

Carl's Digital Futures for Learning Blog

part of the MSc in E-learning at the University of Edinburgh

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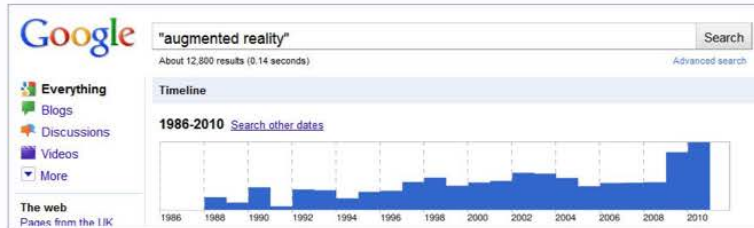
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Seminar Tasks

Orientation

In the first part of the seminar I'd like you to spend some time looking at the state of play of Augmented Reality development. It might help to read the first few sections of the position paper (above) to get a handle on terminology and technology. The paper also argues that AR is approaching a time in its development lifecycle when there is scope for considerable opportunity to shape the technology – I've used a couple of Google tools to give you a flavour of this below – note how interest as measured by search activity has overtaken Virtual Reality.

Reading 1 [Wright, M. et al., 2008. *Augmented duality: overlapping a metaverse with the real world. In Proceedings of the 2008 International Conference on Advances in Computer Entertainment Technology. pp. 263–266.*] explores some of the possible intersections in Mixed Reality between the Real, Augmented and Virtual Metaverses. How might such intersections impact upon your own learning situation? Record your thoughts at the [STIXY HERE](#) (password "pirate"). [HINT: to get going drag and drop a note widget from the bottom left of the screen]. [Alternative link to the paper : Wright et al – Augmented Duality](#)



OPTIONAL additional sources:

Video: [Bruce Sterling's Keynote – At the Dawn of the Augmented Reality Industry](#)

Mantovani, F., Galimberti, C. & others, 2003. *VR learning: Potential and Challenges for the Use of 3D Environments in Education and Training. In Towards cyberpsychology: mind, cognition, and society in the Internet age.*

MILGRAM, P. & COLQUHOUN, H.J., 1999. *A Taxonomy of Real and Virtual World Display Integration. Mix Real, pp.5–30.*

1. Magical creatures, paranormal powers and invisibility cloaks.

"Any sufficiently advanced technology is indistinguishable from magic." *Clarke's 3rd Law (1972)*

"Reality is merely an illusion, albeit a very persistent one." *Albert Einstein*

"A *Thaum* is the basic unit of magical strength. It has been universally established as the amount of magic needed to create one small white pigeon or three normal sized billiard balls." *Terry Pratchett, "The Light Fantastic"*

Now the fun stuff – I contend that Augmented Reality is indistinguishable from magic. I'd like you to enjoy the wow factor of Augmented Reality by exploring the possible. I'm sure you will have seen some of the links below, but hopefully there's something new to spark your thoughts.

AR Particle Beam: A simple real time effect using markers.

Recent Posts

Welcome to the Seminar!
When Reality needs no
Augmentation ...
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became ubiquitous would
this be the future?
Position Paper –
SPECTRES IN THE
CLASSROOM: Affordances
of Augmented Reality in
Traditional Learning
Environments
Hello world!

Note that these effects are generated "magically" in real time (not post production). You can even try it out by printing the marker and pointing a webcam at yourself – see [HERE](#). [If you do - please post a picture or video in comments 😊 UPDATE: Just got it working - great fun, almost my very own lightsabre - see comments for Pic]

Diminished Reality: A demonstration which renders objects invisible.

Total Immersion: An accomplished commercial demo which blends several AR technologies together including markers, gesture and facial recognition.



