Learning options of mobile and user generated context and its appropriation - a Vygotskian perspective

Email: john.cook@londonmet.ac.uk
Home page: http://staffweb.londonmet.ac.uk/~cookj1/
Twitter: http://twitter.com/johnnigelcook
Slideshare: http://www.slideshare.net/johnnigelcook

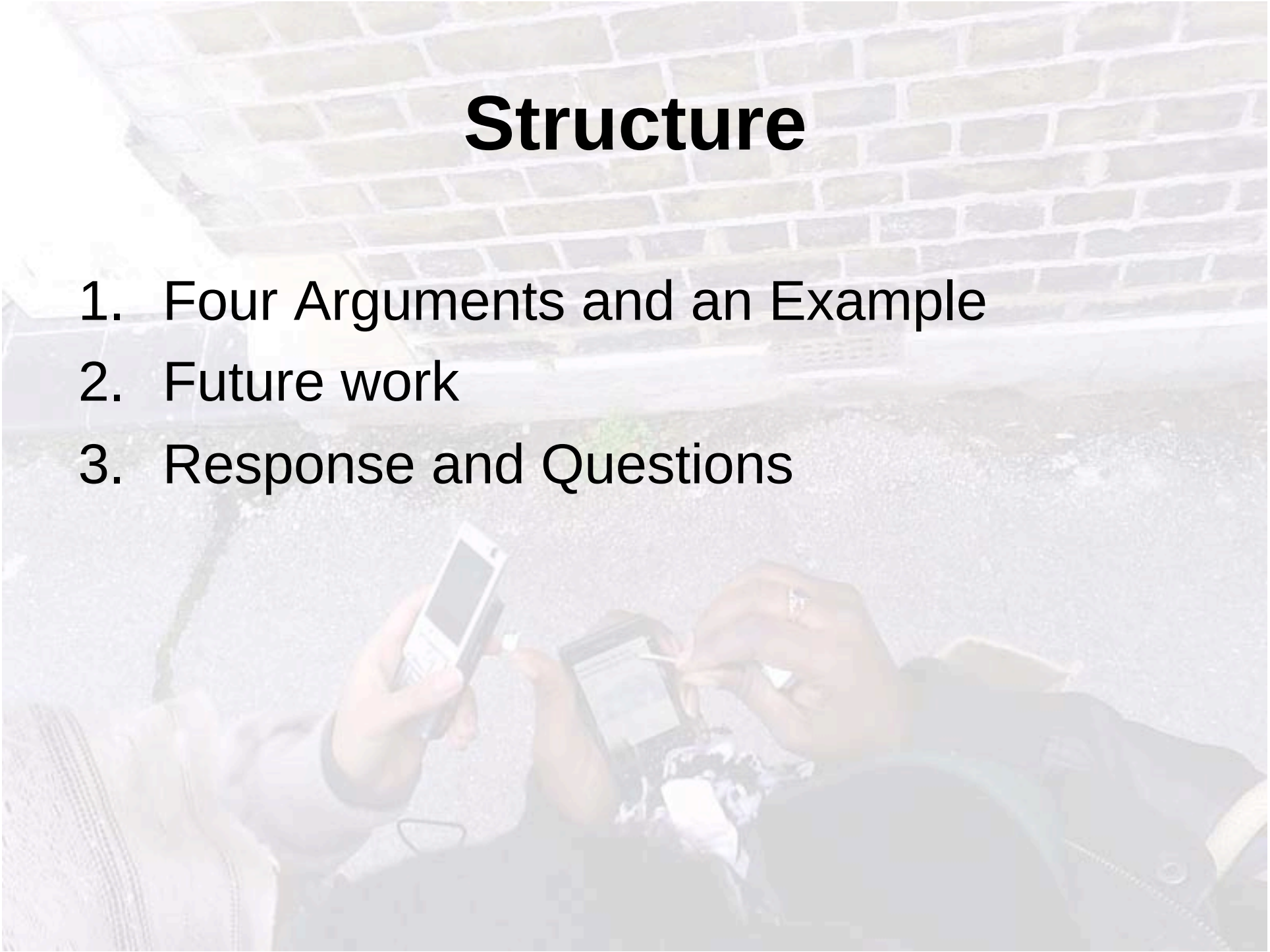
German Education Research Association Congress (DGfE 2010: http://www.dgfe2010.de/), Mainz, Germany, March

John Cook

Learning Technology Research Institute & London Mobile Learning Group

Structure

1. Four Arguments and an Example
2. Future work
3. Response and Questions



In this talk I will discuss the following four arguments and then give an example to illustrate an extension to a Vygotskian concept:

(1) Changing structures argument

(2) User generated context argument

(3) Vygotsky's Zone of Proximal Development (ZPD) and appropriation argument

(4) Augmented Context for Development argument

Changing structures argument (1):

- The nature of learning is being ‘augmented’ by
  - new digital tools (e.g. by mobile devices),
  - the networks to which they connect people and
  - structural changes to mass communication.
- See Pachler et al. (2010)

User generated context argument (2):

- Citizens/users are now actively engaged in generating their own content and contexts for learning.

Back to the future

www.ukzn.ac.za/cae/pfi/sqd/lev.htm

- Theories are themselves, of course, cultural-historical products
- Must draw your attention to fact that my interpretation of Vygotsky is a culturally situated interpretation

- Vygotsky's theoretical approach can be understood in terms of three major themes (Wertsch, 1985):
  - Claim that adequate account of human mental functioning must be grounded in an analysis of the tools and signs that **mediate** it
  - A reliance on a genetic or **developmental** method
  - Claim that higher mental functioning in the individual has its origins in **social life**

artefacts

- The mediation by artefacts (e.g. words/ texts) of meaning-making circulates between the inner and outer world
- it is complex, layered, dialectical process and as such presents us with significant methodological challenges for research, like mine, which aims to study processes of artefact-mediated formation of mind. (Daniels, 2008).

Vygotsky's Zone of Proximal Development (ZPD) and appropriation argument (3):

- Development is still a socially negotiated and appropriative process involving the internalization of cultural products.
- This is what Vygotsky called a Zone of Proximal Development

“It is the distance between the actual developmental level as determined by independent problem solving and the level of potential problem solving as determined through problem solving under adult guidance or in collaboration with **more capable peers**.”

