第一讲:从移动学习走向泛在学习

——内涵、特征与案例分享

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变革浪潮来袭！

Barack Obama

- **The world has changed, and we must change with it.**

Learning is changing!

	E-learning		M-learning		U-Learning
Physical devices	Wired	- - - - - - - ➔	Wireless	- - - - - - - ➔	Disappeared
Computation & communication	Distinctive	- - - - - - - - - - - - - - - - - - ➔			Blurry
Learning	Confined to the single desk		- - - - - - - ➔		Dynamic/flexible
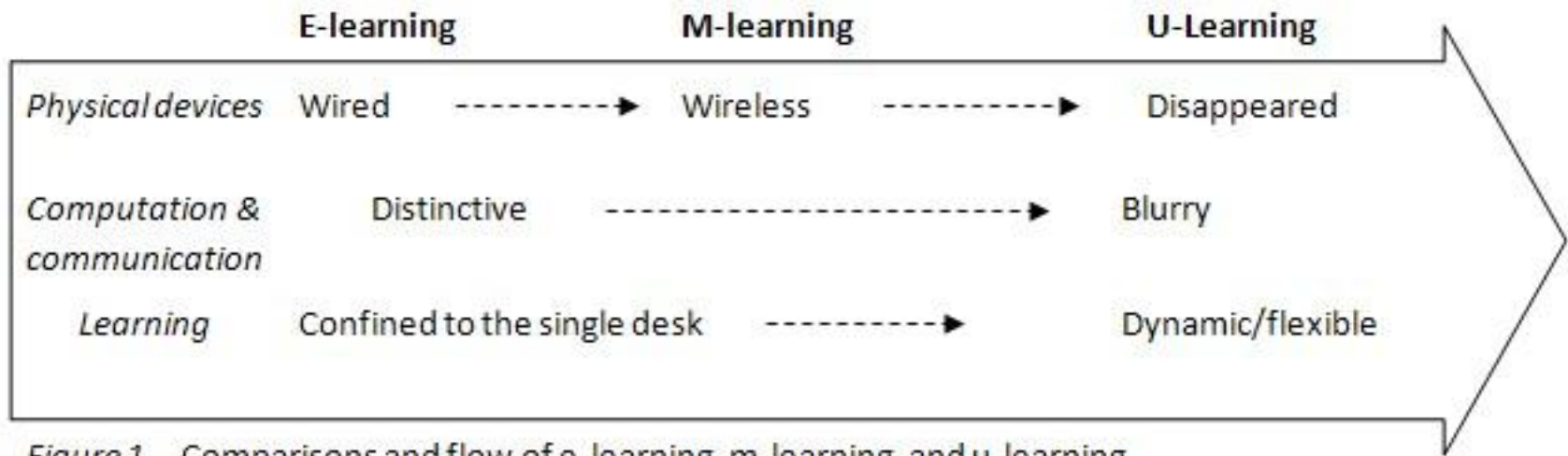
Figure 1. Comparisons and flow of e-learning, m-learning, and u-learning.

Towards the m-portfolio

Background: 'm' is for Mobile!

PDAs

Laptops / Compact Laptops

Tablet PCs

'Smart phones'

Games consoles

'Ultra Compact' computers

Mobile phones

'hybrid' devices

Media players (podcasting +/- video)

UBIQUITOUS LEARNING

Edited by Bill Cope & Mary Kalantzis

The Evolution of Learning

Real Work & Learning Indistinguishable

Open up time and place for learning

Open up time and place for extended operations and improved decision making

Ubiquitous (cloud)

Knowledge Creation/ Exchange

Empowered

Skills Transfer

Mobile Learning

Future

E-Learning

Now

Data and analysis where and when you need it

Pre-Web

Classroom Learning

Information Transfer

Controlled

Centralized

Decentralized

Personal Devices

Authority-Centered

Recipient-Centered

Team-Centered

Community-Centered (real and virtual)

(From Dr. Minjuan Wang)

5

Electronic learning

- 电子化学习、数字化学习
- 是指通过计算机、网络等数字化方法进行学习与教学的活动，它充分利用IT技术所提供的、具有全新沟通机制与丰富资源的学习环境，实现一种新的学习方式。

Mobile Learning

- Learning with portable technologies including but not limited to handheld computers, MP3 players, notebooks and mobile phones.

