

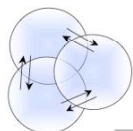
THE LEARNING LAB PROJECT ...

Supporting Group and Collaborative Learning for Large Classes ...

This is Not the West Theatre ...

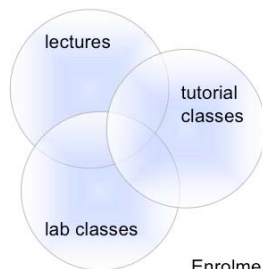
A Place for Active Learning ...

Transforming a Learning Experience ...

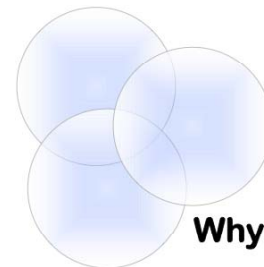
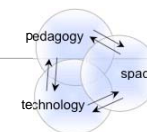


Peter Tregloan,
School of Chemistry, The University of Melbourne

100 Chemistry at Melbourne ...

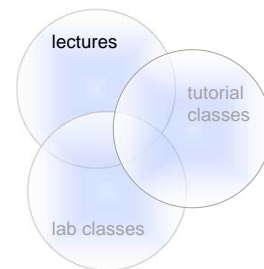


Enrolments of ~950 + ~150 + ~150 + ~250
in subjects that are generally well regarded

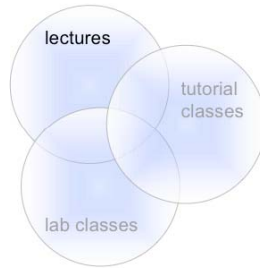


Why do it ?

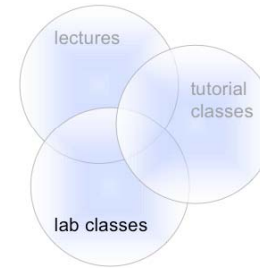
100 Chemistry at Melbourne ...



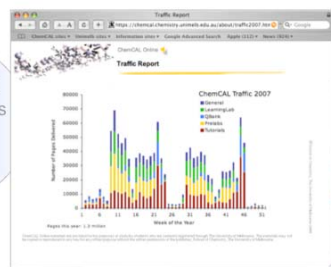
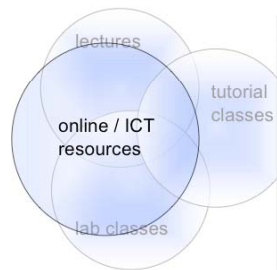
100 Chemistry at Melbourne ...



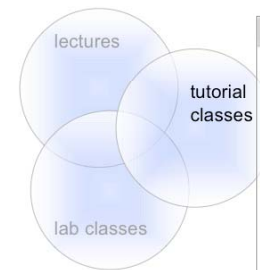
100 Chemistry at Melbourne ...



100 Chemistry at Melbourne ...



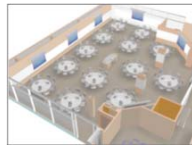
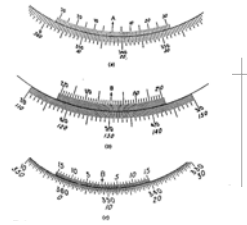
100 Chemistry at Melbourne ...



The Brief ...

To create an environment that ...

- engaged students in active learning tasks and activities
- encouraged students to work collaboratively
- incorporated technology to support in-class learning
- developed students' confidence and enquiry about the subject



... TEAL MIT

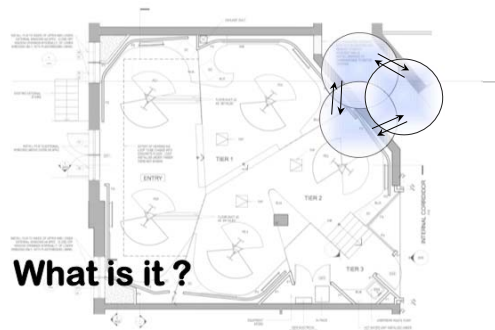
The Learning Lab Project ...

Ken Ghigginio
Peter Jamieson
Jo Joyce
Frank McCoy
Jon Peacock
Peter Schreuder
Carlo Sgro
Peter Tregloan

Brendan Abrahams
Stephen Best
Rob Charlesworth
Penny Commons
Sonia Horvat
Andrew Mariotti
David McFadyen
Uta Wille
Carmel Abrahams
Gen Adams
Sarah Harvey

Evan Bieske
Paul Donnelly
Craig Hutton
Richard O'Hair
Mark Rizzacasa
Frances Separovic
Trevor Smith
Spencer Williams
Charles Young

Chi Baik
Kerri-Lee Harris



What is it?