(Vygotsky, 1978/1930, p. 86, my bold)

Augmented Context for Development argument (4):

- The new contexts for learning in the 21st Century **(1 & 2)** have brought about the need to re-conceptualize or extend theories from the past.
- Vygotsky's notion of a Zone of Proximal Development **(3)**, which was developed in the context of 20th Century Industrial Revolution, needs to be extended to what is being called Augmented Context for Development (Cook, 2010).

Temporal underpinning of Augmented Contexts for Development is fundamental

"*Attention* should be given first place among the major functions in the psychological structure underlying the use of tools … the child is able to determine for herself the "**centre of gravity**" of her perceptual field; her behaviour is not regulated solely by the salience of individual elements with it … In addition to reorganizing the visual-spatial field, the child, with the help of speech, creates a **time field** that is just as perceptible and real to him as the visual one. The speaking child has the ability to direct his attention in a dynamic way. He can view changes in his immediate situation from the point of view of activities, and he can act in the **present** from the viewpoint of the **future**."

(Vygotsky, 1978/1930, p. 35-36, original italics, my bold.)

Example

archaeological_surveying - mscape tester 2.6.3559

Options

Device Screen

Interior and the Nine Altars

The eastern transept is known as the chapel of the nine altars. Owing to the rapid growth of the order the need for increase was felt in nearly all Cistercian churches, and led to enlargement of the presbyteries, but this precise method of enlargement is peculiar to Fountains. The chapel is 117 feet in length, and is divided by two arcades which were in a line with those of the presbytery.

The pillars, about 50 feet high are octagonal, and were surrounded by eight marble shafts. The arches of the arcades are the work of Darnton, who probably found the church in a state of bad repair. He took down the stone vaults of this chapel and the presbytery and the upper part of the arch between them, and replaced them by an open roof of wood. You can still see the horizontal wall courses of the springers of the vaults which he left after he had removed the mouldings.

In 1236, a mosaic floor was laid in the east end, in the Chapel of the Nine Altars and the presbytery; this may represent the earliest use of such tiles in the North of England. Surviving fragments have been reset before the site of the High Altar

To see some stills from the reconstruction of the nine altars : DOUBLE CLICK HERE

Look at a movie of the reconstruction of the interior of the church including the nine altars. *CLICK THE RIGHT BUTTON ON YOUR PHONE AND WAIT A MINUTE FOR IT TO LOAD*

TASK: Discuss the evolution of the structure of the abbey. Make a video g of your discussion using the Nokia phone.

Debug | Place

FOUNTAINS_AB Move GPS

Playlist

Now Playing

Playlist Skip

Buttons

GPS

Has Fix

Speed (MPH) 1

Orientation

North West East South

Output

15:23:53.53.6,WebPages, Navigate Complete on C:\Documents and Settings\USER\My Documents\My Mediascapes\archaeological_surveying_Content\WebPages\interior_main.html

start 15:24

archaeological_surveying - mscape tester 2.6.3559

Options

Device Screen

Debug | Place

FOUNTAINS_AB Move GPS

Playlist

Now Playing

Playlist Skip

Buttons

GPS

Has Fix

Speed (MPH) 1

Orientation

North West East South

Output

15:25:26.00,4,Depreciated resource used: FlashMovie.Play. Use FlashMovie.Load instead

start 15:25

Qualitative analysis: process and explanatory perspective, looking at the inner features of the situation (Cook, 2010; Cook, in press)

Screen shot of Carl Smith's wire-frame movie reconstruction of Nine Alters (http://cistercians.shef.ac.uk/)

Students interacting @ Cistercian Chapel in CONTSENS

Results

- All the users made extremely positive comments about what they thought of the mobile learning course, describing it as
  - “more fun” than expected, “I enjoyed it”, “interesting”, 2 said it was “very interesting, it was a “good idea”, “good!”, a “fantastic experience”, and “very stimulating lots of good ideas”.
  - 80% rated it as being useful for learning the subject
  - 60% thought the mobile device enhanced the learning experience

Results

- On the negative side, three found that having to look at the mobile devices were a distraction from engaging with the archaeology/site itself, and one would like more archaeological and historical explanation.
- However, 80% agreed that the mobile learning experience was fun, and 9 out of the 10 users (90%) would take another mobile learning course if it was relevant to their learning needs and would recommend mobile learning as a method of study to others, which is a good indication that most of them had a positive experience (the other user answered ‘uncertain’ to both of these questions).

