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# Towards Wireless Collaboration

UCISA London Group meeting  
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# Towards WIRELESS COLLABORATION

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Def: two or more people working together to complete a task or achieve a goal, which is enabled by the use of digital mobile devices and where content can also be shared to a common display.

#WirelessCollaboration

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While mobile computing technologies have long been having an impact on learning (Traxler, 2008), usage in higher educational learning spaces is typically a highly personal experience, such as with individuals taking notes on laptops in a lecture theatre. Learning, however, is as much a social experience as a personal one (Bruning et al., 1999). This suggests a paradox that could be best summarised as mobile is usually personal, whereas learning is often or mostly social. The emergence of a focus on how the application of mobile technologies can enhance collaborative learning is a recent movement within the field of mobile learning (Jaldemark et al., 2018), and is a development which might look to address this paradox.

City, University of London (City), has seen increasing demand for its learning spaces to support the use of mobile devices in teaching and learning, particularly the ability to share any content from such devices to a shared class or a common room display. City's Learning Enhancement and Development (LEAD) department has been

actively investigating how to address this particular challenge via an ongoing long-term project, started in 2014 and subsequently dubbed 'wireless collaboration'. The implications of wireless collaboration is that mobile devices can be used as key tools for active and collaborative learning rather than just as devices from which 'wireless projection' is possible. The vision of this project is to enable staff and students to be able to more fully harness the affordances of mobile devices in learning spaces for the purposes of enhancing teaching and learning. This would ultimately entail the installation of wireless collaboration hardware in all learning spaces, and an accompanying programme of staff development and student guidance.

The project has been driven forward via a series of small cross-divisional partnerships and has so far reached dozens of staff. Investigations thus far have included several research and evaluation stages, and a pilot project enacted and then embedded in a Civil Engineering lab. Early outcomes include meeting a formative staff request

for wireless projection that complied with core criteria of enabling platform-agnostic connectivity and full mirroring of any device content, some evidence of enhancing teaching from initial evaluation data, and early-stage dissemination activities.

This poster looks back at some of the work done so far, draws on lessons learned during that journey, and looks forward to the next stages of bringing wireless collaboration to City. It is hoped that the poster encourages others to consider how their learning spaces can be enhanced to better facilitate active or collaborative mobile learning, or to simply join in wit' lev' conversation around these types of technologies.

Share your experiences: <http://bit.ly/1mLearn18WiCoSurvey>

## ORIGINS 2007-14



### Pod Evaluation 2011



### Staff Survey 2014



### Staff Interviews 2014



## RESEARCH 2014/15

### Desk research

- Core project aims identified:
1. Enable staff to present and control content from their own mobile devices wirelessly to the projection screen
  2. Enable students to present content from their own mobile devices wirelessly to the projection screen

### Initial vendor demos

- WiPresent
- DisplayFlow
- Enzo (AMN)

### Identification of key protocols



## SHORTLISTING 2015/16

### Designing Active Learning Initiative

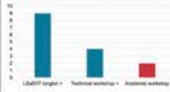


### Staff workshops

### Key questions asked of candidate technologies:

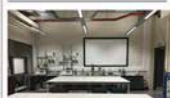
- Hardware or software? Will it run natively on our networks? How will users connect to it? Is it platform agnostic? Does it allow full mirroring from any device? Is it easy to use? Could it be used as a portable whiteboard? Are there annotation capabilities? Is there a moderator mode? Is it scalable? Could groups use it for collaborative work? How many input devices can it take or display? What is the support model?

### Route through candidate technologies



## INTRODUCING 2016/17

### Civil Engineering lab pilot



Wireless collaboration solution developed for undergraduate lab teaching, consisting of a Mersive Solstice pod connected to the lab projector, an iPad Pro, and an Apple Pencil.

### Partnering with IT

Worked with Network team for wireless collaboration devices to be securely installed on eduroam network, ensuring access to Internet when mirroring mobile content. Below data from Nov 2016:



Access points across campus: c. 700  
Peak concurrent connected devices: c. 7,500

### Initial dissemination

- Human-Computer Interaction Design seminar (City)
- Academic Practice and Technology conference (University of Greenwich)

## EMBEDDING 2017/18

### Engineering installation/evaluation



<http://bit.ly/1CvEngWiCoCaseStudy>



### Journalism Newsroom



New active learning space designed for Journalism department, with wireless collaboration (Wolfson V-Solution) as central feature.