- M-learning focuses on the mobility of the learner.

- 移动学习内涵的演变
  - 从强调移动设备的应用转向强调学习者的移动性

先来看几段视频

First to See Some Short Videos

普适计算

未来教育

泛在学习
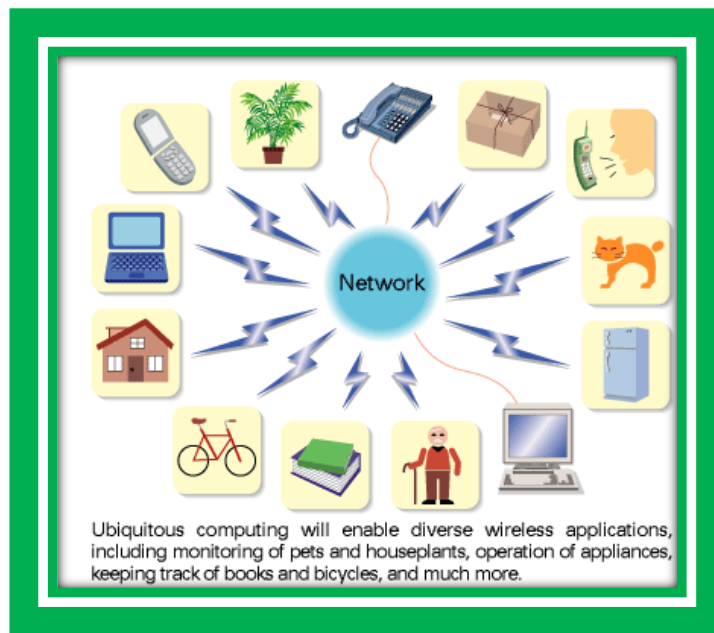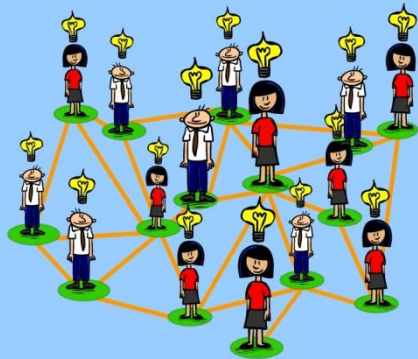
从移动学习走向泛在学习

From Mobile Learning to Ubiquitous Learning

新形态数字技术的不断涌现

虚拟现实

物联网

普适计算

语义网

云计算

新型学习理念的发展

- 社会建构主义学习理论
- 联通主义学习理论
- 分布式认知理论
- 情景认知理论
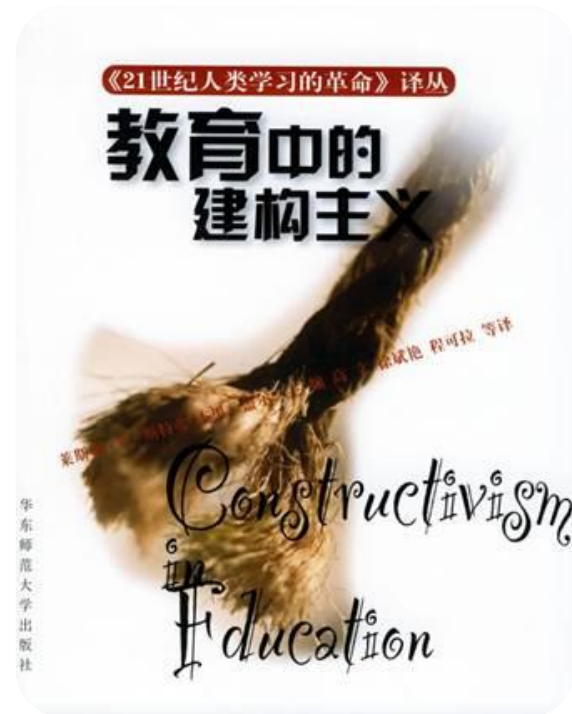
技术与理念双重推动下的泛在学习