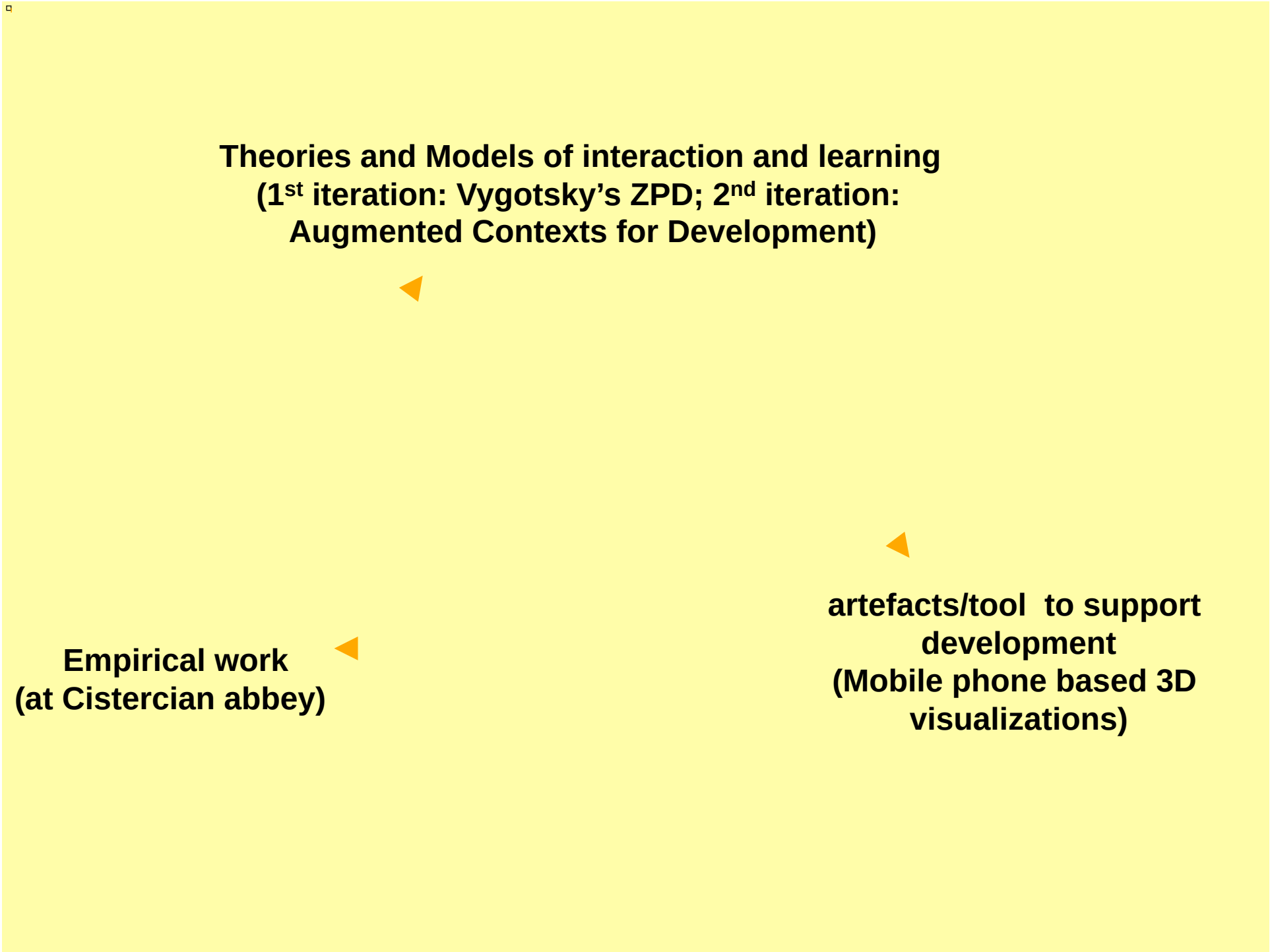
“The ability to be in a particular position but get a variety of views/different visual perspective was a very useful opportunity. The whole thing also got everyone talking in a way I hadn't experienced on field trips to Fountains before.”

Transcribed interaction

[play video clip]
(Lots of pointing at screen and abbey; student 1 is female, student 2 is male).
Student 1: So those windows, up there isn't it, still? Is that right? **So those have all changed since then.**
Student 2: Yeah there was like another stage between this one and this one.
Student 1: High up.
Student 2: With three vaults.
Student 1: There's three on that side at the moment and three on that side.
Student 2. Yes
Student 1: So three have come down haven't they, along with the window.
Student 2: And from this? (points screen). That one is equal to that one, and actually **we can not see that one (points).** We can see three vaults there …
Student 1: There must have been …
Student 2: That's the big one there. **Can you see that? (points at screen)**
Student 1: **Do mean with the pillar?**
Student 2: Yeah, **you can see it's this way** (?) but it's stopped there.
Student 1: That's right (makes gestures for a pillar and **they both stare into the space where the missing pillar should be).**

Elements of Augmented Context for Development

- The physical environment (Cistercian abbey).
- Elements that acts as part of substitute for ‘more capable peer’:
  - Pedagogical plan
  - Tool: Visualisation/augmentation oriented approach creates umbrella ‘Augmented Context for Development’ for location based mobile devices
  - Co-constructed ‘temporal context for development,’ created within wider Augmented Context for Development through
    - Interpersonal interactions using tools (e.g. language, mobiles etc) and signs
    - Intrapersonal representations of the above functions


Theories and Models of interaction and learning
(1st iteration: Vygotsky's ZPD; 2nd iteration:
Augmented Contexts for Development)
Empirical work
(at Cistercian abbey)
artefacts/tool to support
development
(Mobile phone based 3D
visualizations)

Future

- How can the positive and deficit aspects of attention be designed for in the mobile learning environment? For example, a ‘fancy’ interface may distract from learning.
- Has the Augmented Context for Development that we (the design and research team) have created for the students acted as part of a substitute for what Vygotsky calls the ‘more capable peer’?

