



Xi'an Jiaotong-Liverpool University

西交利物浦大学

Greening Our Campus through Research-led Learning and Teaching Activities

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UPD + IBSS + ILEAD + AEC, XJTLU

TDF-15/16-R12-094

- This TDF aims to support XJTLU students' **active learning** through research and to instil **good citizenship** practices (e.g. sustainability literacy and environmentally friendly lifestyle) in them through innovative teaching.
- Project Team:
 - Bing Chen from UPD
 - Xuanwei Cao from IBSS
 - Xiaojun Zhang from ILEAD
 - Jianmei Xie from AEC
 - Mona Wells from Environmental Science
 - Ian Mell from UoL Civic Design
 - Research Assistants





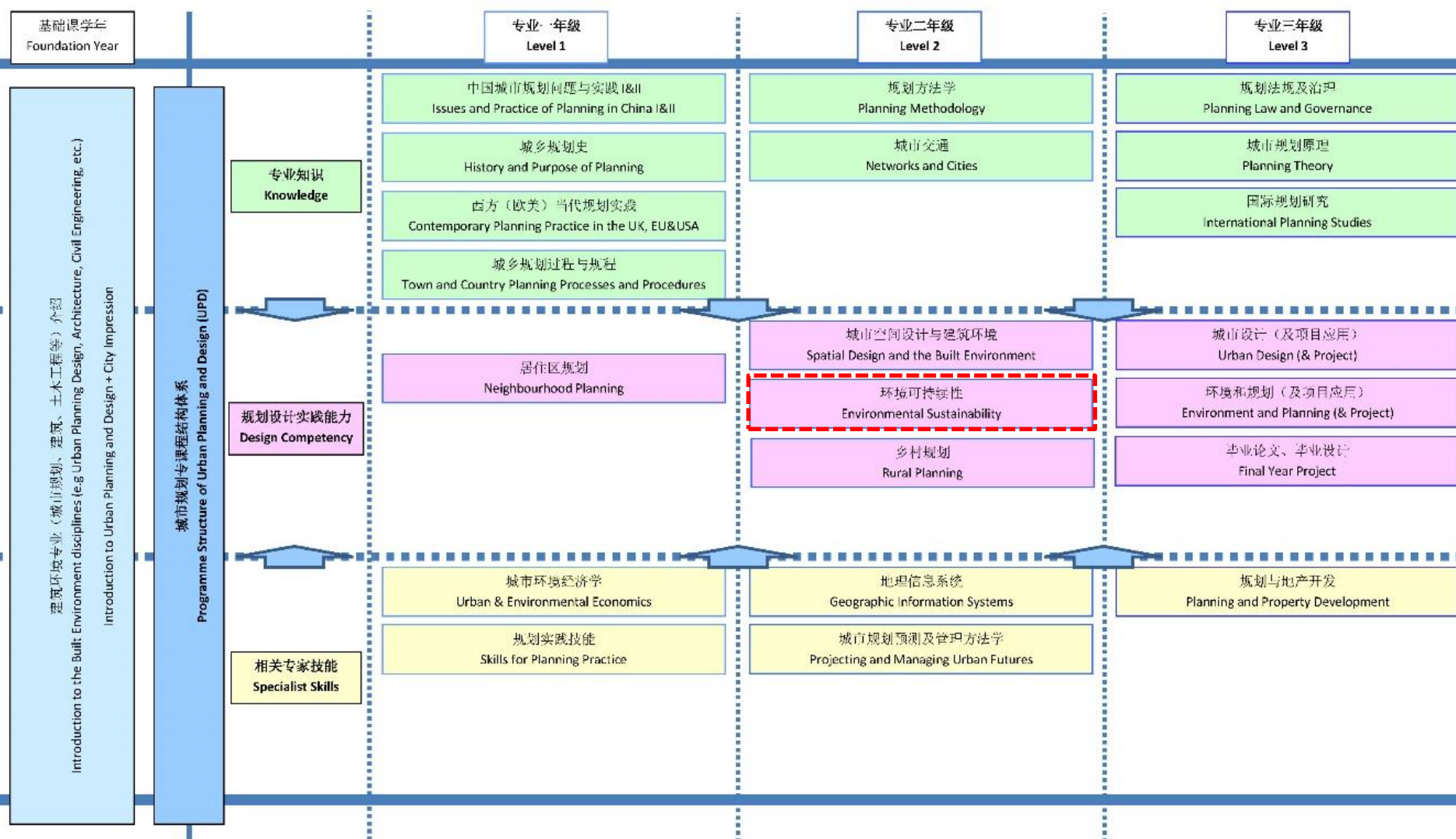
Part I: Background

Stay Hungry. Stay Foolish.



