Landscape Practicum : Constructing Experiential Learning
The realisation of design ideas in physical form through site construction is a fundamental tool in learning and understanding within the design disciplines, and especially in the landscape and architectural design professions.
Traditional forms of experiential learning such as apprenticeship and internship can be problematic due to difficulties in structuring the experience towards specific learning outcomes and in assessing student learning.

Experiential learning has long been incorporated into the teaching of design, but typically in small-scale, ad hoc ways.
Practicum

“A course in a professional or specialized field that gives students supervised practical application of a previously studied theory”.

Constructed experiential learning

“A taught course in a specialized field in which students are guided by experienced professional practitioners in the practical application of a theory or technique, through a specifically designed project”.
A prototype course was developed under a TDG as an elective course in the final year of the old 3-year BA(LS) curriculum, in Spring 2013, with a view to it becoming a core course in the new 4-year curriculum.
Course learning outcomes were:

1. Understand the process for designing, fabricating and constructing a specific project.
2. Work effectively with practicing professionals (suppliers, contractors, site supervisory staff, design professionals, site owners etc.) to collaborate within a design and construction team to achieve common built objectives.
3. Understand the material, technological, and constructional issues relating to green roofs, and the practical application of associated theories and concepts.
4. Understand and promote issues of sustainability and particular recycling / upcycling in landscape works.
Landscape Practicum
Pedagogy

The practicum course is centred on a project to research, design, fabricate and install a common landscape element, under the guidance of outside professional practitioners and using commercial landscape contractors and suppliers.

The project is essentially led by the students and guided by the instructor and supported technically and logistically by outside practitioners.
Landscape Practicum
Project for the class of 2012/13

Students were asked to create a prototype productive green roof system, on the Runme Shaw Building roof deck, to comprise a series of planting structures (and other elements), to grow vegetables, herbs etc.

The area available was approx. 900 sq.ft with a target growing area of approx. 400 sq.ft.
Landscape Practicum
Roof greening

SITES. Green Roofs in Hong Kong
IMAGES. DSD, HK City Farm, Eco-Mama
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<th>Landscape Practicum</th>
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<td>Participants</td>
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<td><strong>Students</strong></td>
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<td><strong>Instructor</strong></td>
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</table>
| **Practitioners**   | Lori Gibbs – specialist in sustainability issues and green roof systems  
                      | Andres Ibanez - researcher in green roof systems  
                      | Rob Walters – professional landscape construction site manager  
                      | Marcus Swetnam – roof top garden designer / contractor  
                      | Lucas Lai - Landscape contractor, supplier of materials / labour, off-site fabrication  
                      | Vivian Lai - Landscape nursery manager  
<pre><code>                  | Melissa Cate Christ, Connie Chiu, Yang Ye, Chris Zhang - Helpers from ‘Edible Roofs’ |
</code></pre>
<table>
<thead>
<tr>
<th>Activity Type</th>
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<td>Lecture</td>
<td>Sustainable values, technology and green surfaces (green roofs / green walls). General introduction to green roofing.</td>
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<tr>
<td>Site visit</td>
<td>Observations &amp; impressions of Centennial Campus green roofing projects</td>
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<tr>
<td>Discussion</td>
<td>Green roof systems, technologies, applications, functions, design rationale, operational framework</td>
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<tr>
<td>Lecture</td>
<td>Green surfaces as building technologies: Anatomy of Systems, Loading and Basic Structural Principles</td>
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<td>Class discussion</td>
<td>Green building systems. Green roof assessment,</td>
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<td>Site visit</td>
<td>Evaluation and observations of HKU Library green roof</td>
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<td>Lecture</td>
<td>Proprietary systems, suppliers, technical issues, materials, construction technologies,</td>
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<tr>
<td>Project site visit</td>
<td>Runme Shaw Building Roof, identifying site parameters, constraints, construction issues</td>
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<td>Australian International School Green Roof</td>
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<tr>
<td>Workshop</td>
<td>Developing a project proposal for Runme Shaw Building roof. Selecting a green roof system (non-proprietary), choosing materials, construction method, sequence, possible costs</td>
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<td>Interim Review</td>
<td>Technical panel review of project Proposal with invited landscape architects, contractors</td>
</tr>
<tr>
<td>Lecture</td>
<td>Green Surfaces as ecological sites</td>
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<tr>
<td>Workshop</td>
<td>Revising the project proposal. Layout plans, construction details, material and workmanship specifications, Defined construction method / sequence, costs and sourcing of materials, operation and testing criteria</td>
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<td>Working session</td>
<td>Procurement, fabrication</td>
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4 Lectures
4 Site visits
4 Classroom sessions
4 Onsite fabrication sessions
2 Review sessions
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12 (of 18) sessions had direct involvement of outside practitioners