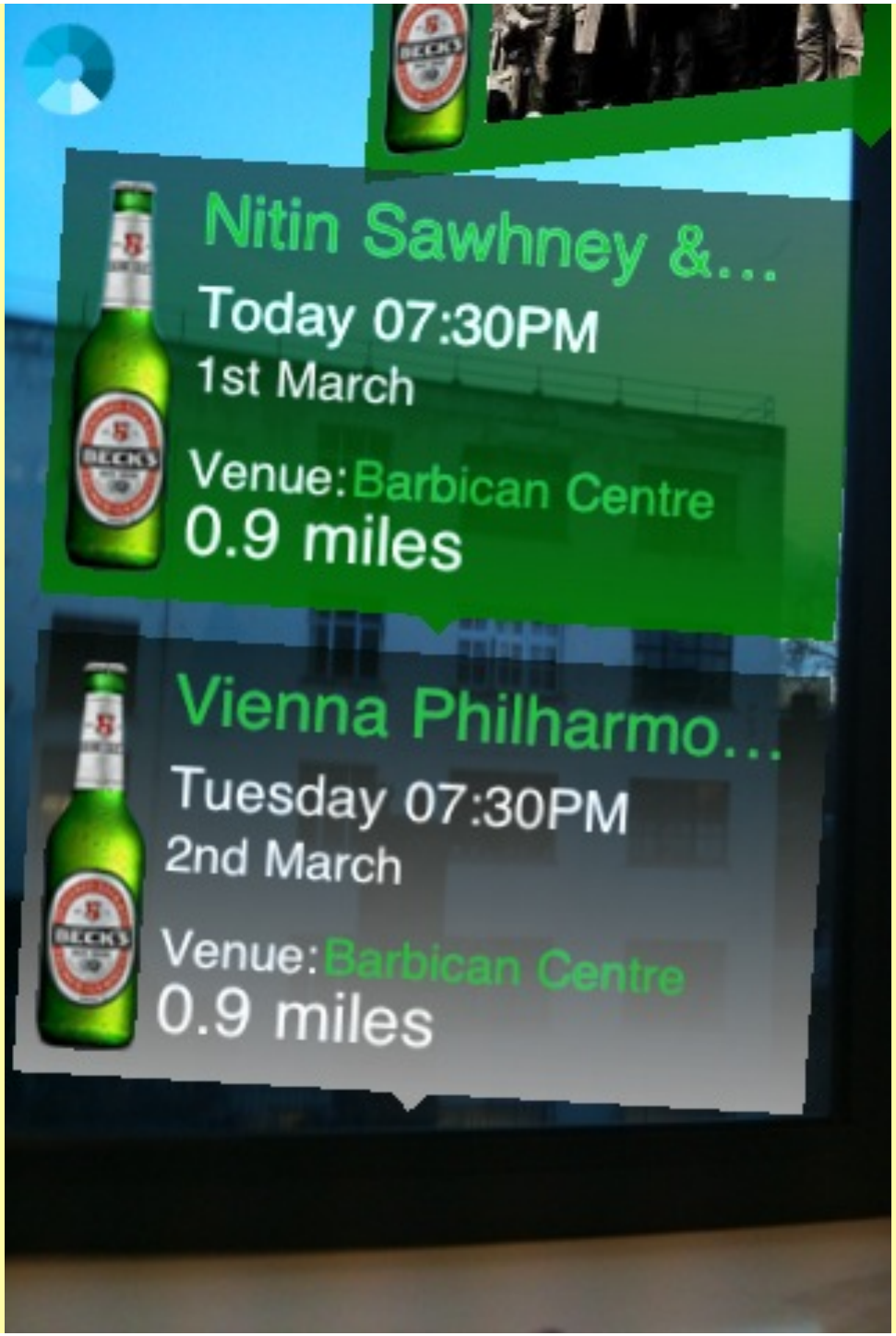
- During their continuing learning activities, what will the learning trail left behind by learners tell us as they move from one learning context to the next?
  - How does this relate to lower granularity developmental events (the time fields)?
  - How can we improve our understanding of how elements of context can be maintained over time, so as to scaffold a perceived continuity of learning?

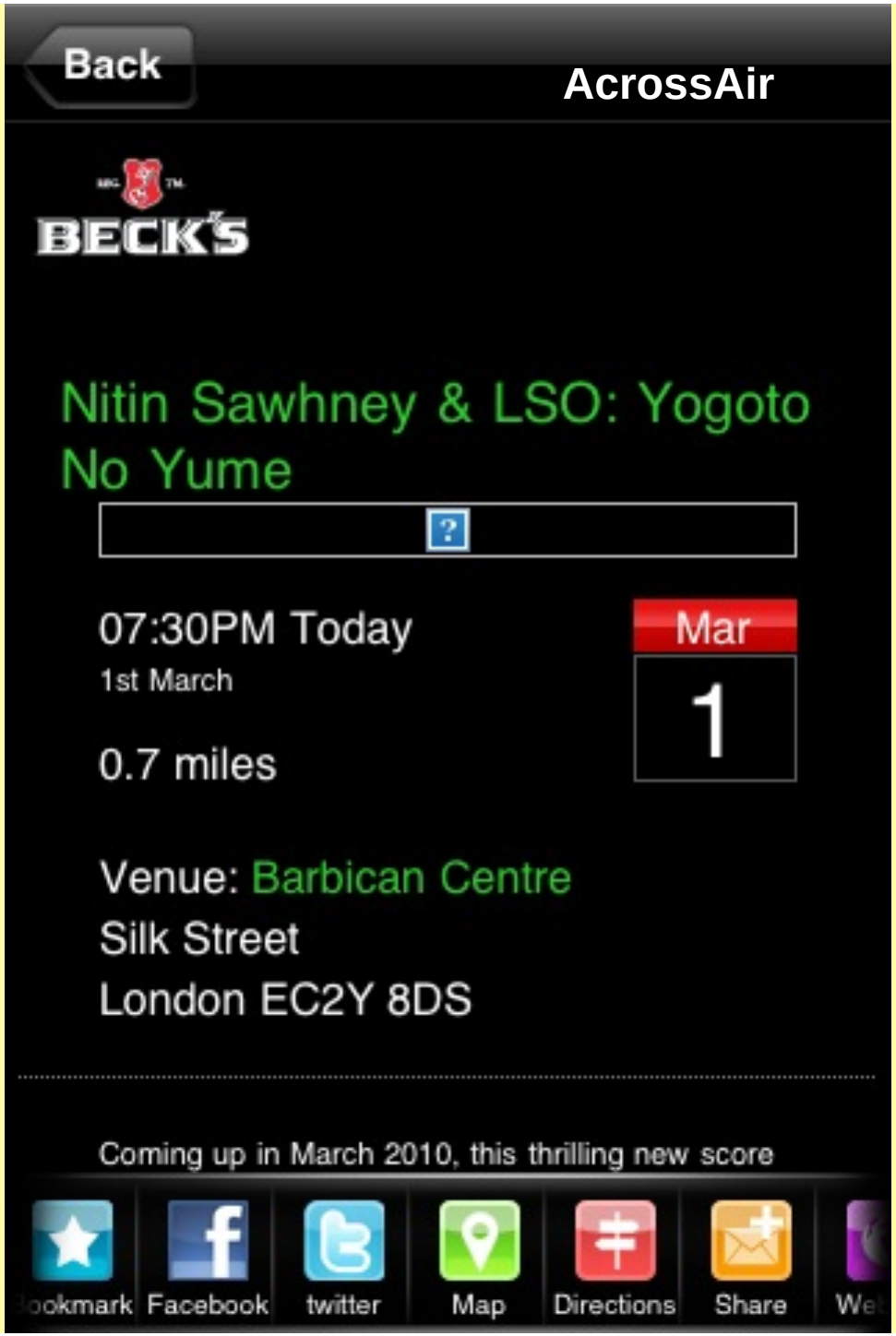
- What are the implications of the above conceptually driven notion of Augmented Contexts for Development for the emerging field of mobile **augmented reality** (which tends to be driven by commercial developments)?

