



Xi'an Jiaotong-Liverpool University

西交利物浦大学

Shooting for the

研究导向型教学
课程设计工作坊

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Outline

- Part I: Research-led Teaching & Learning 研究导向型教学
 - Why? 为什么?
 - What? 是什么?
 - How? 怎么做?
- Part II: Task 工作坊任务介绍
- Part III: Specialist Group Work 专业小组作业
- _____
- Part IV: Mixed Group Work 混合小组作业
- Part V: A Case Study in XJTLU UPD 西浦案例分享
- Part VI: Summary 小结
- Open Discussion + Q&A 开放研讨+问答环节



[原作 : Prince Ea | 中文翻譯 : Solomon Wolf]



愛因斯坦曾說

B.C. & Lowy



Part I: Research-led Learning & Teaching

Part I: Research-led Learning & Teaching

简介：研究导向型教学

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Stay Hungry. Stay Foolish.

1. Why: 为什么要研究导向型教学?

教育的根本问题:

- 培养什么人?

授之以鱼（知识），
不如授之以渔（智慧）

- 如何培养人?

不能只是“纸上谈兵”

现状:

一流医院收的都是最难治的病人

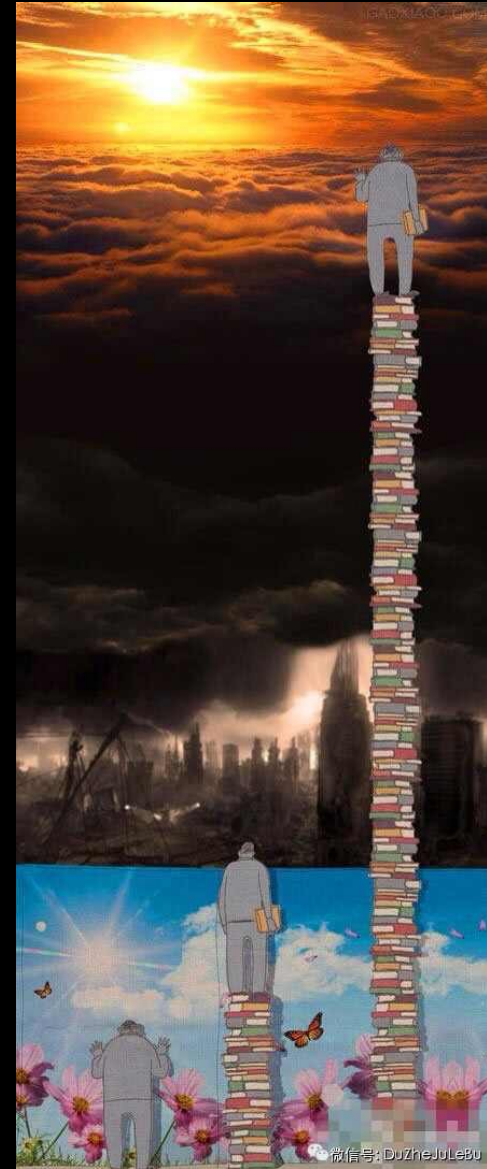
而好学校招的却是最好教的学生? ...



2. What: 什么是研究导向型教学?

早期相关研究侧重于探索当前高等教育中“教—学”关系的转换，指出倡导研究导向型教学模式的根本目的是为了强调以学生为中心的、研究导向型学习（Research-led Learning）能力的培养。

旨在营造以学生为中心的主动学习环境，并在此基础上引导学生综合运用所学知识和技能，通过研究发现、分析并解决实际问题，在不断反思的过程中积累经验，养成科学思维的习惯，在“边做边学”（learning-by-doing，即《荀子·儒效》所说的“吾听吾忘，吾见吾记，吾做吾悟”）的过程中逐步建立正确的普世价值观及行为模式。



3. How: 如何开展研究导向型教学?

By three methods we may learn wisdom:

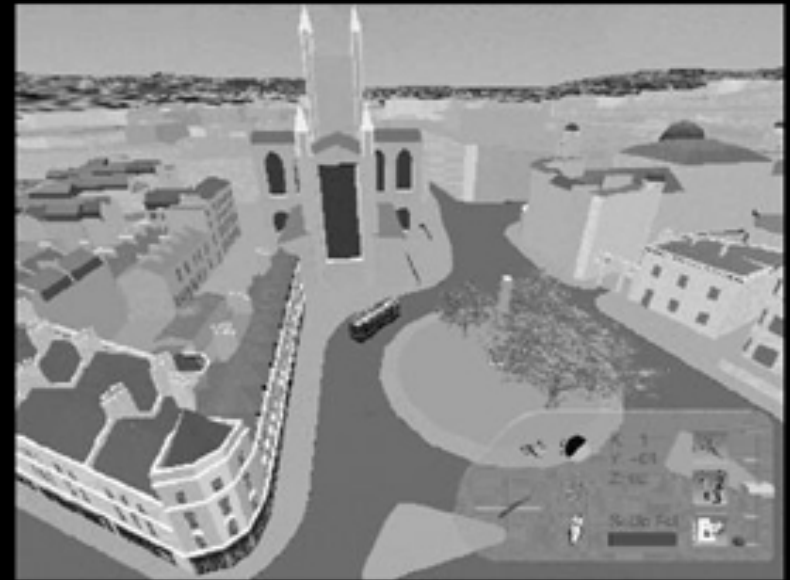
- first, by **reflection**, which is noblest;
- second is by **imitation**, which is easiest;
- and third, by **experience**, which is the most bitter.

Confucius (551BC – 479BC)



- 对于已习惯了填鸭式教学的低年级本科生，在教学过程中需要注重培养他们的学习兴趣，激发他们主动学习的热情，并在此基础上养成科学思维的习惯，完成从被动学习向主动学习的角色转换；【imitation – easiest】
- 对于已经具备基本科学思维和创新能力的低年级本科生，在教学过程中需要注重培养他们在解决实际问题的过程中综合应用所学知识和技能的能力，并在此过程中潜移默化地养成研究导向型学习的习惯；【experience – bitter】
- 对于已经具备研究导向型学习能力的高年级本科生和研究生，在教学过程中需要注重为学生预留更大的创新空间，鼓励他们在已有知识储备的基础上更进一步，从批判的视角出发去检验那些已有的知识技能，并通过不断地自省和反思，探索更为复杂、甚至未知的（或不确定）知识领域，为未来世界的可持续发展提出具有前瞻性的意见。【reflection – noblest】
- 而课外实践活动可以灵活地穿插其中，巧妙弥补课堂教学的不足。

The Education Commission



- In 2002 The Education Commission was set up to consider the implications of the new approach for planning education
- And to address a **perceived decline in student numbers** entering the accredited planning programmes, and the profession
- It reported in 2003 with some radical proposals
- Its central organising idea was that *“Planning education should seek to promote critical thinking about space and place as a basis for **action or intervention**”*.