8 sessions in the field
Assessment and Grading

1. Quality, clarity, originality, and synthesis of research
2. Clarity and depth of verbal explanations and graphic representations during presentations
3. Demonstration of critical thinking
4. Demonstration of their understanding of core technical information and theoretical concepts and their application in their project proposal, design, built work, and work on the operation and testing of the project, and with respect to capabilities of landscape professionals working in the industry
5. Quality of their documentation of the project and the processes followed to create it
6. Participation in the course and contribution to discussions, site visits, working sessions and discussions with practitioners
7. Robustness and efficacy of the green roof installation

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<td>Site visit reports</td>
<td>20%</td>
<td>Individual work</td>
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<td>Green roof materials &amp; technologies database</td>
<td>20%</td>
<td>Team (2 or 3) contributions to a whole class submission</td>
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<tr>
<td>Proposal for, and construction of a productive green roof</td>
<td>20%</td>
<td>Teams (2 or 3)</td>
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<td>Documentation of the design and construction process and</td>
<td>20%</td>
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Practitioners were briefed on the course objectives and their contributions to the student’s projects, but were not directed in their actions so that their participation could be that of an ‘actual’ practitioner in a real-life situation.

Occasionally practitioners were directed to emphasize key points, but always in their own language.
Feedback on student work was given:

- Directly during the workshop sessions
- Within formal reviews with practitioners
  - Reviews of research and design in the classroom
  - Reviews of fabrication and built work in the field
- As marking of submitted assignments
Landscape Practicum
Research

Students conducted case studies on constructed green roof systems in HK, which included site visits to the Centenary Campus, HKU Library roof and to the AIS school roof where they met (and interrogated) the designer, contractor and facilities manager.
In the same teams, students then went on to develop their own ideas about how to create a productive green roof element. Through a typical iterative design process, they were able to test their ideas against the instructor and outside practitioners.
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Design

The need to plan, design, negotiate their way around these technical problems, (as in real life):

- weight, loading restrictions (soil + water) (depth and planting requirements)
- wind loading
- water supply / drainage
- existing building fabric – waterproofing, surface finishes
- operational use of the building, access to parapet, exhaust fans, plant rook access
- construction access - by hand, in lifts, up steps, (>8.0 tonnes of soil)
- existing neighbours – working through interior spaces, resident neighbour, oversight from the SCR.
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Procurement

Possibly the most difficult for students. Much of this very alien to students, and there are few ready source of information

Need to research and contact different suppliers of building materials and equipment and negotiate availability, qualities, deliveries, payment etc.

Particular problems relating to recycled and upcycled materials.
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Off-site fabrication

Students were required to get themselves dirty and build stuff with their hands. The tactile element was essential in reinforcing learning.
Students made two visits to a contractors workshop (which was kindly made available by some of the practitioners) to allow students to fabricate some elements in the nursery.
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Off-site fabrication
The students were involved in coordinating the delivery and installation of materials. As the site was a roof top location with access through internal lift lobbies and stair access this required a lot of effort and focus.
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Installation
Landscape Practicum

Finished works

Their time keeping was awry, and they were late and didn’t finish everything, but the students were generally happy with what they built.
In addition to their constructed projects, students had to submit their case study reports and the full documentation of the design and the construction processes (drawn, written, photographed).
They were also asked to reflect on their experience.
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What next for the productive garden?