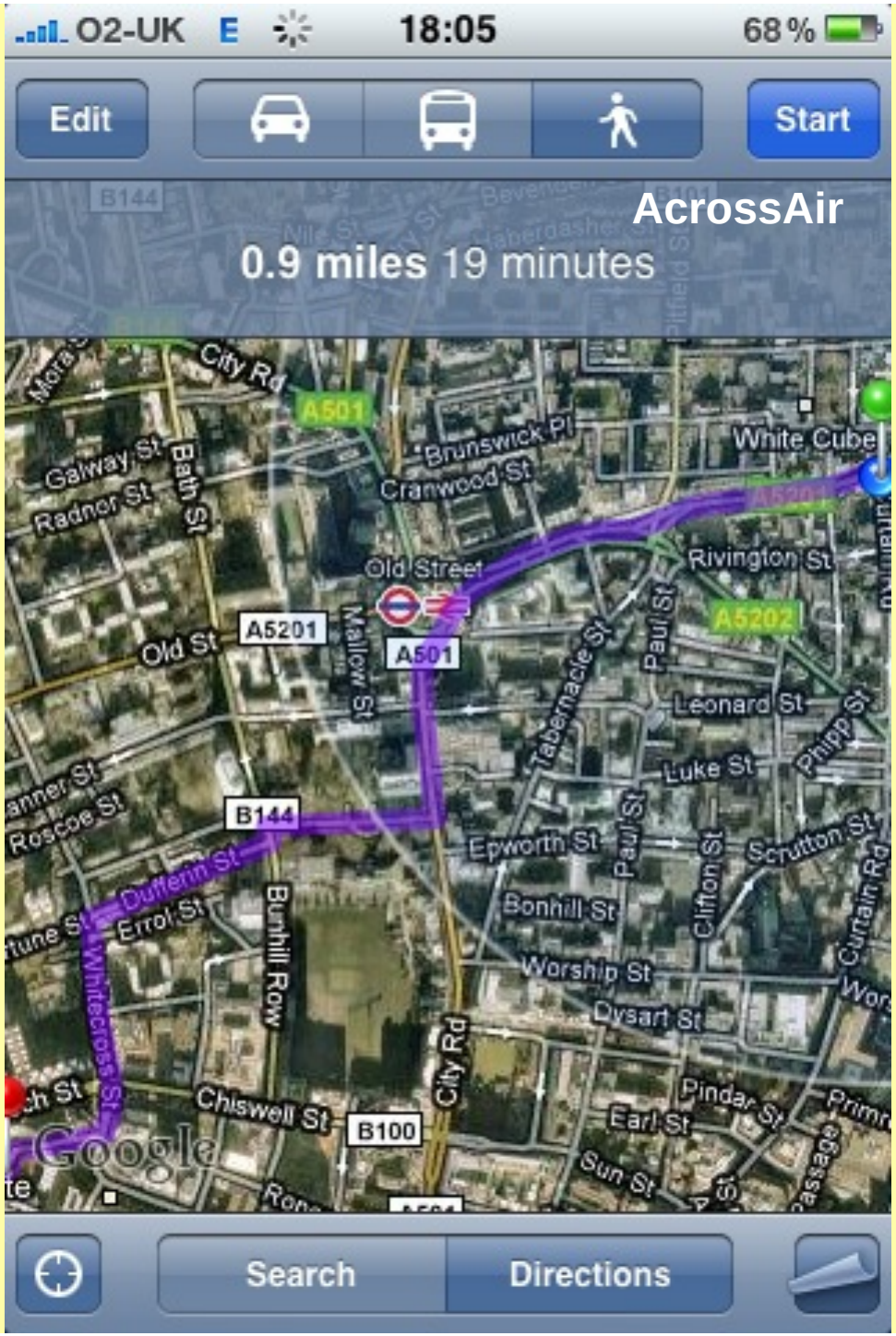

Radius:
2.41 km
Mainz Athl...
Asia-Markt...
Philipp Fol...
Mainzer Ro...
WIKITUDE


Radius:
2.41 km
Mainz Athl...
Mainzer Rosenmontag...
150 m
Average Rating: 5 out of 5; Boppstr ;
55118 Mainz;
WIKITUDE

