Learning Futures – is virtual the new reality?

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Introduction

- Physical and virtual spaces – learning happens anywhere, anytime
- Space and technology needs to be considered alongside other integrated elements of learning and teaching practice
- This presentation will consider:
  - Challenges facing Higher Education
  - Trends in (physical and virtual) learning spaces and what we can expect in the future
  - Considerations in developing learning spaces
  - UNSW experience and challenges
  - 'Future Learning Spaces' project at Learning & Teaching @ UNSW
  - Common principles for learning spaces

Key Terms

- **Learning space** : any environment where learning can and does occur – formal and informal, physical and virtual.
  - **Physical spaces:** the campus, classrooms, lecture theatres, corridors, libraries or learning commons, lawns, etc; as well as the environment outside the University grounds where informal learning can and does takes place.
  - **Virtual spaces:** any interaction in “cyberspace” (or virtual environment) through a technology medium of some kind, which is not in the physical environment.

Challenges Facing Higher Education Institutions

- Globalisation
- Massification
- Supercomplexity (Barnett, 2000)
- Systemic Problems
- Student Diversity
- Lifelong Learning
- Funding Pressures
- Changing Pedagogy
- Ubiquity of Technology

Trends in Learning in Physical and Virtual Spaces

Brown and Long (2006) suggest *"**three major trends** inform current learning space design:*

1. ***Design based on learning principles**, resulting in intentional support for social and active learning strategies.*
2. *An emphasis on **human-centered design**.*
3. *Increasing ownership of diverse **mobile devices that enrich learning**."*

Trend 1 – Design Informed by Constructivist Pedagogy

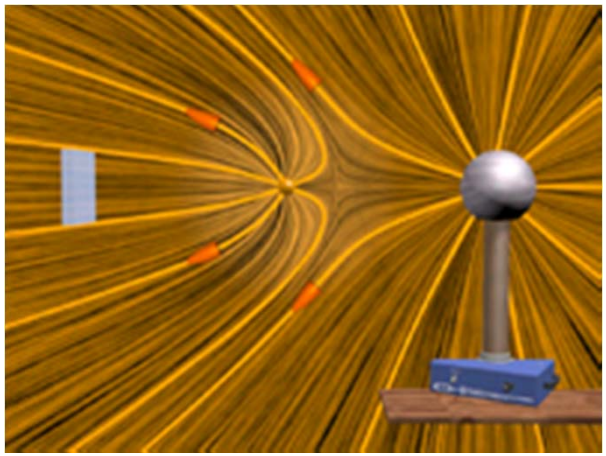
- Increasing emphasis on **collaborative constructivism**
- Learning is a process of (collaboratively) developing meaning and understanding by the students
  - **Active learner participation**
  - **Collaboration**
  - Interactivity and **multiple roles** (listener, critic, mentor, presenter); and **social engagement** (group work, discussion boards, wikis)
- **Flexibility** – movable furniture and space that can be reconfigured for different learning modes

- **Case Study 1** – Massachusetts Institute of Technology – Technology Enabled Active Learning (TEAL) project

  http://web.mit.edu/8.02t/www/802TEAL3D/teal_tour.htm

The TEAL Classroom

Students at Work



A Van de Graff Generator Repelling a Charge

An animation of the electric fields around a van de Graaff generator as it repels a positive charge. We show both the "*moving field lines*" and the "*dynamic line integral convolution*" representation of the electric field. Correlations in the animated texture indicate the direction of the field. Set Windows Media Player to "repeat"

http://web.mit.edu/8.02t/www/802TEAL3D/teal_tour.htm

Trend 2 – Human-Centred Design – Informal Learning Spaces

- **Spaces built around the people** using them rather than the resources maintained there – embodied in 'Learning Commons'.
- The new **'Learning Commons'** aim to be places where students:
  - Can **collaborate and conduct team-work** to jointly develop projects or presentations
  - **Access** online and hardcopy resources and **information**
  - **Socialise and interact** to create knowledge
  - **Construct and apply their knowledge** to strengthen and deepen learning.
- Changes made to libraries; key drivers for **change in learning spaces across campus**.
- **Case Study 2** – University of New South Wales 'Learning Commons'