The productive gardens has been combined with another productive garden built by a team from General Education and is now run and managed by the student led HKU Rooftop Farming Project.

http://rooftopfarmhku.wordpress.com/
Landscape Practicum
Student Feedback

The positives:

- Gain a practical understanding materials
- Real-life experience ... “it is not easy”
- Practical help and feedback
- Great site visits with practitioners
- Opportunity to put knowledge into practice
- Hands on experience – lacking in other courses
- Gaining access to instructor’s experience and knowledge ... not just in the classroom, but by practical demonstration
- Teacher provided opportunities to interact / collaborate in the course
- The value of feedback
- Inspired me to pursue further learning in the subjects / skills
- Teacher was supportive when I needed help

Where the course might be improved:

- Want more site visits
- Bigger goals and challenges .. maybe

Student Evaluation
Course effectiveness 83.3 (ave. 67.3)
Teacher effectiveness 83.3 (ave. 68.0)
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Benefits to students

From the student responses there is a clear indication that the practicum was successful in helping to strengthen student learning.

• clearer understanding of the technical landscape design and construction knowledge, and their relationship to the work of practitioners.
• allowed students to engage with different kinds of practitioners, and understand how they think and see issues.
• alerted them to the need to think through situations, look for the hidden problems, and to plan ahead.
Landscape Practicum
Impact on other teaching

The course has had benefits for the Division, as well, in:
• Engaging practitioners in the work of the program
• Providing opportunities for outside review of the Divisions teaching (scope and methods),
• Provide an alternative channel for commentary and feed back to students, and validating the content of the teaching

Some of the experienced gained from the Practicum has already been fed back into other courses such as the Division’s CDLA Summer School, ARCH7510 MLA pre-requisite course, and the new studio courses. It has also given rise to new KE activities such as the forthcoming student-led Upcycle:Recycle Workshops at the HKICC School of Creativity (October – December 2013)

Although it was created for a particular project based design discipline, the concept of constructed experiential learning should be directly transferable to other programs.
Landscape Practicum

Other impacts

Knowledge gained from the Practicum can also inform the further development of the undergraduate (and MLA) curriculum, and the coordination and focusing of other experiential learning exercises in future studio projects and technical courses.

Highlighted the need for development of infrastructure for experiential learning:

- Contacts with industry
- Supply of materials and equipment and labour
- Off-site physical fabrication facilities
Landscape Practicum
Practical issues

Need for the instructor to act as ‘the boss’ to be responsible for tasks where failure would fundamentally affect the project, or due to timing, or where specific authority was needed

- negotiating approvals (access arrangements),
- commercial contracting (capacity to contract)
- addressing any serious problems (damage – Estates)

Funding for materials and labour is required

Need friends – most activities undertaken within the Practicum are not at a commercial scale or level, and friends were need to enable things to happen (e.g. borrow working space in the metal workshop), and for the donation of time and equipment.

Reminder that student safety is paramount, especially where they are involved in physical work e.g. lifting heavy objects
Landscape Practicum

What I learnt

It was not nearly as easy as I had imagined.

There are significant practical and logistical issues in using real sites, and in the involvement of outside practitioners and commercial parties but the course was very rewarding for all involved.

• Need for a clear focus and direction, breakdown into stages, clearly defined goals for each stage to maintain student engagement
• Timing of activities and coordination of participants are essential.
• Maintaining the schedule of the course and not be side-tracked by small issues
• Using my experience to overcome technical problems only when absolutely needed, and allowing students to work it out for themselves
Landscape Practicum
What I learnt

• Using outside practitioners to deliver messages
• Allowing for design creativity, not just functional result. Having a flexible approach especially when students are a long way out of their comfort zone
• Giving meaning to the end product so that it doesn’t become just another student exercise
• Willingness of students to take on challenges, where they feel they are in charge of the process
• Students like to learn little things, small pieces of knowledge make them feel skilled
Landscape Practicum: Constructing Experiential Learning