## EXPANDING 2018/19

### Pilots in lecture and seminar spaces



### Business case

To fund installation in more learning spaces

### Increasing dissemination

- References:**
- Bruning, R. H., Schraw, G. J., & Ronning, R. R. (1999). Cognitive Psychology and Instruction. Upper Saddle River, NJ: Merrill.
  - Jaldemark, J., Hrasinski, S., Olofsson, A. D., & Öberg, L.-M. (2018). Editorial Introduction: Collaborative Learning Enhanced by Mobile Technologies. British Journal of Educational Technology, Vol. 49, No. 2, pp 201-206.
  - Traxler, J. (2008). Learning in a Mobile Age. International Journal of Mobile and Blended Learning, Vol. 1, No. 1, pp 1-12.

### Image credits (all from The Noun Project):

- projector screen - Sarah JOY
- iPhone - Edward Boatman
- macbook - Aaron K. Kim
- iPad - Anna Sophie



# Introducing wireless collaboration



*...two or more people working together to complete a task or achieve a goal, which is enabled by the use of mobile digital devices and where content can also be shared to a common display...*

# Demand at City for wireless sharing

“

Presenting wirelessly  
from my iPad or laptop  
onto the projector screen  
would be great.

”



<http://bit.ly/CivEngWiCoCaseStudy>

# Narrowing down the candidates



Technical Questions	Pedagogic Questions
Is it a hardware or software solution?	Can streamed files be annotated over?
Will it run securely on City's network?	Can users run presentations from their mobile device with it?
Does it facilitate full mirroring from any mobile device?	Is there a 'moderation' mode, to allow central control of shared content?
Is it scalable across the institution?	Can content be shared to multiple devices for group work and re-shared at the end of the activity?
How many mobile devices can simultaneously connect to it?	Can content be easily shared both to the main room display and between other mobile devices?
Are there any ongoing support and/or licencing costs?	Does it support split-screen projection, allowing multiple connected devices to be displayed together?
How 'future proofed' is it?	Does it have video conferencing capacity?
What other features does it have?	Could the mobile device be used as a portable whiteboard via this solution?

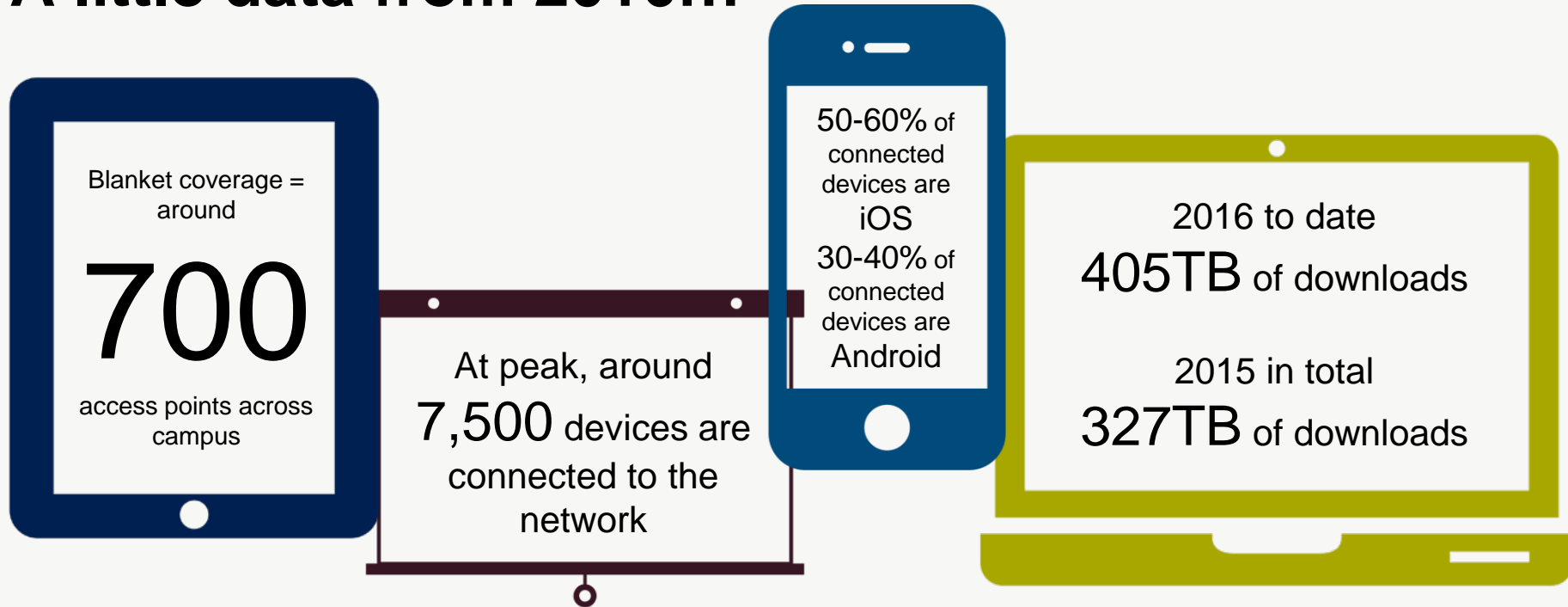
# The bigger picture...