Newspapers
328
327

415

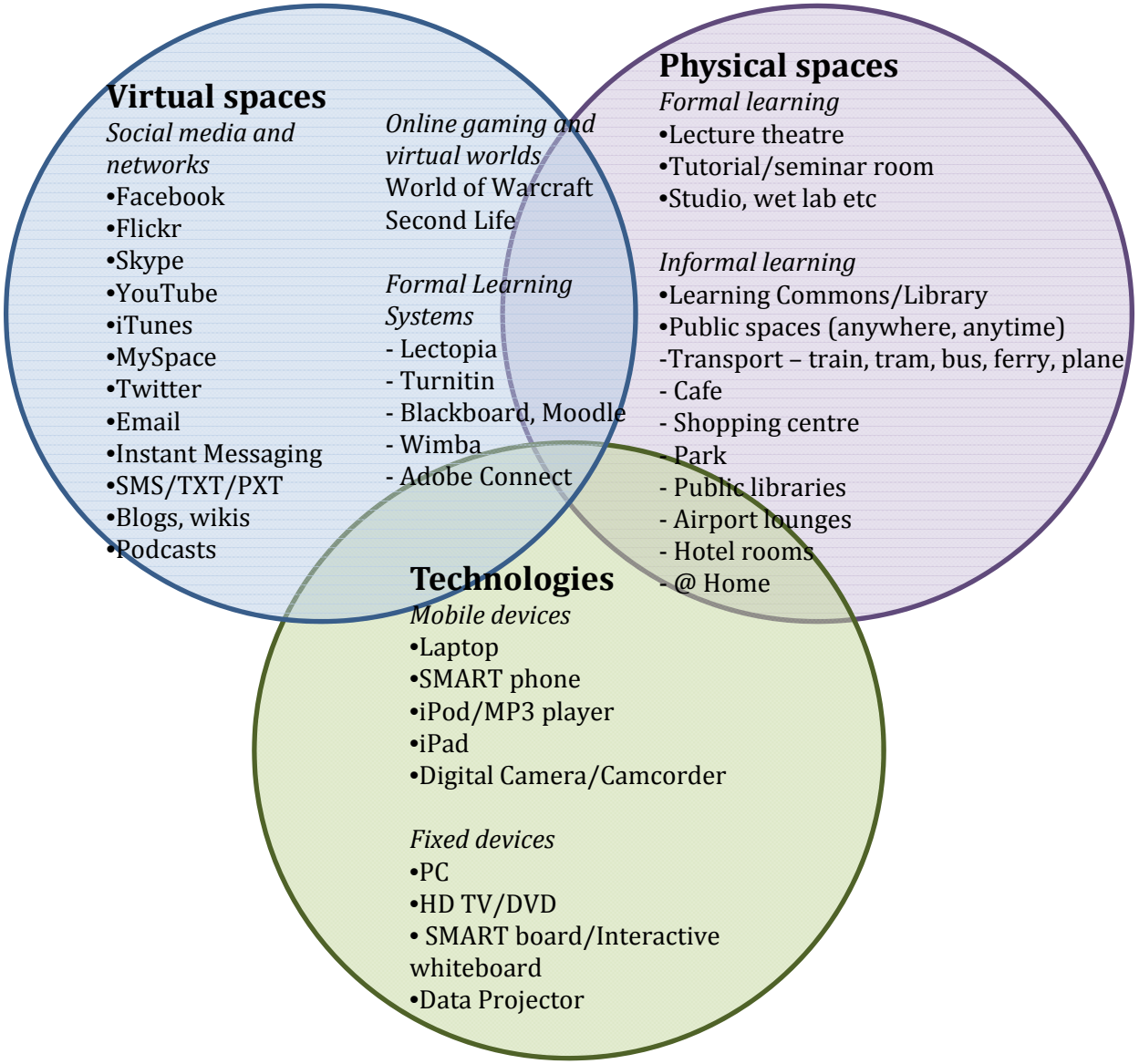
Newspapers
NO meals allowed

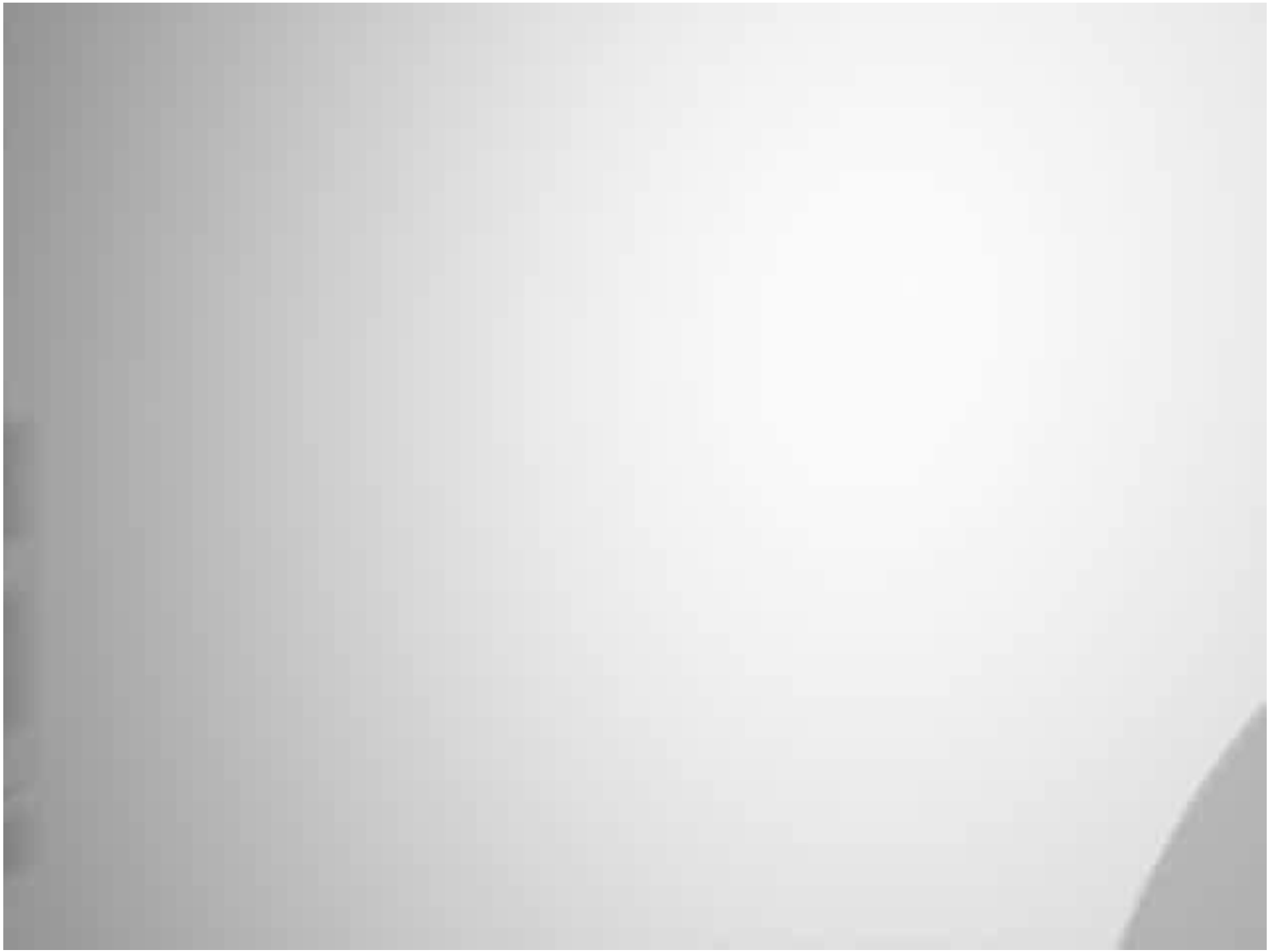
Trend 3 – Virtual Spaces and Mobile Technology Devices

- Growth in student ownership and usage of **mobile technology devices**
  - Social networking
  - For learning
- Rise of the **"virtual space"** (mobile technology devices, the internet and the movement to **Web 2.0**) – social media/networking, multiplayer online gaming environments and virtual worlds.
- Virtual environment has **impacted on** the way in which the **physical space** is used.
- Web 2.0 facilitates an interactive environment for sharing, collaborating, creating, exchanging and generating information and **user-created content**.

- Case Study 3 – University of New South Wales – Digital Computation Studio
  http://tv.unsw.edu.au/video/online-portfolio-tools-tam-nguyen1

Figure 1 – Interaction between virtual spaces, physical spaces and technologies





What can we expect in the Future?

- Use of **mobile technology devices** will continue to grow
- **IT costs rising** (the potential of 'Cloud Computing')
- **Seamless integration of IT** infrastructure, applications and support services
- **Technology to enable and support learning**; focus on change to curriculum and teaching practice
- **Virtual space as a classroom a future reality**; blurring boundaries between physical and virtual learning spaces
- **Flexibility and adaptability** of physical and virtual spaces critical
- Increased focus **on human-centred design**; participatory approach to designing learning spaces.

Considerations: Student Characteristics

- **Generation 2.0, Millenials**
  - learning experiences that are **digital, connected,** experiential, immediate and social (Lomas and Oblinger, 2006)
  - more **active, participatory and experiential style of learning** (Oblinger, 2006), which includes the use of technology, which is integrated into their environment and their learning.

- BUT, **don't overlook differences** within the cohort of students or make assumptions about their access to or use of technology.

Considerations: Learning Principles

- UNSW's Beliefs about Learning.