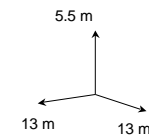


@ June '06



@ August '06

... and in an old building



The Learning Lab ... a place for active learning

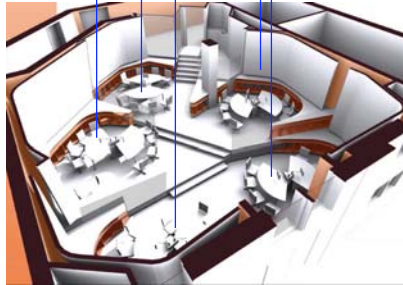
There are 5 work zones

.. each for 2 groups of up to 4 students

.. set on different levels with global / local controls and lighting

.. a swivel desk arrangement for flexibility in grouping

.. each with IT support



The Learning Lab ... a place for active learning

There are 5 work zones

.. each for 2 groups of up to 4 students

.. set on different levels with global / local controls and lighting

.. a swivel desk arrangement for flexibility in grouping

.. each with IT support



The Learning Lab ... a place for active learning

Each zone has

... a large LCD display, a document camera, PC and laptop points, all capable of local or global display

... a white board



The Learning Lab ... a place for active learning



High Performance Computing Group, The University of Melbourne

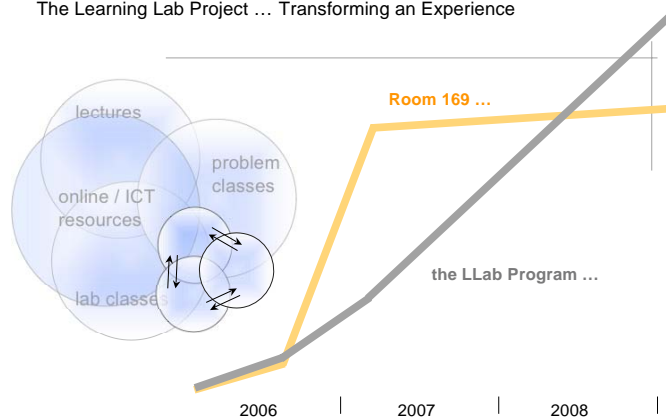


What happens there ?

The Learning Lab ... a place for active learning



The Learning Lab Project ... Transforming an Experience



The Learning Lab ... a place for active learning

A major change to shift the dynamic of the classes ...
 ... support the tutors with teaching assistants, so they can work with students and promote engagement ...



The Learning Lab ... a place for active learning



The Learning Lab ... a place for active learning

... miniDV-cam projection enables chemical demonstrations to be carried out on a small scale in the Lab ...

Beyond Multimedia
- Back to Reality



The Learning Lab ... a place for active learning

Some metals dissolve in acids, even dilute acids, to produce hydrogen gas

$$\text{Zn} + 2\text{H}^+ \rightarrow \text{Zn}^{2+} + \text{H}_2$$

Copper metal does not ...

$$\text{Cu} + 2\text{H}^+ \nrightarrow \text{Cu}^{2+} + \text{H}_2$$

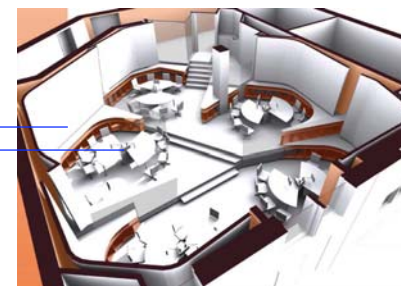
but in nitric acid ...

$$\text{Cu} + 4\text{H}^+ + 2\text{NO}_3^- \rightarrow \text{Cu}^{2+} + 2\text{H}_2\text{O} + 2\text{NO}_2$$

... r
proj
ena
den
to b
on
in th
Bey
-Ba

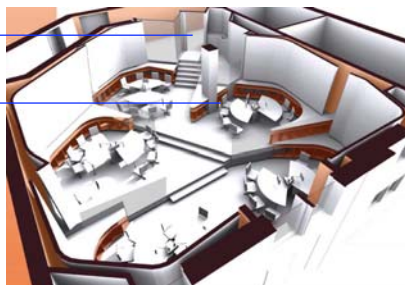
The Learning Lab ... a place for active learning

Web-video
conference
connections to
Zone 1 ...