Part II: The Task – Curriculum Design

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课程设计

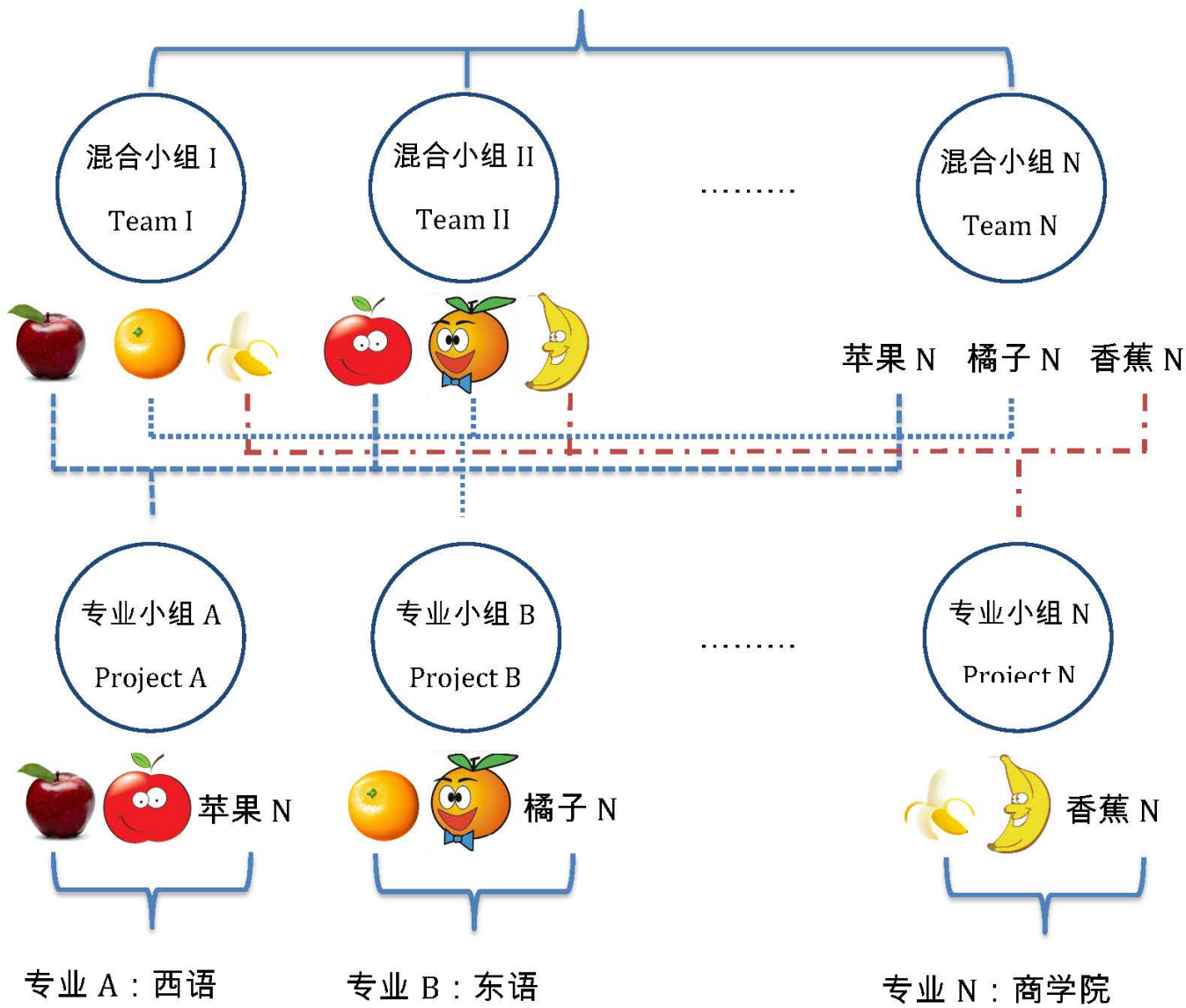
课程设计

Stay Hungry. Stay Foolish.

Scenario / 作业场景

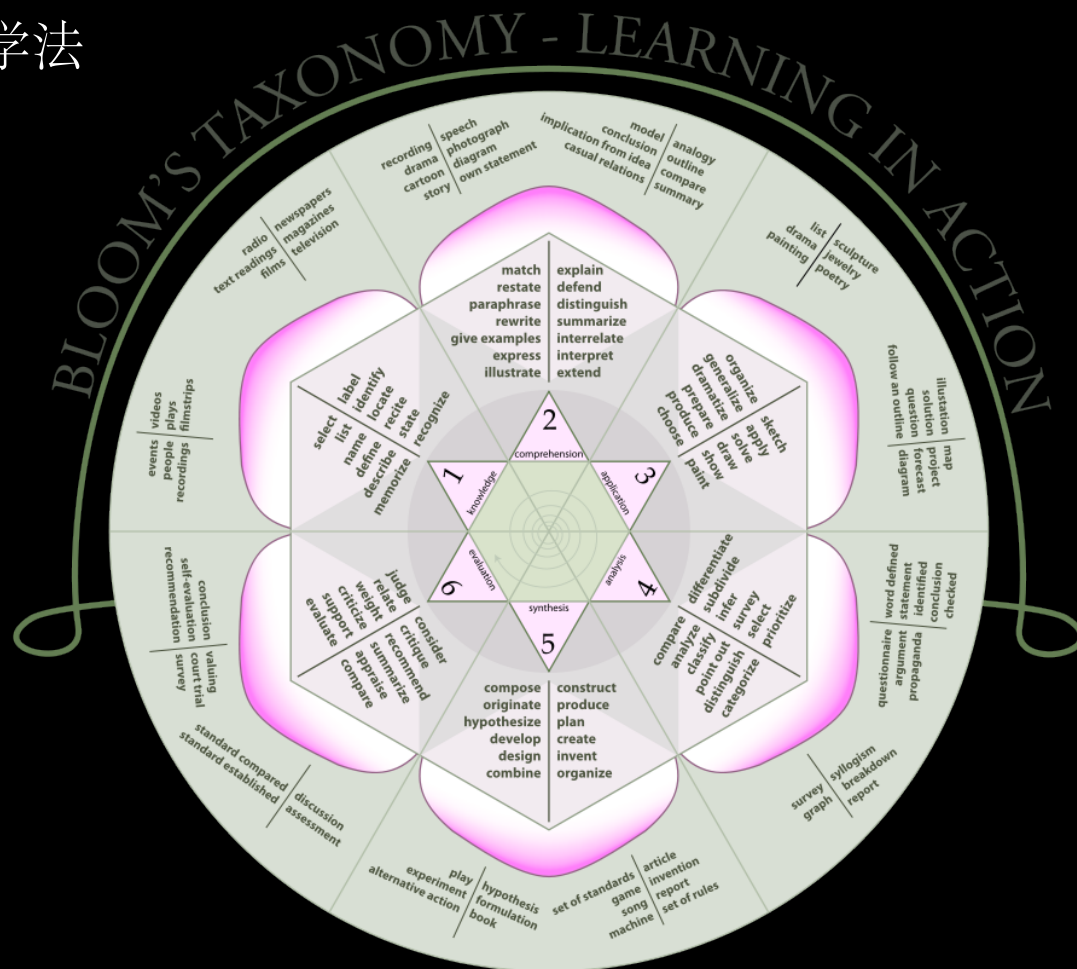
- 假设贵校在此次培训后，也计划在自身的学科建设中引入“研究导向型教学模式”，并以您所在的学科为例，通过引入**role play**（或其他形式），以及设计不同的**game**（或其他形式），引导学生更好地学习，进而在基础上在全校范围内开展基于研究导向型教学理念的教学改革。各位老师作为相关学科的专业骨干，受邀参加该教改项目，并要提出涵盖以下两个方面的教改方案：
 - 对自身的专业学科进行改革
 - 开设跨学科的公共课程
- 由于时间限制，上述两个课程设计作业，每个只能给大家**30**分钟的时间收集资料和进行讨论，然后**20**分钟以小组为单位进行分享。

基于“游戏”理念的课程设计：
Curriculum Design based on Game Theory



Assessment / 评价标准

- 教学目标 – 人性化、多样化、个性化
- 实施办法 – 研究导向型教学法
- 对学习过程的设计
- 对学习效果的评价
- 创新性
- ○ ○ ○





Part III: Specialist Group Work

Part III: Specialist Group Work

专业小组作业

专业小组作业

Stay Hungry. Stay Foolish.