- Learning should:
  - Be active
  - Engaging
  - Situated & Authentic
  - Build connections
  - **Guided by clear expectations and academic standards.**
  - Be challenging and supported
  - **Be inclusive of diversity**

Considerations: Staff

- **Staff -** particularly teaching staff **-** to **lead** (be involved) in the **development of learning spaces**.
- Consider existing **capabilities and needs** of teaching staff and students to utilise the (space) and technology.
- Complex relationship between **pedagogical practice and new physical and virtual learning spaces**.
- **Professional development and incentives** for staff to adopt new practices.

Considerations: Technology

- Ability for individual **students' mobile devices to connect** with the **institutional virtual network** and technology
- Provision of **technology to support informal and/or 'off-campus'** or distance learning
- Virtual learning environments and **virtual collaborative spaces**
- **Privacy and copyright**
- Access to **digitised** resources in **multiple** formats.
- **Archiving** of resources
- **How to support** the technology
- Implementation of technology solutions
  - Focus on **What, How and Why**: the technology's purpose (What), how it is to be used (How), and what is to be achieved within the technology setting (Why)
- **Usability** of virtual spaces

UNSW Experiences & Challenges

- **Silo** approach: between **academics and faculties** who develop curriculum and pedagogy, and **IT and Facilities Management** who make decision about IT and learning spaces.
- **Lessons Learnt:** we don't learn from our mistakes. **Systematic approach for the evaluation of learning spaces.**
- **Fragmentation:** in the **way learning spaces are "owned" and managed.** Same goes for virtual spaces and learning technologies – IT departments only deal with the "boxes".
- **Obsolescence:** buildings outlast the components inside them. 3 years for software system; 15 years for furniture.
- **Time and Money: technology and capital development** are a significant financial investment. **Key stakeholders time poor** – not enough time goes to planning and design for learning spaces.

UNSW 'Future Learning Spaces' Project

- Strategic project to explore **how the physical and virtual learning spaces will look like in 2020**; aligned with UNSW Strategic Vision.
- Objective in UNSW Learning & Teaching Enhancement Plan is to: "Enhance the infrastructure for Learning and Teaching (Organisational, Physical, and Virtual)"
- *Goal I2: Improve the physical spaces – both formal and informal – that enable and support learning and teaching.*
  - L2.1 Optimisation of existing physical spaces into learner-centred environments
  - Review current physical spaces to assess their level of learner-centredness
  - Establish and evaluate a prototype learning space as a basis for developing guidelines for the (re)development of future learning spaces.
- *Goal I3: Improve our on-line learning and teaching environments.*

UNSW 'Future Learning Spaces' Project

- 3 year project: 4 phases of work
- **Aims of the project:**
  1. **Baseline data concerning the learner-centredness of current** UNSW teaching and learning **spaces** (audit of all current learning spaces) and comprehensive database of learning spaces
  2. **Guidelines for the (re)development of learning spaces** including a framework for evaluating learning spaces
  3. **Prototype learning space** on campus and an evaluative report on its effectiveness
  4. Proposed **program of work to re-develop existing spaces** in accord with guidelines.

UNSW Principles for Learning Spaces (proposed)

To plan and create learning spaces:

1. That are **learner centred**
2. That are focussed on how **curriculum is and will be delivered**
3. That extend beyond the classroom (formal) to **informal settings**
4. That are **flexible and adaptable**
5. That provision for **flexible, reliable and integrated access to technologies**, wireless network and support of mobile devices
6. That are **human-centred** in design
7. That are **participatory** in design
8. That incorporates **professional development opportunities and incentives** for staff
9. That are **transferable**
10. That are **financially viable**
11. That are **sustainable.**

Concluding Comments

- Learning spaces will **continue to transform and evolve** in the future.
- Learning spaces need to be designed to enhance the **student experience** and promote **learning outcomes**.
- **Technology** provides a range of opportunities to create **new kinds of learning activities and experiences**.
- Create truly **integrated technology enhanced learning environments.**
- Provide **incentives** to bring faculties and academics "on board".
- **Holistic participatory approach**; not just "learning spaces", but creating **"learning environments".**

Questions and Feedback

- What do you think are the future trends for physical and virtual learning spaces?
- What are the key challenges facing your institution? What are you doing to address these?
- Comments or feedback on our approach and proposed principles?

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Recommended Reading:

- Oblinger, D. (ed) *Learning Spaces.* EDUCAUSE.
- Brown, J. (2005) New Learning Environments for the 21st Century. www.johnseelybrown.com/newlearning.pdf (accessed 20/09/10)
- Warger, T and Dobbin, G. (2009) *Learning Environments: Where space, technology and culture converge.* EDUCAUSE.
- Johnson, L., Levine, A., Smith, R., & Stone, S. (2010). *The 2010 Horizon Report.* Austin, Texas: The New Media Consortium.

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