- Nurturing a student-centred (以学生为中心) learning and teaching environment in order to achieve the objective of educating **global citizen** (世界公民).
 - Five Star Education Model from Executive President Prof Y.M. Xi
- UNESCO's **Global Citizenship** Education: 'Nurturing respect for all, building a sense of belonging to a common humanity and helping learners become responsible and active global citizens'. It aims to 'empower learners to **assume active roles** to face and resolve global challenges and to become **proactive contributors** to a more peaceful, tolerant, inclusive and secure world'.
(<http://en.unesco.org/gced>).

Attempts at UPD



CDE201 Environmental Sustainability – Aims

- To introduce current thinking in relation to sustainable development and locate environmental sustainability within **broader framework of ideas**.
- To develop an understanding of the various dimensions of environmental sustainability and their relationship to patterns of development, and finally applies these ideas to the design or regeneration of an urban area.
- Students from **UPD** and **Environmental Science**.

Learning Outcomes

Students successfully completing the module should:

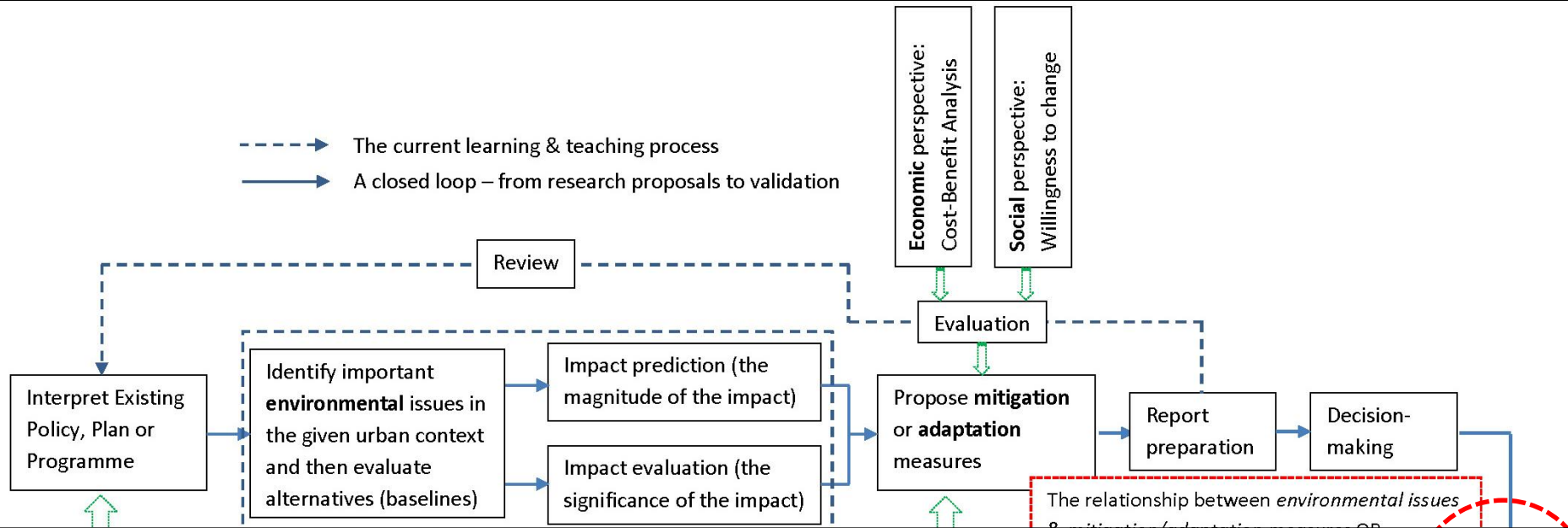
- Be knowledgeable in the concept of sustainable development and capable in relating it to the broader framework of environmental sustainability ideas;
- Have better understanding of different pattern of development and their implications on environmental sustainability;
- Be able to comprehend urban development issues (from the city level to the building level) through the lens of environmental sustainability;
- Have an understanding of how sustainability thinking (e.g. environmental planning strategies, methods, tools, theories, etc.) can be applied in practice (e.g. informing decision-making from an integrated perspective);
- Be able to communicate sustainability ideas and policies to a wide audience.