The Learning Lab ... a place for active learning

Remote observation capability as part of evaluation programs ...



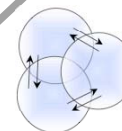
David Clark, ICCR

Transforming an experience ...

- peer presentation and explanation ...
- webconference research lab visits
- reflective video of practice ...
- the new workbook ...
- textless animations ...
- ChemCAL structural analysis ...
- Keepad feedback ...
- micro demonstrations ...
- VR lab safety movies ...
- developing new practices by example ...
- working from activities we had ...
- talking - a lot ...

2006 | 2007 | 2008

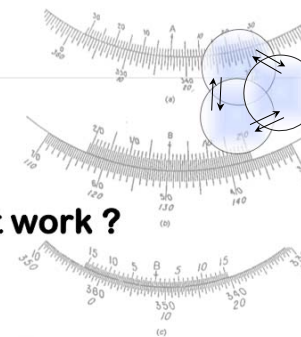
the LLab Program ...



The Learning Lab ... is not the West Theatre



Does it work ?



From general student reactions ...

- Attendance at tutorials has dramatically increased; census data now indicates ~85% attendance at Week 4, ~70% at Week 10
- QOT survey data in large subjects is generally difficult to shift, but ...

	2004	2005	2006	2007	2008
"This subject was well taught"	3.6	3.8	3.7	3.9	4.0
" I received helpful feedback"	3.2	3.4	3.3	3.5	3.5

From interviews with staff ...

- Staff described the principal benefits of the new 610-101/171 tutorial program in terms of opportunities to 'get in amongst the students'
- Tutors who had used Keepad in their classes agreed that there was an overwhelmingly positive response from students
- Simple 'low tech' resources, such as the tutorial workbook, can have a profound effect on students' engagement with the learning task.
- Suggestions from staff included more access to computer models and more examples (for staff) of the possibilities afforded by the technology

An external evaluation of the chemistry tutorial program was commissioned through Centre for the Study of Higher Education ...

- Participants were
 - 793 first year chemistry students in three subjects (610-101, 610-171, 610-150), who were surveyed in May 2008, and
 - 27 staff (class and subject tutors, lecturers and project leaders), who were interviewed in separate groups in November 2007
- Tutor and student groups described tutorials as an opportunity to practice problem solving skills and, especially in the case of students, to revise and expand on lecture topics
- Endorsement of the value of tutorials was strongest among 610-101/610-171, where 25% called for 'more of the same' kinds of activities, compared to 10% in 610-150

From the 2008 evaluation survey of students ...

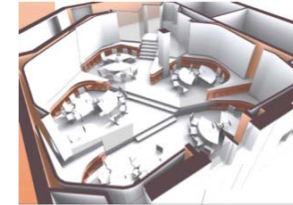
- Students rated the values of various technologies on the basis of the use to which they were put - where it was appropriate, its use was endorsed
- Students valued the 'two tutor' model - and attributed different but complementary roles to the 'subject' and 'class' tutors.
- The majority of students agreed that the style of tutorials helped their ability to answer questions
- Most students agreed that presenting their work to others would help them in their own learning - though they were rarely expected to do so.

Lessons ...

- The diverse demands that these large class tutorials place upon space are unlikely to be unique
- Support for a combination of presentation and practice opportunities is favored - by both staff and students
- The best environments will be flexible - with respect to both facilities and to accommodating staff/student needs and strengths
- Smooth transition between class-wide presentation and small-group interaction is a key attribute of the program - and a challenge

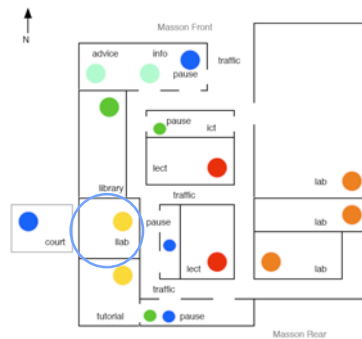


- everything is a prototype; all design is redesign
- solutions are unique, not commodities
- learning environments are boundary-less
- context counts



Radcliff

A Chemistry Learning Precinct ...



An integrated plan for Chemistry Masson to provide and support a full range of learning modes ...

- Formal large group lectures
- Lab classes - individual assessed work
- Small group/ collaborative work
- 1 to 1 assistance and support
- Private study
- Informal social settings

... and continuous movement and interchange between them