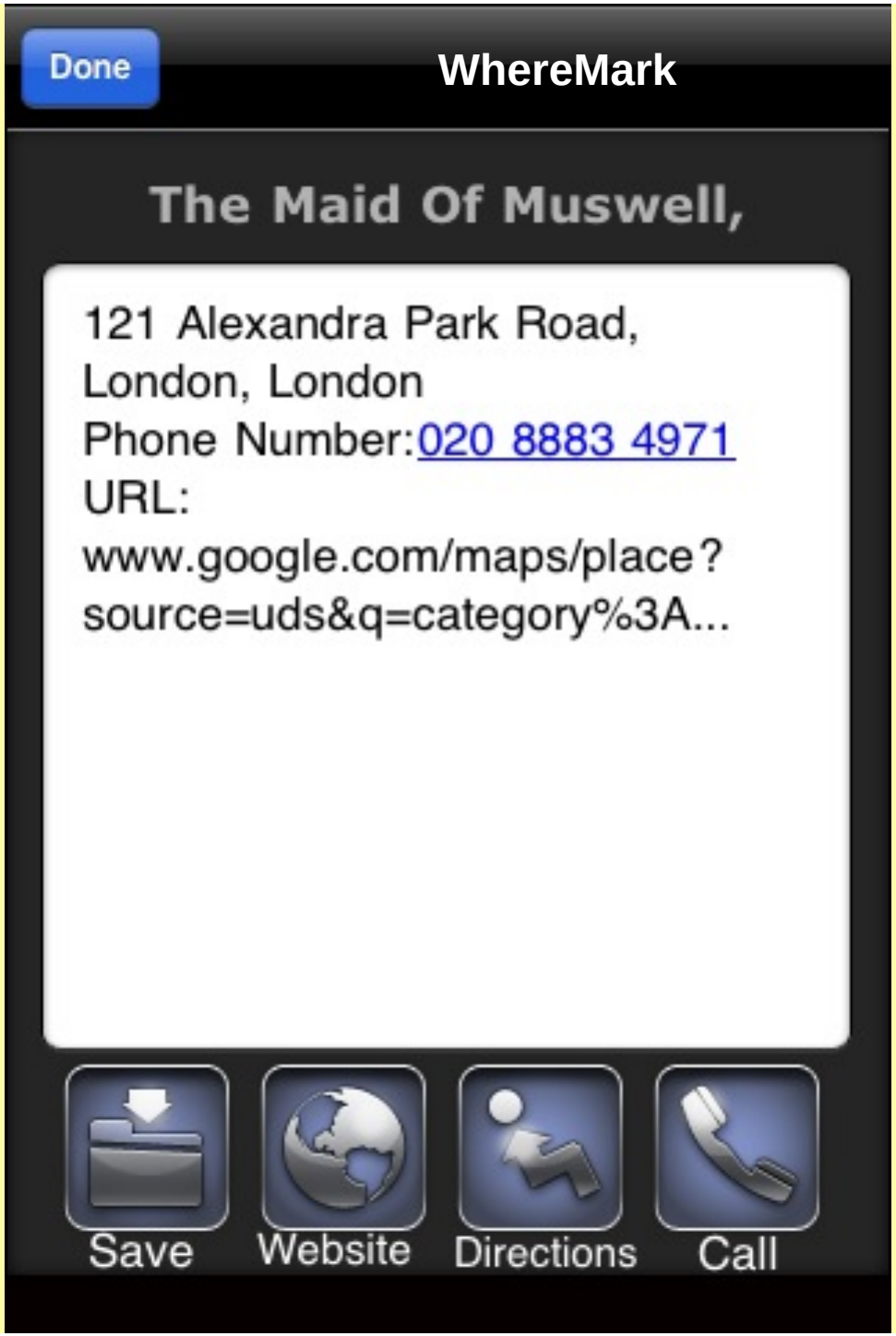

Megafaun
Tuesday 07:30PM
2nd March
Venue: The Slaugh...
0.9 miles
e Memory Band
Today 07:30PM
1st March
Venue: The Slaugh...
0.9 miles
AcrossAir

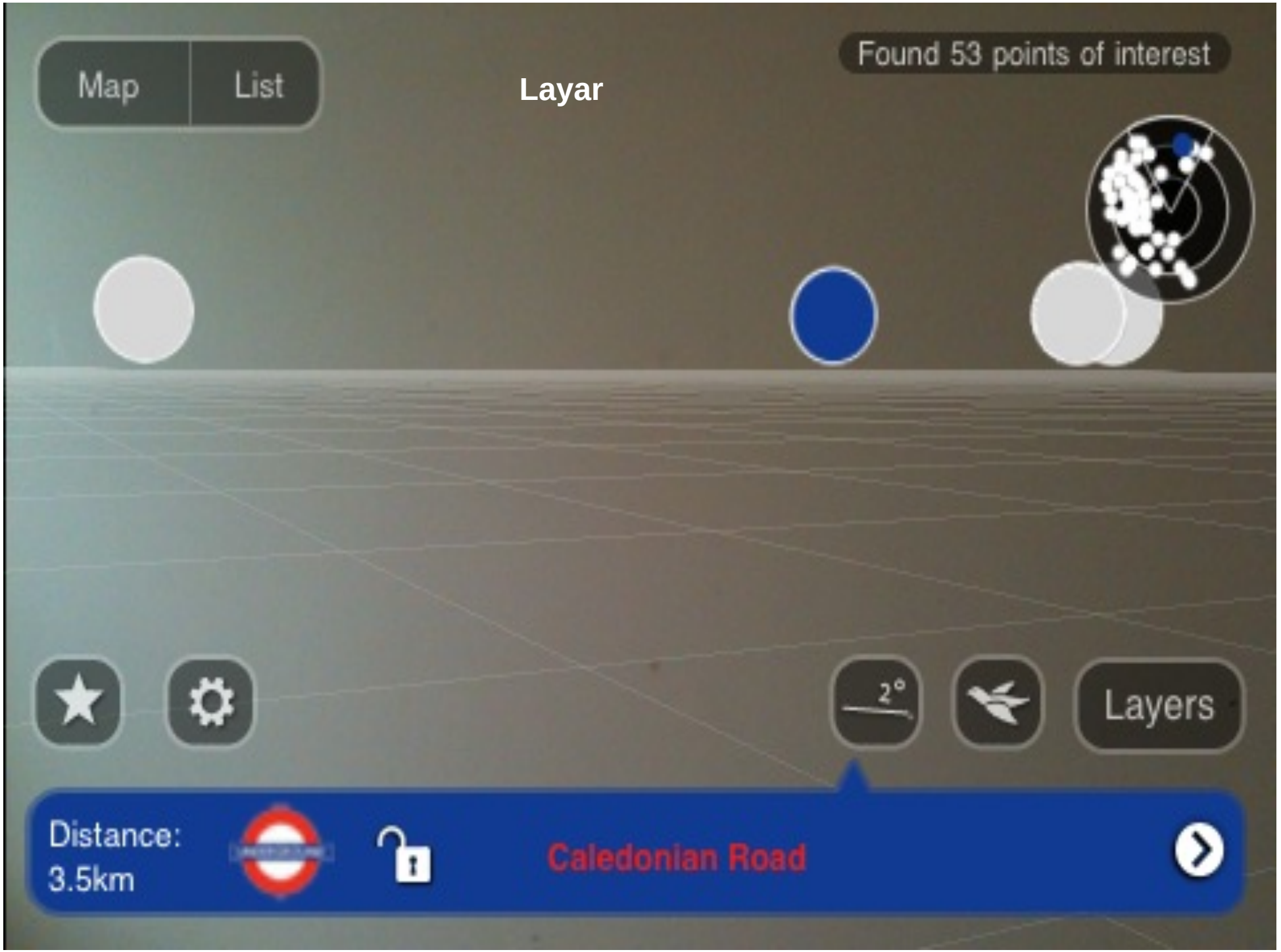

Nitin Sawhney &...
Today 07:30PM
1st March
Venue:Barbican Centre
0.9 miles
Vienna Philharmo...
Tuesday 07:30PM
2nd March
Venue:Barbican Centre
0.9 miles