Feedback from Previous Years

- 'I also feel students on general need to improve **critical analysis**. For example, students all come up with suggestions based on studying experiences elsewhere. However, they tend to neglect problems or limit of specific solutions or their suggestions... This aspect could possibly be addressed in the future teaching and learning...'
- In previous years few attempts have been made to verify the effectiveness of the action plans that aim at changing people's attitude and behavior. As a result, the **mechanistic causal postulation** between information provision and behavioral change was often criticised for being **over simplistic**.



A Closed Learning Loop



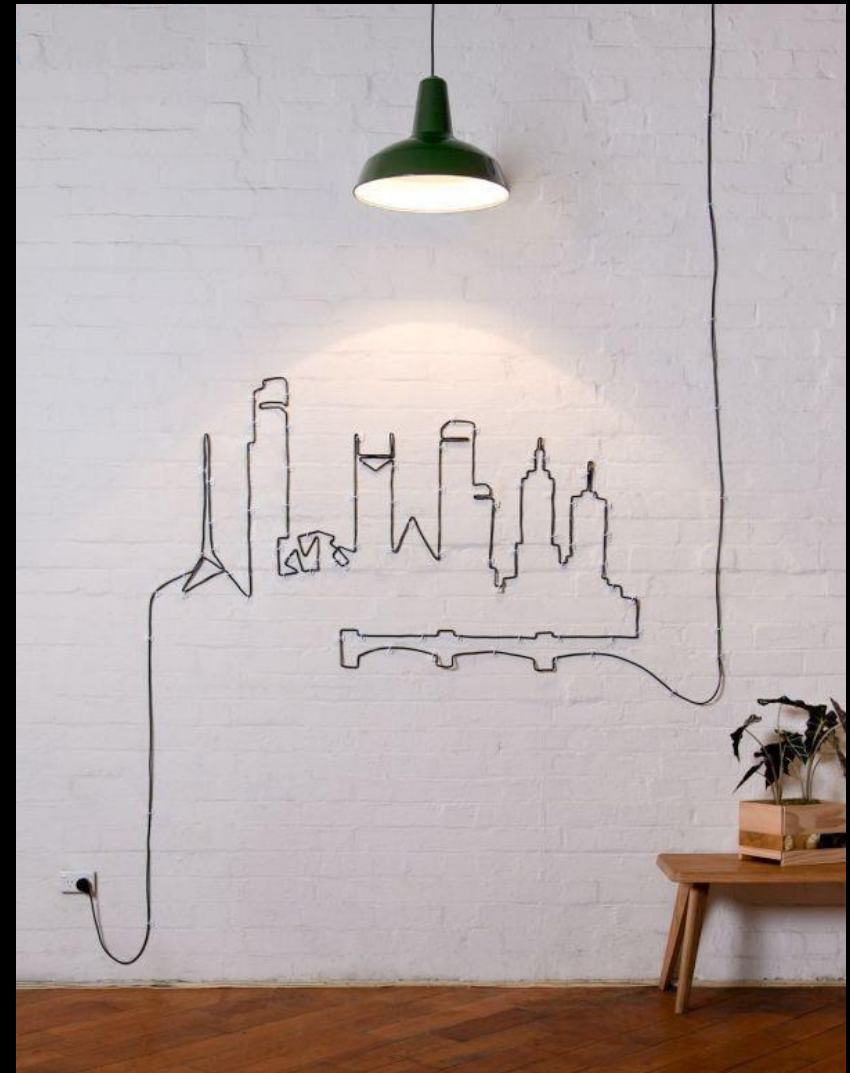


Part II: Innovative Teaching

Stay Hungry. Stay Foolish.

