so ideas have been postulated to create an interactive field trip for students to use to practice data collection. The problem of engagement with this type of media has been addressed and it is planned to develop this in a longer term project.

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Sian Lovegrove
1:01pm 10 February 2014 Permalink

Lucy, I have no experience in this area so this will all be new to me and I look forward to

hearing your presentation. Sian

Jo Jacob
8:19pm 10 February 2014 Permalink

I have been following the development of this for some time through H818's forums and Open Studioand I will be interested to hear the final presentation. I think that this project has a much wider potential application - for example with disengaged construction learners. I still have no idea what Minecraft is so hopefully you can show us some screenshots or a web tour.

Nicola Morris
10:24pm 11 February 2014 Permalink

Lucy, My own children are addicted to minecraft and I have for a long time wanted to find a way to tie this in to their school work! Being able to promote readily available free/open games and show how they can be used strikes me as a very valuable project. good luck

Jonathan Vernon
10:27pm 11 February 2014 Permalink

My nephew is autistic and on holidays is a fabulous companion. Armed with an iPad we seek out games that he will enjoy. The last one had everyone taking part and helping out until he had cracked them all - identifying brands from their iconic graphics. I suspect he will enjoy the game Wordio - Tertris meets Scrabble. Will it improve his vocubary too. A fascinating topic and I'm certain too, not meaning to sound mercenary, but as Montesori found, greater insights can be gained when working in a more testing setting.

Cara Saul
4:33pm 12 February 2014 Permalink

Have quite a few autistic friends young and older. All enjoy gaming. I think that it is interesting to see how social this can be in many ways. Have just read an article that worried that learning needed boredom. As someone who spent 14 years crawling up the walls with boredom - I would beg to differ. Plus boredom is often symptom of something else like dyslexia. I would have loved to had learnt more by playing productively (Seely Brown) rather than have been nailed to a desk snoring.

Belton, T, & Priyadharshini, E 2007, 'Boredom and schooling: a cross-disciplinary exploration', *Cambridge Journal Of Education*, 37, 4, pp. 579-595, Academic Search Complete, EBSCO*host*, viewed 12 February 2014.

Chris Pegler
8:48am 13 February 2014 Permalink

Great abstract Lucy. Its an interesting topic and clearly one you know a lot about. Can you give us an example of how you might address the practical gap. This is something that teachers of neurotypical students would also be curious about and maybe struggle with.

Marshal Anderson
11:55am 13 February 2014 Permalink

The informal games thing has been an interest of mine fro year so I'm really keen on this one and want to use it for the EMA - I know you didn't have it recorded and wondered if your were going to make any part of it availabel for review in another form?

The interactive field trip was something Sherston Software had a go at back in the 80s - though it ws aimed at primary phase studnets - that's teh problem with being old, you see ideas comeing around again :) What you have added here is the means to have a group do it via networks and I think that adds a lot - had you thought about having aims that can only be achieved by groups rather than individuals; some sort of triangulation for instance?

Lucy Spalding
12:36pm 13 February 2014 Permalink

@Jo - Sorry I didn't include a minecraft demo - I could have done a whole presentation on it but felt the fieldwork was more relevant. This is a good clip on minecraft: http://www.youtube.com/watch?v=RI0BN5AWOe8

@Nicola - if you want some ideas of things you can get them to do let me know! There is also 'minecraft edu' which may be of use to you.

@Johnathon - have a look at autcraft - an autism-friendly free mod of minecraft

@Chris - In terms of online learning, the science students are given 'kitchen experiments' to try but it is harder for history and geography. At the moment there is no bridge, for SEN or neurotypical students. We get them engaged in field work in terms of doing surveys/questionnaires but this is limited. We also encourage them to get parents to take them to museums etc but again this is limited. If I can get the virtual fieldwork up and running this would, to my knowledge, be the only bridge for many homeschooled/online educated students. Students in 'bricks and mortar' schools will go on school-organised field trips but there would be no harm in them doing 'extra' fieldwork virtually!

@Marshal - I can send you a link to my 'emergency back up recorded version' if you email me!

Dr Simon Ball
6:34pm 13 February 2014 Permalink

Following the live presentations, we asked each speaker to respond to questions posed by audience members. In the short time available, it was not possible to put all of the questions submitted to the speaker for a response. We asked all speakers if they would respond to the unanswered questions here on Cloudworks. Here are all of the questions asked during the session:

> Can you give us an example of how you might address the practical gap. This is

something that teachers of neurotypical students would also be curious about and maybe struggle with.

- ▶ Are you planning to give them mobile devices to use in the field? Thinking location specific angles?
- ▶ Is there any funding for or any 'basic' 'smart' mobile device for schools? I know museums are producing bespoke wifi enabled handsets.

[Avril sweeney](#)
11:09am 15 February 2014 [Permalink](#)

Hi Lucy,

I think your abstract is interesting and particularly what caught my eye were the statements,

There is an educational version and an autism-friendly version of Minecraft also available

Firstly a literature search suggested that games-based learning is currently mainly used for skill acquisition instead of knowledge(Carter, 2001; Christinaki et al., 2013; Pierce et al., 2002) and this was confirmed by my own survey results.

I could see how games could be carried forward into any environment particularly for knowledge and skills if developers of games promote the different features and affordances of games and how the different games can be used in differet environments. I think developers should partner with different organisations and institutions to promote friendly versions.

I was not aware that minecraft has a friendly version which I found interesting

Avril

[Lucy Spalding](#)
9:12pm 16 February 2014 [Permalink](#)

Thanks Avril, there are a number of 'mods' for minecraft - the autism one is one which is more peaceful than the normal game - no monsters and fighting - so a bit more friendly than the normal version. You don't have to be autistic to join it (you have to apply and be approved) but you have to abide by the rules to make it more friendly. Minecraft Edu is pretty similar to the original but its made easier for teachers to manage and handle.

In answer to Simons questions, the first I have answered above and regarding the other two:

- ▶ Are you planning to give them mobile devices to use in the field? Thinking location

specific angles? In short no - they aren't going into the field, I am. The idea is that the students can see the fieldwork without having to go and do it, making it possible for students who can't do field work (medically, psycologically or geographically) to see it in action.

> Is there any funding for or any 'basic' 'smart' mobile device for schools? I know museums are producing bespoke wifi enabled handsets. I have no idea on this one. There isn't in the school I work for - a private school - but I don't know about state schools.

Jonathan Vernon
10:24pm 20 February 2014 Permalink

Increasingly we will see wearable techology with the easiest in education probably a nesr field reader in a wrist band thst could alert a smart object and invoke interaction.

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