- **U-Learning = e-Learning + m-Learning** (Casey, D., 2005)

- 普适计算技术推动下的泛在学习已经成为下一代**e-Learning**的重要发展方向

- 几个名词：**Ubiquitous Learning**、**Seamless learning** 、 **Ambient Learning** 、 **Cloud Learning**

泛在学习的内涵

- 广义的泛在学习
  - "无一事而不学，无一时而不学，无一处而不学，成功之路也"——朱熹
  - 人人、时时、处处

- 狭义的泛在学习
  - 普适计算支持下的学习，是e-Learning的高级发展阶段
  - Learning that employs mobile devices, wireless communications and **sensor technologies** in learning activities, called "context-aware u-learning". (Gwo-Jen Hwang et.al.,2008)

泛在学习的内涵

- **泛在学习**是指任何人(Anyone),在任何地方(Anywhere),任何时间(Anytime),利用随手可得的学习设备(Any device)，以自己的方式(in Anyway)获取自己所需学习信息(Any contents)与学习支持(Any learning support)。(李卢一, 郑燕林, 2009)

泛在学习的特征

- **李卢一、郑燕林，2006**
  - 永久性 、可获取性、即时性、交互性、适应性、情境性、真实性、自然性、社会性与整合性
- **Tsung-Yu Liu, et al., 2009**
  - the characteristics of u-learning are permanency, accessibility, immediacy, interactivity, situation, **calmness**, adaptability, seamlessness, and **immersion**.
  - **Calmness：** The learning devices are quiet, invisible agents that recede into the background of the learning environment.
  - **Immersion:** defined as the state in which learners experience the same feelings and emotions as in a real world when interacting with virtual objects and environment.
- **余胜泉等，2009**
  - 泛在性、非正式性、社会性、情境性、连通性、适应性