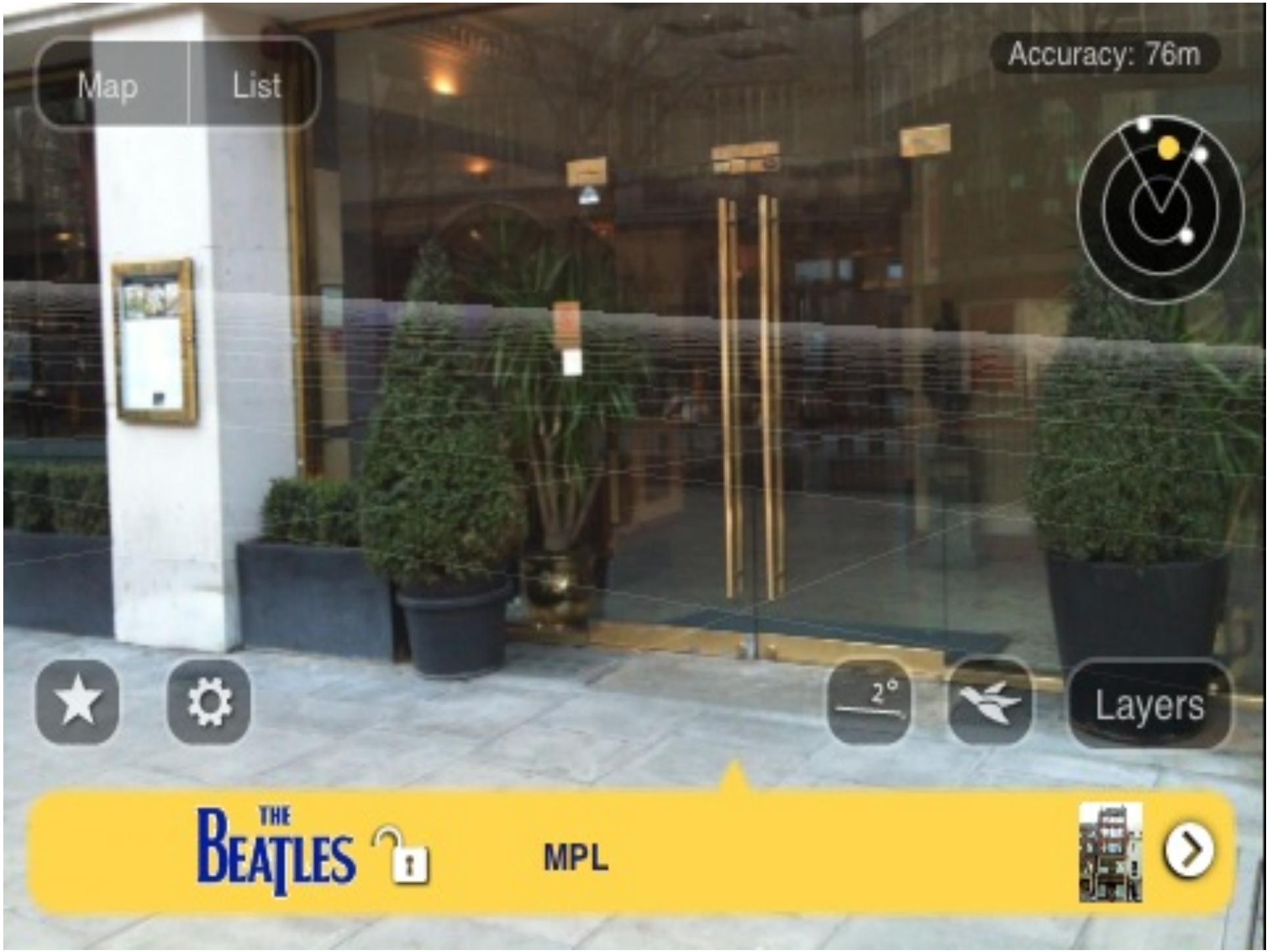

Back
AcrossAir
BECK'S
Nitin Sawhney & LSO: Yogoto No Yume
07:30PM Today
1st March
0.7 miles
Mar
1
Venue: Barbican Centre
Silk Street
London EC2Y 8DS
Coming up in March 2010, this thrilling new score
ookmark
Facebook
twitter
Map
Directions
Share