A Short Break





Part IV: Mixed Group Work

Part IV: Mixed Group Work

混合小组作业

混合小组作业

Stay Hungry. Stay Foolish.



Part V: A Case Study in XJTLU

西浦的案例分享：城市规划与设计

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>).

Education for Sustainable Development / 可持续发展教育

- Education has been widely acknowledged as an essential tool for achieving sustainable development. The United Nations General Assembly declared 2005-2014 the UN Decade of Education for Sustainable Development. In return, Education for Sustainable Development (ESD) has been incorporated into the university curriculum worldwide.
- 联合国教科文组织将**2005—2014**年设立为可持续发展教育十年，提出通过开展**教育**、**讨论**和**参与**活动，提高公众对气候变化、能源和二氧化碳排放等问题的关注，为推进社会可持续发展奠定基础。**2014**年，联合国教科文组织发布《可持续发展教育全球行动计划》（Global Action Programme on ESD），作为延续文件，提出**将可持续发展教育主流化**，全面纳入教育政策和可持续发展政策中。



Climate change

Article 6 of the United Nations Framework Convention on Climate Change, and its work programmes

气候变化



Biodiversity

Article 13 of the Convention on Biological Diversity, and its work programmes

物种多样性



Disaster risk reduction

Hyogo Framework for Action 2005-2015:
Building the Resilience of Nations and
Communities to Disasters

降低灾难风险



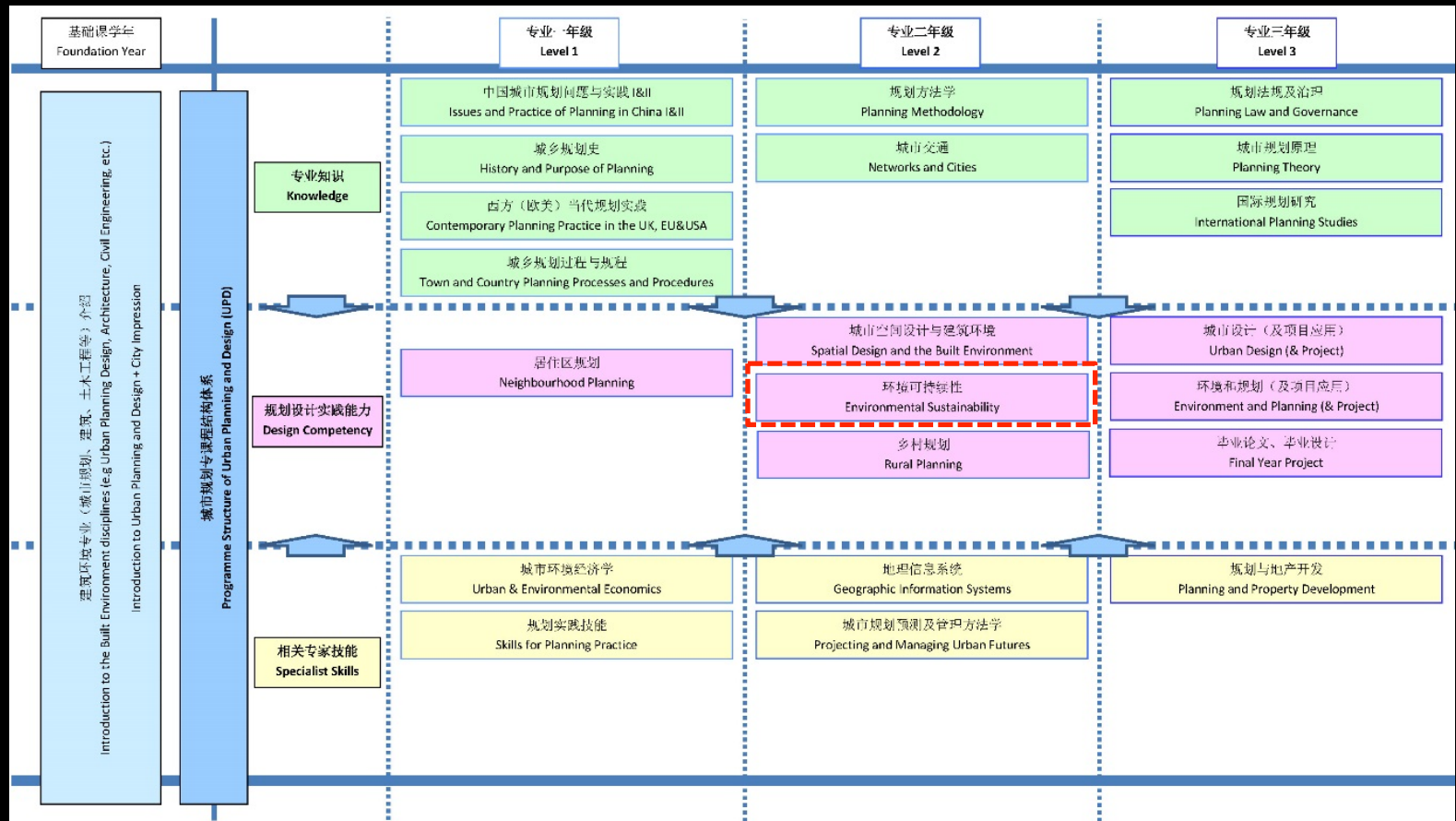
Sustainable consumption and production

Sustainable Lifestyles and Education Programme of
the 10-Year Framework of Programmes on Sustainable
Consumption and Production 2012-2021

可持续消费和生产

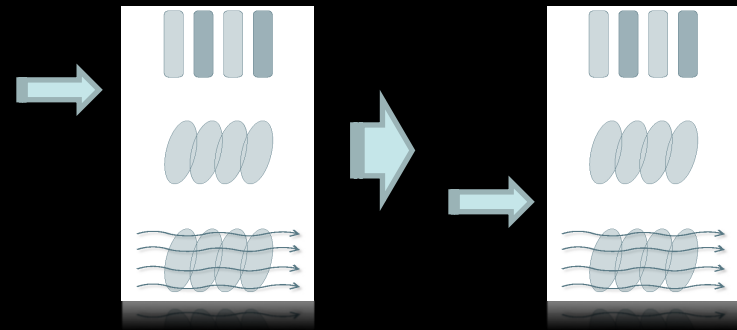
Attempts at UPD

- The concept of 'Sustainable Urbanisation' has been used to underpin the curriculum design of UPD.