*...install a chosen solution in all of City's learning spaces, so that staff and students can take advantages of the educational affordances of mobile devices wherever they are timetabled or located...*



# A little data from 2016...



# Lessons from Civil Engineering

- Supported natural methods of lab teaching
- Inclusive, collaborative approach to running labs
- Positive impact on 'flow' of session
- Opened up new possibilities
- Need for further staff familiarisation
- Some issues with losing connection



# Newsroom

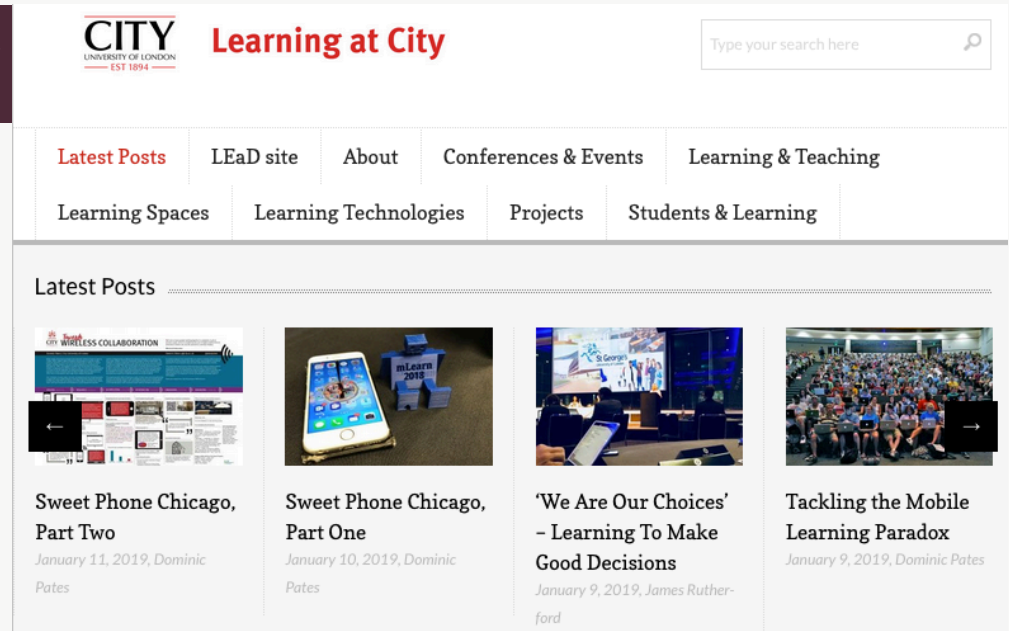


## Current/future plans

- Expanding pilot programme across spaces/displines
- More sectoral benchmarking & dissemination
- Further tool analysis (Solstice vs weConnect)
- Control Panel (Creston) UI and integration
- Naming of service
- Staff development/Community of Practice

# Further reading

<https://blogs.city.ac.uk/learningatcity/>



The screenshot shows the homepage of the 'Learning at City' blog. At the top left is the City University of London logo (EST 1894) and the title 'Learning at City'. A search bar is located at the top right. Below the header is a navigation menu with links: Latest Posts, LEaD site, About, Conferences & Events, Learning & Teaching, Learning Spaces, Learning Technologies, Projects, and Students & Learning. The main content area is titled 'Latest Posts' and features four article cards. Each card includes a thumbnail image, a title, and the author's name and date.


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January 9, 2019, James Rutherford

  
**Tackling the Mobile Learning Paradox**  
January 9, 2019, Dominic Pates

# Questions...



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