TED, 2009. Pattie Maes and Pranav Mistry demonstrate SixthSense AR platform – and possibilities



Epic – Augmented Reality examples



Task: Over to you – I'd like you to post a screenshot and link to the most magical and enthralling AR application or demonstration that you can locate. [STIXY HERE](#) password "pirate"

2. Enchanting, Enthralling, Engaging?

Hopefully by now you are convinced that AR will be an important (potentially ubiquitous) technology in the near future and that in many ways it replicates a magical experience situated in the real world. You can also see how the augmented and virtual worlds might intersect. However, I hypothesise that most of what you discovered about AR falls into one of these categories:-

1. Location aware outdoors applications – GPS with bells, whistles and a camera.
2. Games – either "outdoor run around and locate" or "shoot someone or something"
3. Applications focusing on the presentation of information (with a significant amount of razzle dazzle)

Whilst all of the above have potential to make learning more interesting and generate interesting discussions in classrooms my question is – "Where is the collaboration?" or more specifically "Where are the collaborative AR tools?" For those of us in schools or colleges in the UK there may be a sense of *deja vu* about this situation and the introduction almost a decade ago of Interactive WhiteBoards (IWBs). I worry that in the same way that these boards were purchased with great enthusiasm as collaboration tools and then largely used as simple projection screens, we may be tempted to use AR as a fancy tool to entertain learners (& ourselves) without considering in detail both the tools we need and how they might affect pedagogical practices.

I think Wesley Fryer's video (2007) which follows nicely draws out the distinction & danger of seeking to use (AR) magic to enthrall learners.

Reading 2: Kerawalla et al is one of the few papers that examines changes in classroom practice when AR is introduced as a tool. How did the AR experience contrast with traditional classroom practices and novel role play? How might you change the role of AR in this scenario to engender collaboration? We'll discuss your thoughts in the online seminar. [Kerawalla, L. et al., 2006. Making it real: exploring the potential of Augmented Reality for teaching primary school science. *Virtual Reality*, 10\(3-4\), pp.163-174.](#)

OPTIONAL additional sources
[FUTURELAB – Augmented Reality](#)

[Dunleavy, M., Dede, C. & Mitchell, R., 2008. Affordances and Limitations of Immersive Participatory Augmented Reality Simulations for Teaching and Learning. *Journal of Science Education and Technology*, 18\(1\), pp.7-22.](#)

[The Ambient Wood Project \(2002\)](#)

[Barron, M., Moher, T. & Maharry, J., 2006. RoomBugs: simulating insect infestations in elementary classrooms. In *Conference on Human Factors in Computing Systems: CHI'06 extended abstracts on Human factors in computing systems.*](#)

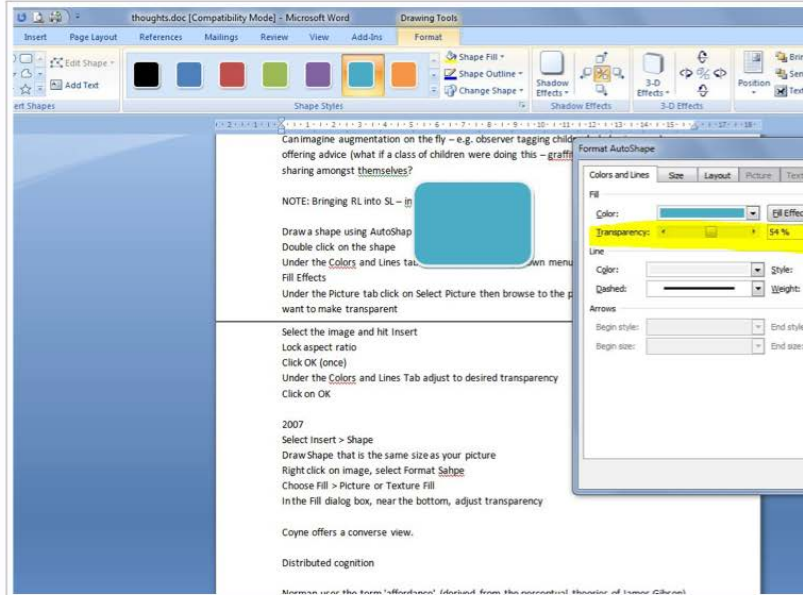
3. Seminar Task

I'd like you to focus on a running theme of previous seminars which is operationalisation – what might effective AR look like in the classroom?

I'd like you to take a photograph of a learning environment with which you are familiar and then overlay this with a layer of augmentation such as we might see in 5-10 years. I'll set these up as a gallery in SL and we can stroll around and see how the operationalisation of concepts like personalisation, collaboration, AR and VR might look in the near future. The photograph(s) should be of a traditional or familiar learning environment. This could be classroom, training room, library, lecture theatre, meeting room etc. or even your own personal study space (though I think this may be a bit limiting). You might want to have some participants in the shot – or not, up to you. I'd like you to particularly think about the collaborative aspects if possible.