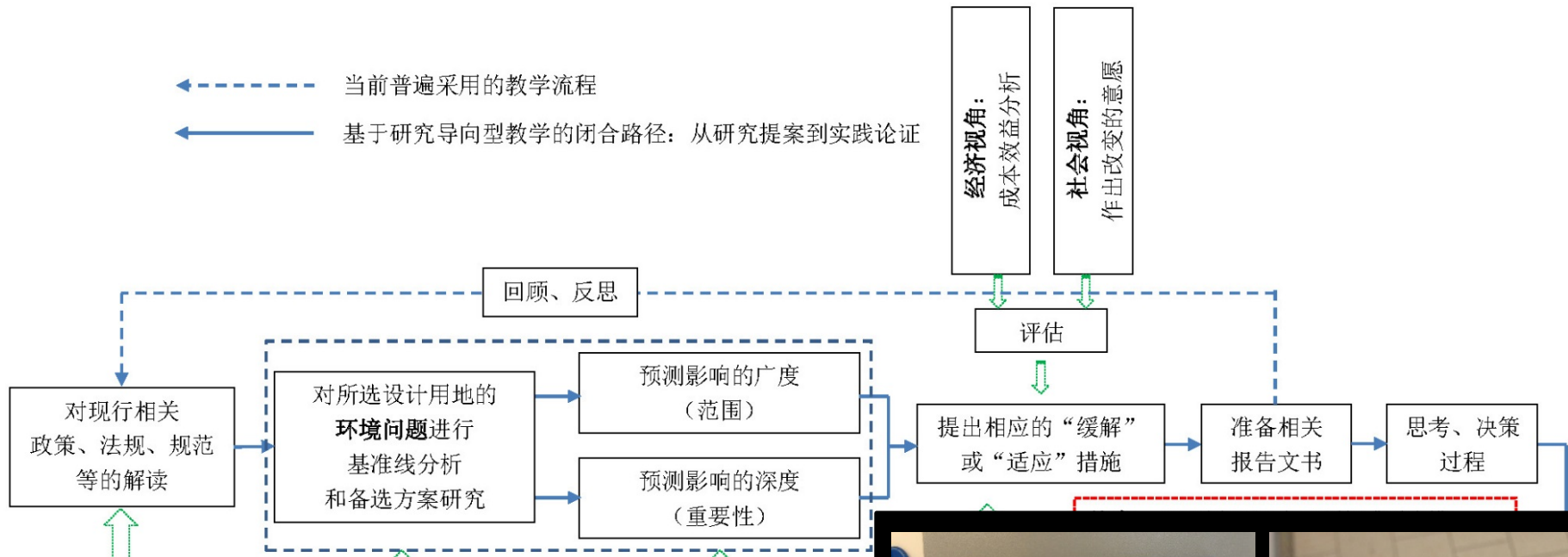


环境可持续性（本科三年级上）

- 基础理论课（专业知识 + 规划实践能力）
- 目标人群包括**城市规划**和**环境科学**两个专业的学生
- 课程旨在帮助学生理解构成可持续发展理念的社会、经济和环境等因素之间的动态关联，并在此基础上探讨在既定区域中落实相关发展理念时的短、中、长期策略，同时通过在研究导向型教学环境中的熏陶，培养学生的**科学思维能力**，提高他们的生态文明意识和社会责任感。



← - - - - - 当前普遍采用的教学流程
 ← ———— 基于研究导向型教学的闭合路径：从研究提案到实践论证



Feedback from Previous Years

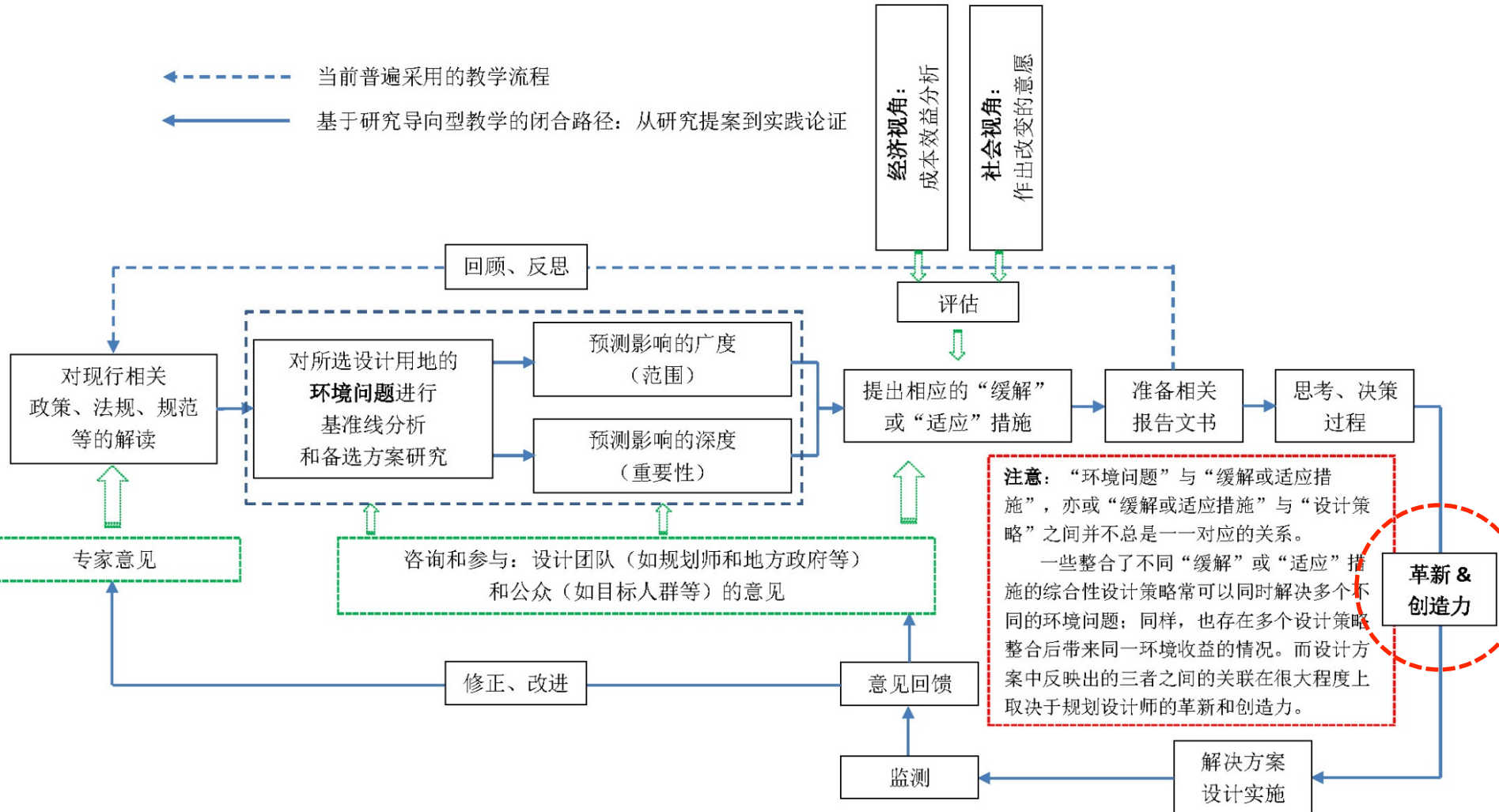
- 'I also feel students on general need to improve **critical analysis**. For example, students all come up with suggestions based on studying experiences elsewhere. However, they tend to neglect problems or limit of specific solutions or their suggestions. This weakness is evident in Assessment I as well. 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

基于研究导向型教学的闭合思维路径

← - - - - 当前普遍采用的教学流程

← 基于研究导向型教学的闭合路径：从研究提案到实践论证



Source: Chen B. *The Research-led Pedagogy in Contemporary Planning Education*.

Education Journal Special Issue: Interdisciplinary Researches in Environmental Design Education. Vol.4, No.1-2, 2015, pp.1-9

Example: Waste Recycling



EfSD 所需教学方法



Pedagogy and learning environments: Designing teaching and learning in an interactive, learner-centred way that enables exploratory, action-oriented and transformative learning. Rethinking learning environments – physical as well as virtual and online – to inspire learners to act for sustainability.