Research-led Learning and Teaching

- This instructional method regards research as a process of edification and understands academic education as participation in research. It tends to actively involve students in the **‘process’** of research (e.g. research simulation activities, content dissemination, etc.) instead of informing them the research content only as a ‘product’.



Task: Greening Our Campus



‘The university campus and the physical environment in which the students are placed during the formative years of their adult lives can affect later years and instil good citizenship practices’ (Friedman 2008).

Method I: Learning-by-doing

Cone of Learning (Edgar Dale)

***After 2 weeks
we tend to remember...***

***Nature of
Involvement***

10% of what we **READ**

20% of what we **HEAR**

30% of what we **SEE**

50% of what we
HEAR and SEE

70% of what we **SAY**

90% of what we
**both SAY
and DO**

READING

HEARING WORDS

LOOKING AT PICTURES

WATCHING A MOVIE

LOOKING AT AN EXHIBIT

WATCHING A DEMONSTRATION

SEEING IT DONE ON LOCATION

PARTICIPATING IN A DISCUSSION

GIVING A TALK

DOING A DRAMATIC PRESENTATION

SIMULATING THE REAL EXPERIENCE

DOING THE REAL THING

Verbal Receiving

Visual Receiving

**Receiving /
Participating**

Doing

PASSIVE

ACTIVE

Edgar Dale, *Audio-Visual Methods in Technology*, Holt, Rinehart and Winston.

From: the Fun theory

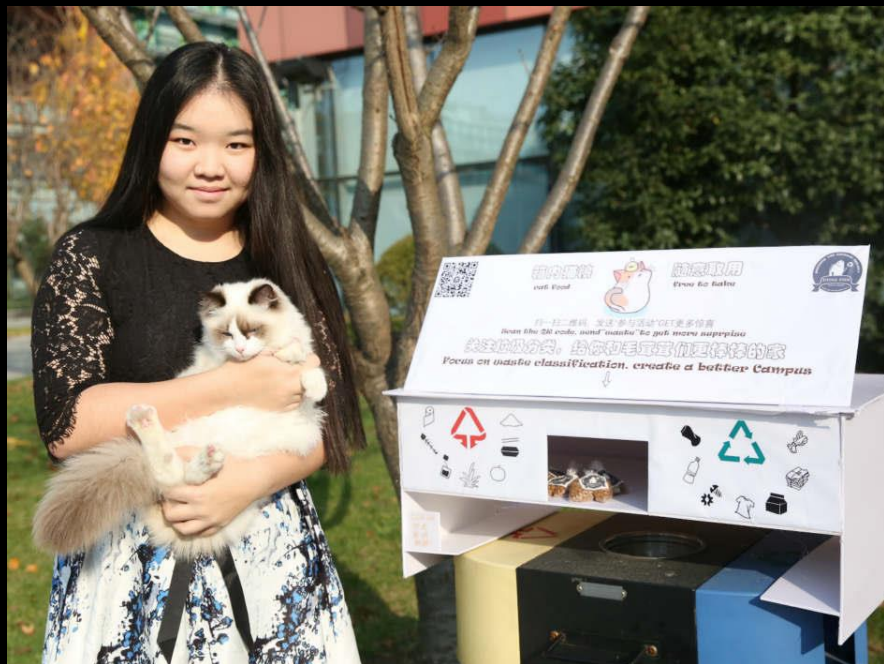


Method II: Student-oriented

Education?



A manufacturing line?



Method III: An active learning environment

 **Connect @ XJTLU**
Connecting the XJTLU Community

 Bing Chen  Settings  0  Logout

Search users

Dashboard My content ▾ Create + Share ▾ Groups ▾

CDE201_Mixed Group_Six people

by CDE201 MIX Group 

Definition of greening campus

water

Issue:

In urban areas, most of the water use is associated with water consumption in buildings. The second largest use of water is via taps.(Fidar, A.M., Memon, F.A., Butler, D., 2016). However, we should not only focus on the water consumption, other indicators should also be pay attention to, such as embodied energy and investment feasibility.(Enedir G., Ricardo F. R. & Yuri T., 2014). Only bu doing this can we achieve greening campus.