Note – although I think this will work best with a familiar learning situation, if you have a problem obtaining your own photograph then you could also use a stock photograph.

In terms of creating the overlay you could choose a simple application e.g. MS Paint. If you want to create semi-transparent objects then Microsoft Word or Powerpoint seem to be good options, simple shapes included in the package are straightforward – Right Click – Format AutoShape – set transparency level :



Word/Powerpoint also let you make imported images and clipart transparent with this workaround:-

- Draw a shape using AutoShapes (e.g. Rectangle)
- Double click on the shape
- Under the Colors and Lines tab > Fill click on the drop down menu, choose Fill Effects
- Under the Picture tab click on Select Picture then browse to the photo you want to make transparent
- Select the image and hit Insert
- Lock aspect ratio
- Click OK (once)
- Under the Colors and Lines Tab adjust to desired transparency
- Click on OK

I'll need the final photos on the 2nd December before 5pm please so I can get them uploaded. In JPG format please.

Have fun – see you on the beach 7pm 2/12/2010!

Carl

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Seminar Outputs

A huge thank-you to everyone who posted on the Stixys, mailed me AR links, Augmented their learning environments and took part in the seminar. This is the archive of what we made - very impressive it is too. My intention was to take you through a 2 step process: -

STAGE 1

An orientation phase which showed a wide range of AR possibilities, introduced the idea of mixed reality (virtual and augmented reality crossing over) and presented some evidence about the burgeoning interest in AR as a commercial possibility.

Outputs - 2 warm-up STIXYs

STIXY 1 - Augmented Duality, a consideration of how mixed reality might provide opportunities in contemporary learning situations. [Note clicking on the image opens a full screen version]



STIXY 2 - Augmented Reality - your interesting examples and links.



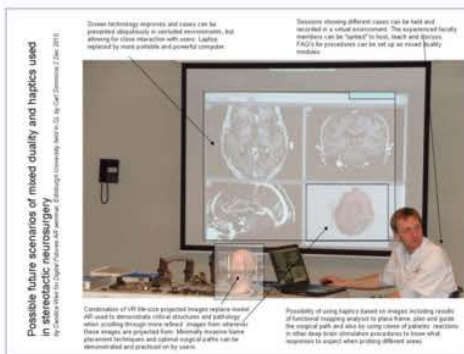
STAGE 2

Once you appreciated the "magical" possibilities I wanted to clear away some of the fog and look at the practicalities. I'd done a lot of searching for AR which used collaborative tools, but most of what I found were whizzy presentational tools - impressive and more memorable than Powerpoint, but without much possibility for active exploratory learning in a group. Hopefully the "Engage vs Enthrall" video made this point quite explicit (albeit not specifically for AR) and stimulated participants to prepare some examples of AR in their own learning environments which could help their learners collaborate.

Outputs: Augmented Photographs, Second-Life Seminar Transcript and photos:-

Augmented Photos

1)



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2)



2)



3)



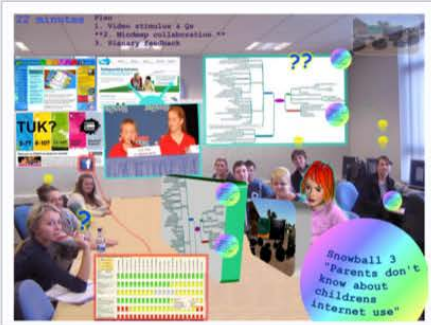
4)



5) [REDACTED]



6) Carl Simmons (Before and after)

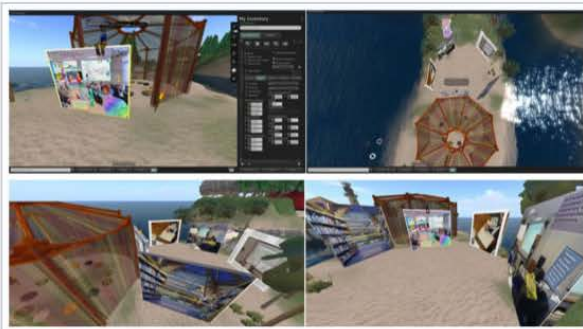


Second Life Seminar Transcript

[Spectres in the Classroom Seminar – Second Life Transcript](#)

[AR Seminar Question Starters](#) – prepared questions to stimulate discussion

Seminar preparation screenshots



Seminar – photos





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