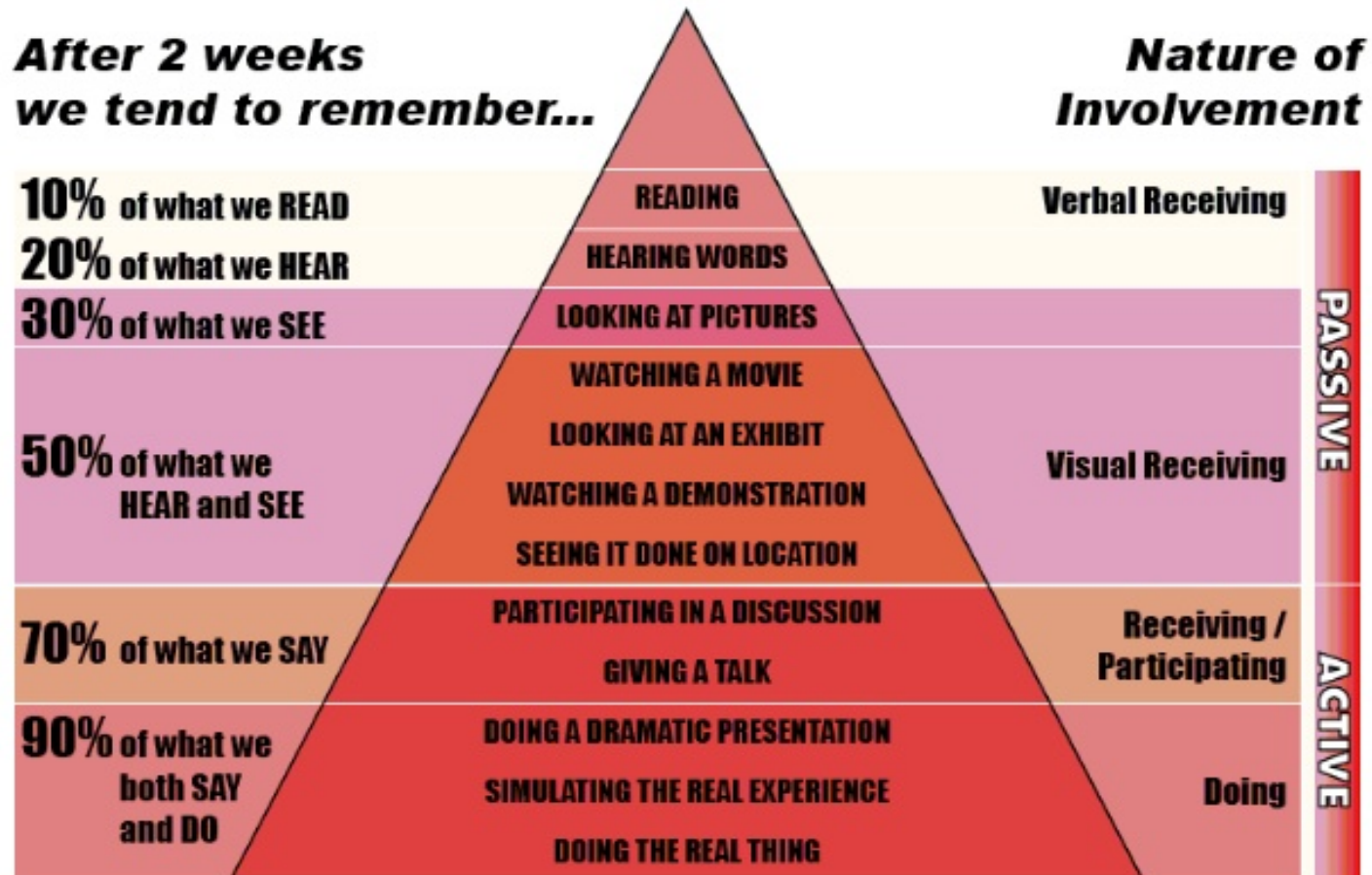


Learning outcomes: Stimulating learning and promoting core competencies, such as critical and systemic thinking, collaborative decision-making, and taking responsibility for present and future generations.

- **教学法：**通过设计交互式的、以学习者为中心（**learner-centred**）的教学模式，来辅助探究式的（**exploratory**）、以行动为导向的转化性学习（**transformative learning**）。
- **学习环境：**重新探索教学环境设计，包括实体环境和虚拟及线上环境，以启发学习者开展可持续活动。

A Learning-by-doing Approach

Cone of Learning (Edgar Dale)




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

From: the Fun theory



Student's Output: Our Piano Stairs





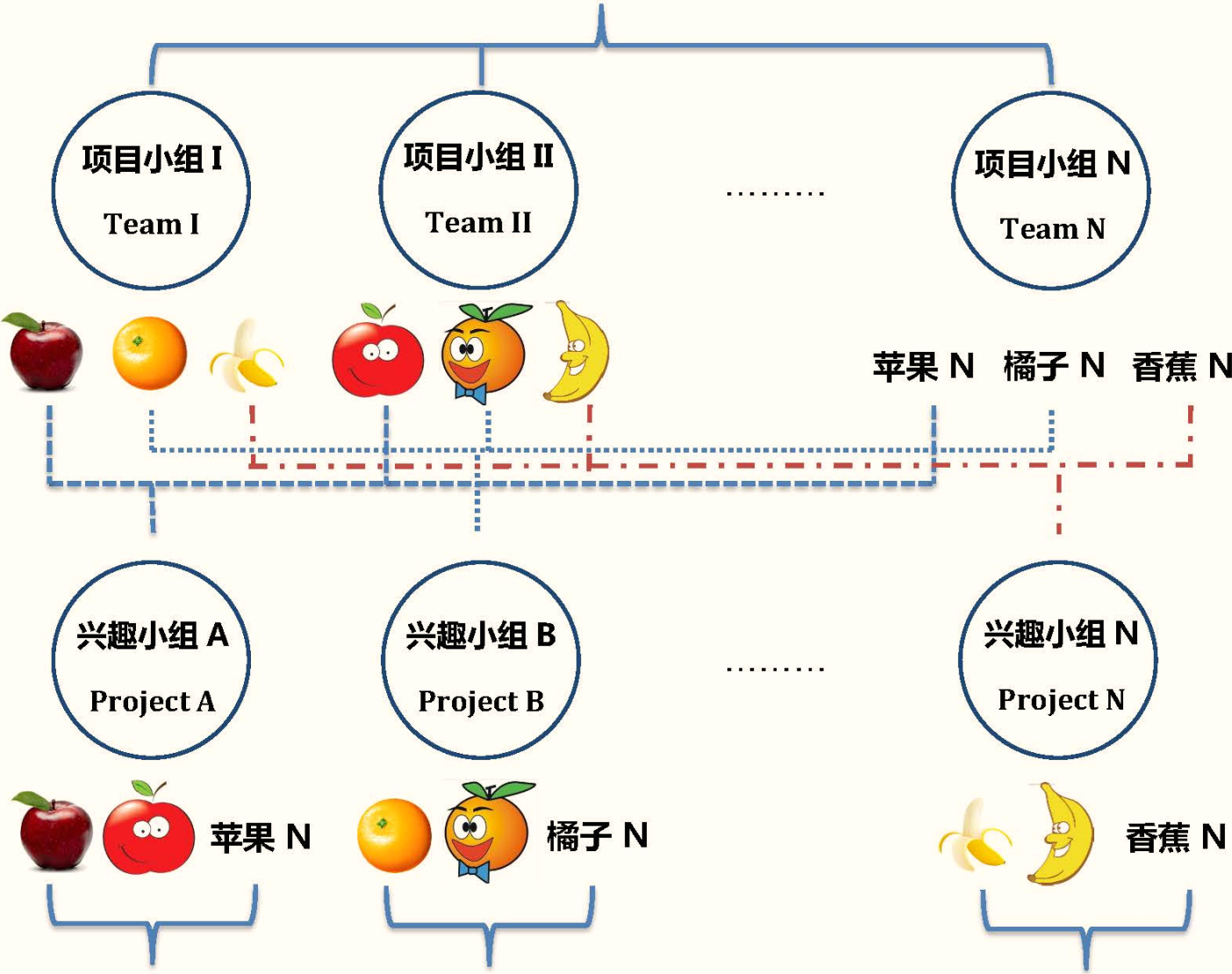
"We shape our
buildings,
thereafter they
shape us"
- Winston Churchill

绿色校园

**Greening
Our
Campus**



“绿色校园”项目：
Greening our Campus



研究课题 A : Energy 研究课题 B : Water

研究课题 N : Waste



Education?