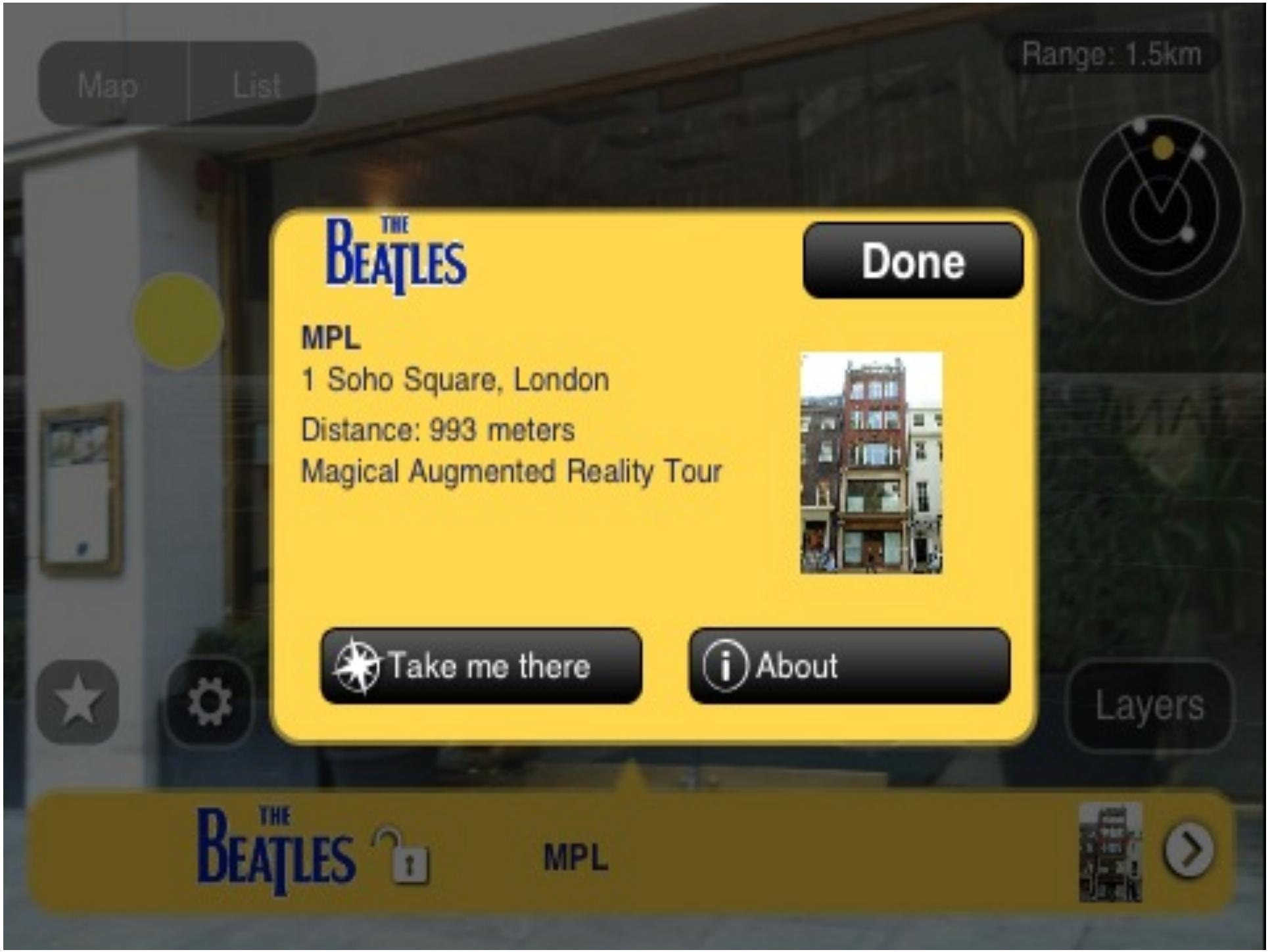

O2-UK E 18:05 68 %
Edit
Start
AcrossAir
0.9 miles 19 minutes
City Rd
A501
Brunswick Pl
White Cube
Galway St
Radnor St
Bath St
Cranwood St
Old Street
Rivington St
A5201
A501
A5202
Old St
Mallow St
Tabernacle St
Paul St
Leonard St
Philpp St
Luke St
B144
Roscoe St
Epworth St
Scrutton St
Duffenn St
Errol St
Burhill Row
Bonhill St
Clifton St
Curtain Rd
Worship St
Dysart St
Whitecross St
City Rd
Chiswell St
B100
Pindar St
Earl St
Sun St
Google
Search
Directions


CATEGORIES
BAR
METRO
FEEDS
DINING
BUS
SEARCH
LANDMARK
TRAIN
MUSEUM
SAVED
0.75 mi
1215 m
Over The Hill Wine Bar
96 Alexandra Park Road, London,
0.31 mi
497 m
The Maid Of Muswell, Muswell
121 Alexandra Park Road, London, London
0.30 mi
476 m
Oriental Cottage
118 Alexandra Park Road
London, London
0.28 mi
456 m
WhereMark


Done
WhereMark
The Maid Of Muswell,
121 Alexandra Park Road,
London, London
Phone Number:020 8883 4971
URL:
www.google.com/maps/place?
source=uds&q=category%3A...
Save
Website
Directions
Call


Map
List
Layar
Found 53 points of interest
2°
Layers
Distance:
3.5km
Caledonian Road


Map
List
Accuracy: 76m
2°
Layers
THE BEATLES
MPL


Map
List
Range: 1.5km
THE BEATLES
Done
MPL
1 Soho Square, London
Distance: 993 meters
Magical Augmented Reality Tour
Take me there
About
Layers
THE BEATLES
MPL

McCartney Productions Ltd


o2 - de 3G
11:21
92 %
Back
View Results on Map
Gewalt ist keine Lösung
(2.0/1.0)
GC1TAAH
SW
0.4mi
Crazy View
(1.5/1.0)
GC1J2BH
SE
0.4mi
Hallo du da im Radio
(1.0/1.0)
GC1M1R7
S
0.4mi
Schlauchomat am 50. Breiten…
(1.0/1.0)
GC1HW1B
SE
0.4mi
Offene Bibliothek Mainz
(2.0/1.0)
GCKWQH
NE
0.6mi
Search
Saved
Settings
Help


o2 - de 3G
11:21
92%
Result List
New Search
Gewalt ist keine Lösung
by Lamima (GC1TAAH)
N 050° 00.123'
E 008° 15.082'
SW 0.4mi
Difficulty
Terrain
Size
Date Hidden
June 07, 2009
Navigate to Geocache
Add to Favorites
Save Maps & Photos
Description
Search
Saved
Settings
Help


o2 - de 3G
11:23
90%
Geocache Info
View Compass
Gewalt ist keine Lösung
0.37mi
Search
Saved
Settings
Help

Response and Questions?

References

- Cook, J. (2010). Mobile Phones as Mediating Tools Within Augmented Contexts for Development. *International Journal of Mobile and Blended Learning.* Due March.
- Cook, J. (in press). Travelling Without Moving: Design-Based Research into Augmented Contexts for Development. *Journal of Interactive Media in Education.* Invited paper for special issue from the CALRG 30th Anniversary Day. Contact me for a copy.
- Daniels, H. (2008). *Vygotsky and Research.* Oxon: Routledge.
- Pachler, N., Bachmair, B. and Cook, J. (2010). *Mobile Learning: Structures, Agency, Practices*. New York: Springer.
- Vygotsky, L. (1978 / 1930). *Mind in society. The development of higher psychological processes*. Edited by M. Cole et al., Cambridge, MA. Harvard University Press.
- Wertsch, J. V. (1985). Vygotsky and the Social Foundations of the Mind. Cambridge, MA: Harvard University Press.