Performance in our school:



(2016. 9. 22)

Water-wasting from tap has been a severe problem in Foudation building of Xi'an jiaotong Liverpool university. Due to the fast flow of the tap water, certain amount of the water splash on the basin and not be used.

Material

[Material Reduction and Reuse - printed periodical resources](#)

Background

Current performance + management (material usage reduction + material reuse)

Performance:

- clean and orderly environment
- material audic: data recording of paper-related material usage

management:

- collection of reusable mateiral (printed paper, text book, back-number manazines and packing paper)
- Branding the usage of reusable materials
- Passing textbooks at universities
- Reducing single-sided paper

Current condition in XJTLU

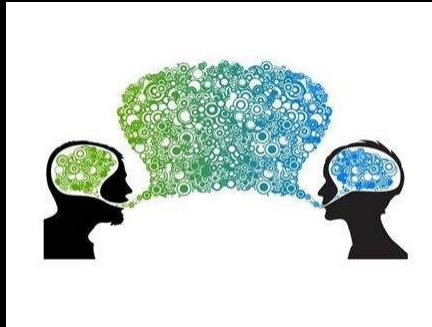
Performance



 100%  44%

120%

'Additional' Learning Outcomes

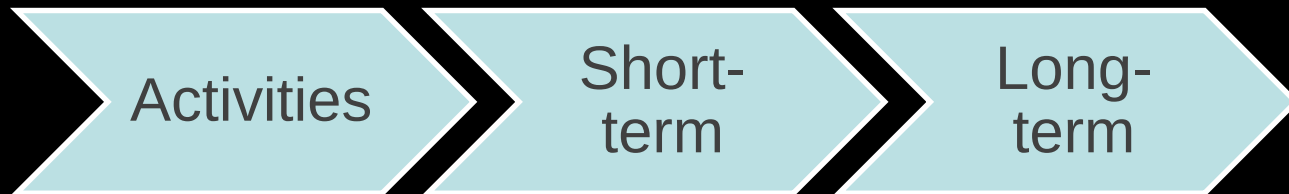




Part III: Summary

Stay Hungry. Stay Foolish.

- It is expected that this **student-oriented learning-by-doing** process would improve students' (and staff's) sustainability literacy and, by reflection, encourage them to change their lifestyles towards greater environmental sensitivity. Moreover, this research-led teaching approach would nurture **an active learning environment** that can facilitate the transfer of education for sustainable development from XJTLU to local society.



TDF Project Schedule

2016-17	Semester 1 (Phase I)						Semester 2 (Phase II)	
	Week 1-6	Week 7	Week 8-12	Week 13-14	Reading Week	Winter	Week 1-12	Summer
Introduction	BC							
Proposals		BC+MW+XC						
Action Research			BC+MW+XC					
Data Analysis				BC and RAs				
Seminar & Exhibition					All			
Writing						All		
Follow-up Interview							BC and RAs	
Writing								All

BC-Bing Chen, MW-Mona Wells, XC-Xuanwei Cao, XZ-Xiaojun Zhang, JX-Jianmei Xie, IM-Ian Mell, RAs-Two Research Assistants

- Why is it important to incorporate Education for Sustainable Development (EfSD) into UPD and the built environment related disciplines? How can EfSD related information be delivered in an efficient way? (Or, what are the benefits of delivering EfSD through a research-led teaching approach?)
- What actions can efficiently engage people (e.g. students, staff and people living or working near our campus) to participate in the activities of 'Greening Our Campus' by saving energy, choosing green transportation and recycling waste and so on?
- Will this active learning environment lead to an improvement of students' (and staff's) sustainability literacy from a longitudinal perspective, and a green XJTLU campus?
- Will this innovative teaching practice lead to similar/different learning outcomes in China and the UK? What will be the local response to the student-led activity – 'Greening Our Campus'?

Acknowledgement

- Thanks are due to all colleagues who have been committed to the development of relevant pedagogy and curriculum at XJTLU.
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Thanks for your
attention!

Q & A

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