A manufacturing line?



- 校园即是城市

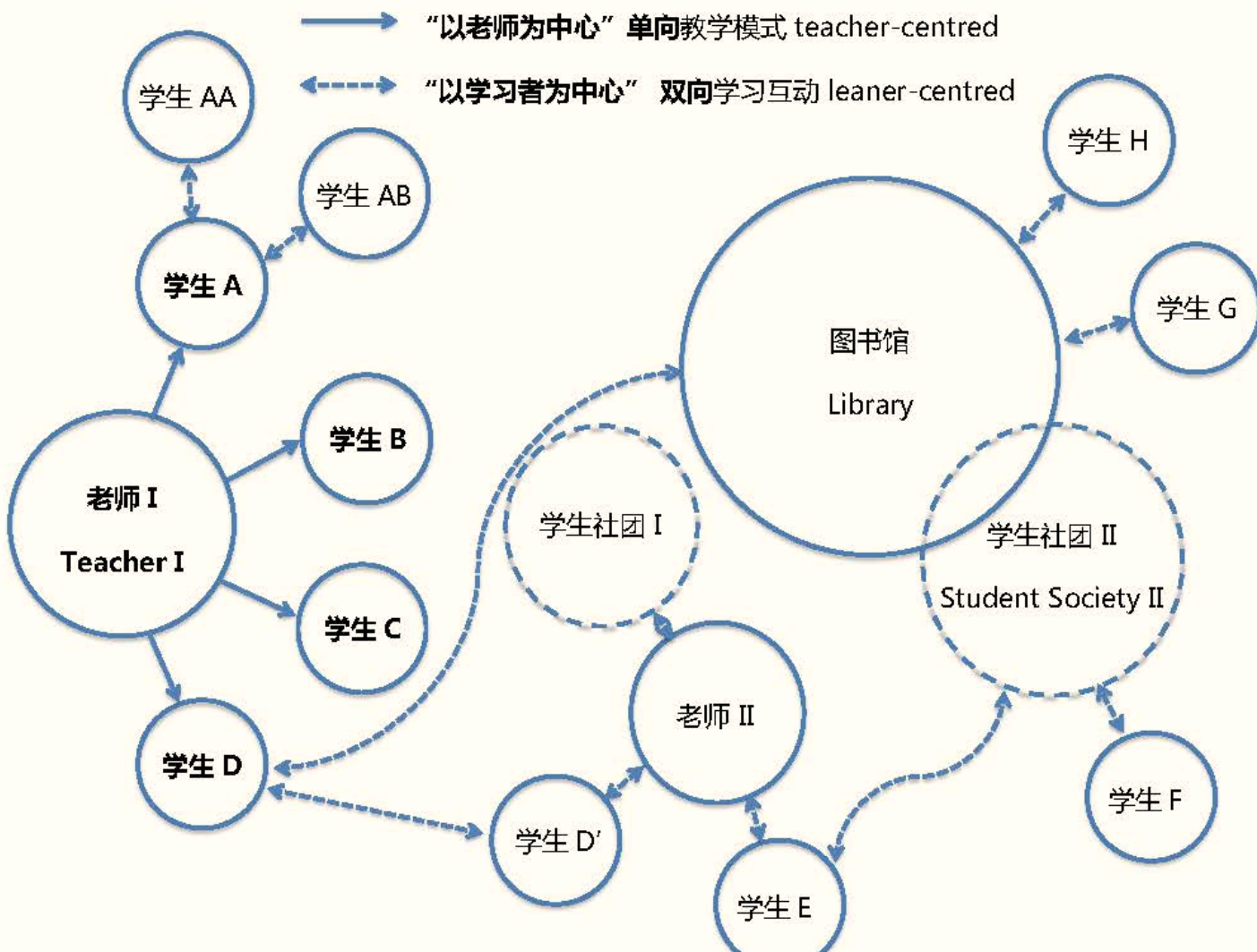
schools are like a city

- 也是学生主演的舞台

students as performers

Source: <http://www.xjtlu.edu.cn/en/news/2016/12/students-aim-for-greener-more-environmentally-friendly-campus>

所有学习者（包括学生和老师）都被认为是新知识、新技能、新方法、甚至是创新教学资源 and 平台等的共同“建造者和消费者”（“*prosumer*”：既是producer，也是consumer）。



An Online Learning Community / 虚拟校园



- Connect @ XJTLU is a fully featured electronic portfolio system with social networking features to create online learning communities..
- Students have somehow become **'prosumers'** – both producers and consumers of new knowledge and skills 从“学生”到“共同学习者”

CDE201_Mixed Group_Six people

by CDE201 MIX Group

Edit this page

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

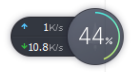
Current performance + management (material usage reduction + material reuse)

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

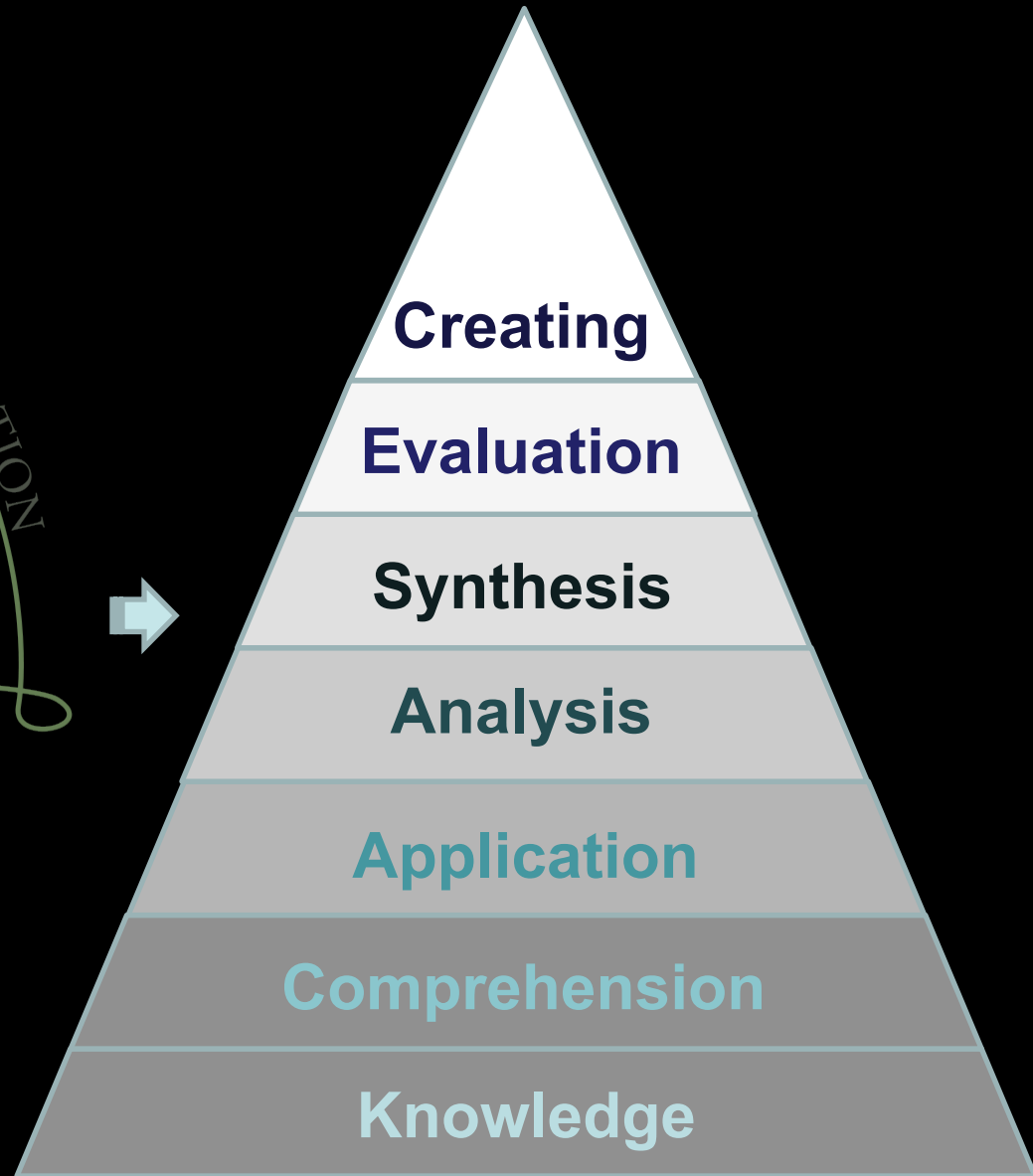
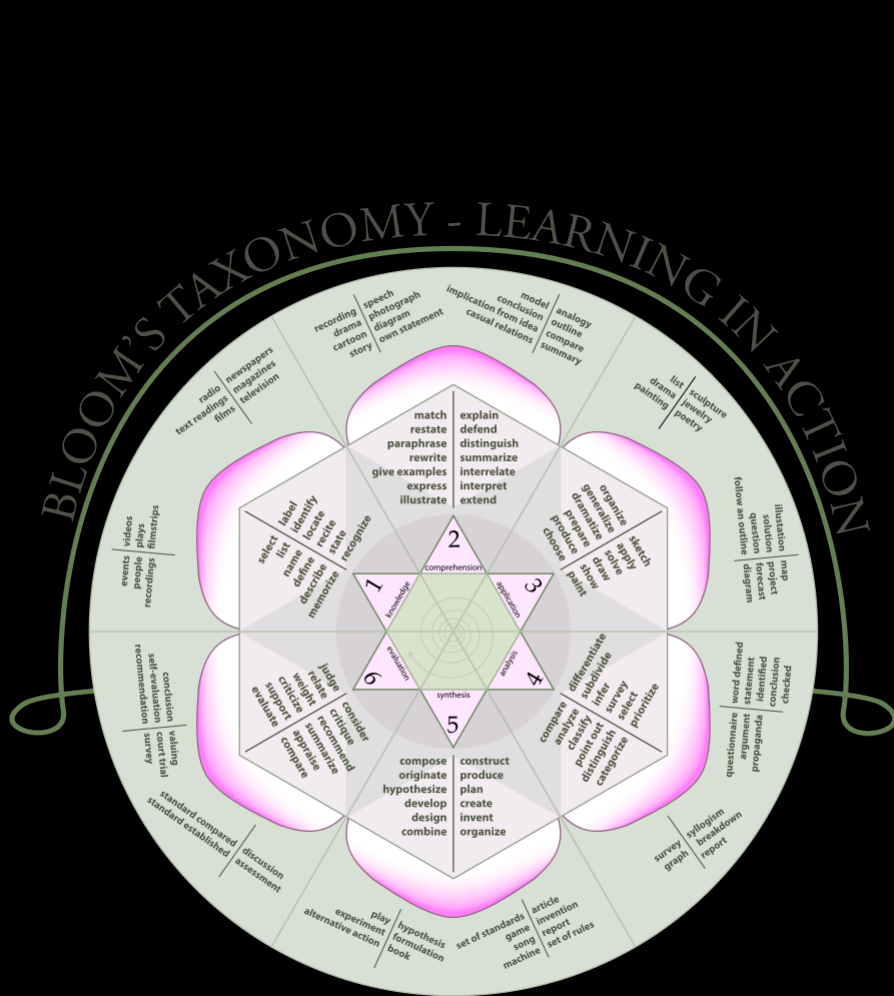


混合式学习 Blended Learning

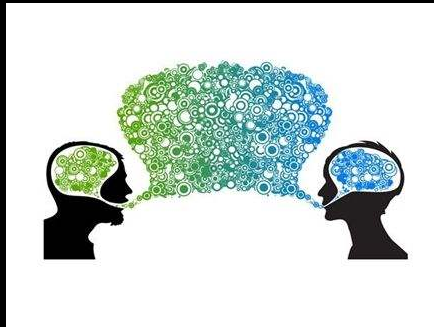
在建构主义教育哲学的基础上，通过研究引导，设计**交互式的**、以学习者为中心的混合学习模式，来促进**探究式的**（exploratory）、**以行动为导向的**转化性学习（transformative learning）。同时，通过赋予“混合式学习”更多的维度和层级，为学生提供更丰富的**学习体验**，并反映信息化时代高等教育的多元性和复杂性特征。




Bloom's Taxonomy 教育目标分类理论



'Additional' Learning Outcomes





这种由研究引导的、以“学”为主的创新教学模式不仅能为学生提供扎实的、可转换为生产力的相关知识和技能，还能引导他们在不断的自省和反思过程中逐步培养起主动学习的习惯、独立思辨及批判的精神、处理不确定事物或新兴（或复杂）问题时所需的整合资源（syntegration）和协同决策的能力等当代世界公民需具备的核心素质，并在此基础上进一步获得自我适应学习（adaptive learning）的才智和终身学习（lifelong learning）的兴趣等。

Stay Hungry. Stay Foolish.

教书 vs. 育人?



教育的本质，不是把篮子装满，而是把灯点亮...

— 约翰·奈斯比特 (John Naisbitt)



Part V: Summary and Discussion

Part V: Summary and Discussion

小结 + 研讨

小结 + 研讨

Stay Hungry. Stay Foolish.

XJTLU UPD's Target / 育人目标

- Intends to provide students with not only subject-based and transferable knowledge, but also **lifelong and adaptive learning capabilities**, **independence of thought**, **critical thinking**, **the ability to handle uncertainty and new problems** and other important attributes which students need to engender (Deakin 2006, Roach et al. 2001).
- 不仅为学生提供专业方面的、可转换为生产力的相关知识技能，更致力于培养学生终身学习的兴趣、自适应学习（**adaptive learning**）的才智、独立思辨及批判的精神、处理不确定事物或新兴问题的能力等综合素质。

Education?



A manufacturing line?

学习成果



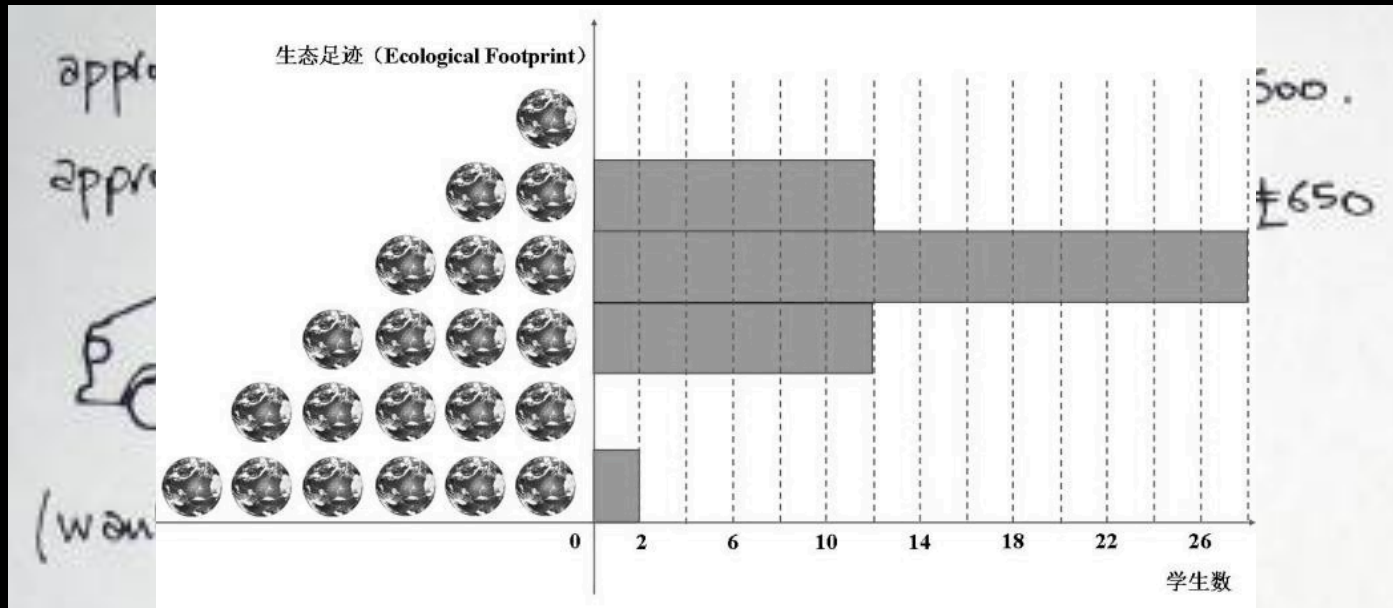
Learning outcomes: Stimulating learning and promoting core competencies, such as critical and systemic thinking, collaborative decision-making, and taking responsibility for present and future generations.



Societal transformation: Empowering learners of any age, in any education setting, to transform themselves and the society they live in.

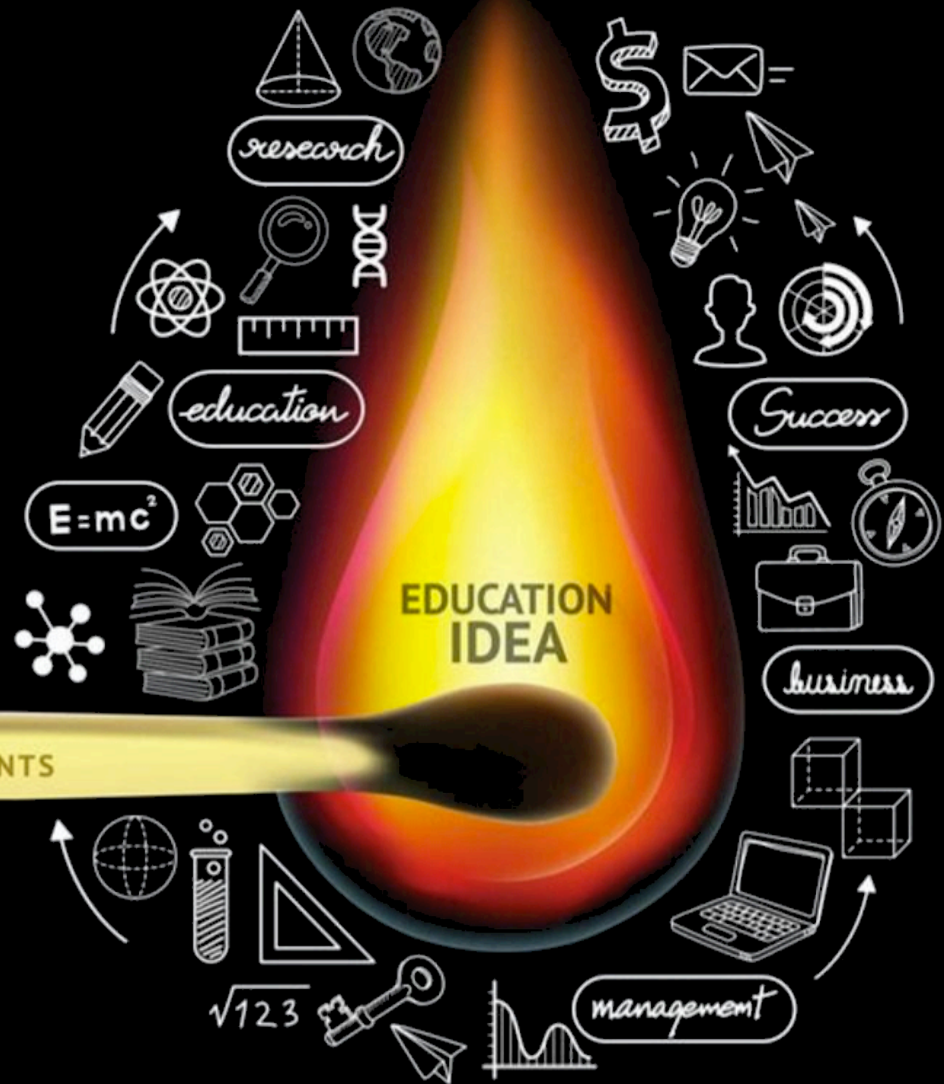
- Enabling a transition to greener economies and societies.
 - Equipping learners with skills for 'green jobs'.
 - Motivating people to adopt sustainable lifestyles.
- Empowering people to be 'global citizens' who engage and assume active roles, both locally and globally, to face and to resolve global challenges and ultimately to become proactive contributors to creating a more just, peaceful, tolerant, inclusive, secure and sustainable world.

Do you believe what you have taught/learned?



- Ecological Footprint: <http://www.footprintnetwork.org/resources/footprint-calculator/>
- Although university campuses (or cities or buildings) could be designed towards sustainability standards, it is left to users (i.e. students and staff) to decide how far they want to go to save energy, reduce carbon dioxide emissions and recycle waste.

“教育的本质，不是把篮子装满，而是把灯点亮...”



INFOGRAPHICS ELEMENTS

‘Education is not the filling of a pail, but the lighting of a fire...’

01 RESEARCH
Larasa Spinth Dolar, Si Anant,
Cendekiaur Adharmawati ERI, Sandi Sa
Edukatid, Tempur Incubator UH Labore
Di Dataran Magia Alqura

02 LEARNING
Larasa Spinth Dolar, Si Anant,
Cendekiaur Adharmawati ERI, Sandi Sa
Edukatid, Tempur Incubator UH Labore
Di Dataran Magia Alqura

03 SKILL
Larasa Spinth Dolar, Si Anant,
Cendekiaur Adharmawati ERI, Sandi Sa
Edukatid, Tempur Incubator UH Labore
Di Dataran Magia Alqura

04 SOLUTION
Larasa Spinth Dolar, Si Anant,
Cendekiaur Adharmawati ERI, Sandi Sa
Edukatid, Tempur Incubator UH Labore
Di Dataran Magia Alqura

05 ANALYZE
Larasa Spinth Dolar, Si Anant,
Cendekiaur Adharmawati ERI, Sandi Sa
Edukatid, Tempur Incubator UH Labore
Di Dataran Magia Alqura

Acknowledgement

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**Shoot for the moon...
Even if you miss, you'll land
among the stars**

Q & A