泛在学习与移动学习的区别在哪里？

一张关系图
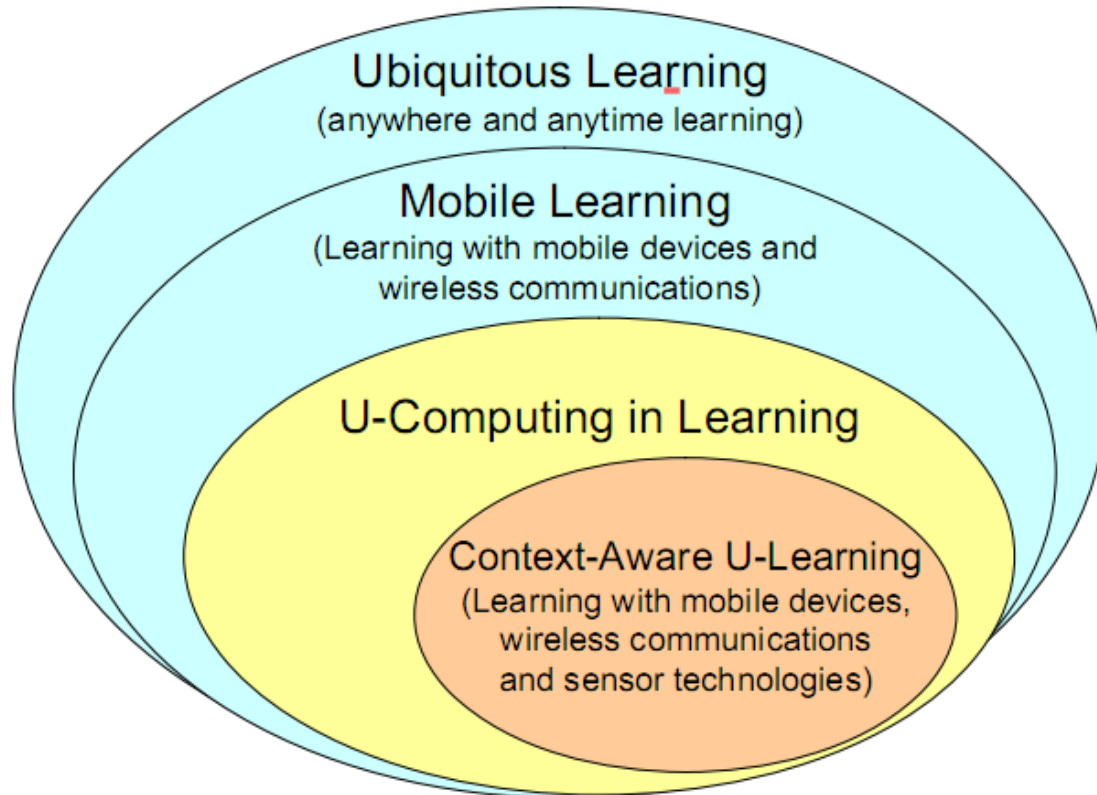
Figure 1. Relationships amongst u-learning, mobile learning, u-computing in learning and "context-aware u-learning"

狭义泛在学习的核心技术要素：移动设备、无线网络、传感技术

相关概念的区别与联系

Table 1. Comparisons of context-aware u-learning systems and m-learning systems

Learning system / Item	M-Learning System	Context-Aware U-Learning System
Awareness of learner contexts	By accessing the learning portfolio database.	By accessing the learning portfolio database and sensing the personal contexts (e.g., location and body temperature) and environmental situations of the learner in the real world.
Accessing learning services or teaching materials	Learners actively access the system via wireless networks. That is, the learning system usually provides services ~~passively.~~	The system actively provides personalized services to the learners based on the learner's contexts.
Content of the learning portfolio	Recording the ~~online behaviors~~ of the learner.	Recording the online behaviors, the real-world behaviors and the corresponding environmental information of the learner.
Personalized support	Based on the learner's profile and online behaviors in the database.	Based on the personal behaviors and environmental situations of the learner in the real world.
Seamless learning feature	Changing learning devices or learning in moving will interrupt the learning activities.	Learning services will not be interrupted even though the learner is moving from place to place and the environment (including the learning devices and the networks) is changing.

（Gwo-Jen Hwang et.al.,2011）

泛在学习的优势

- 相比移动学习，泛在学习可以： （Gwo-Jen Hwang et.al.,2011 ）

  - 感知更多的情境信息
  - 系统更加主动提供学习服务
  - 永久记录更加丰富的学习过程数据，线上行为+真实世界行为
  - 基于档案数据和情境信息提供更加准确的个性化学习支持
  - 支持多设备、多地点切换的无缝学习

泛在学习的优势

- **学习者所关注的将是学习任务/目标本身，而不是外围的学习工具或环境因素**

- 技术对人而言,会是一种外围角色,甚至不用让学习者注意到

- 技术会成为一种自然存在,不再增加学习者的认知负担

泛在学习典型案例

Typical Cases Show of Ubiquitous Learning

案例1：情境感知户外生态教学系统

- **台湾黄国祯教授主持**

- 户外生态教学系统以U-Learning为概念基础，以无线通讯、移动装置配合教学活动等U-Learning环境三要素进行系统规划。以PDA为移动载具、以全球卫星定位技术达到立即定位，并配合情境感知之时间情境与使用者位置情境条件考虑，建立无所不在的学习空间。

案例1：情境感知户外生态教学系统
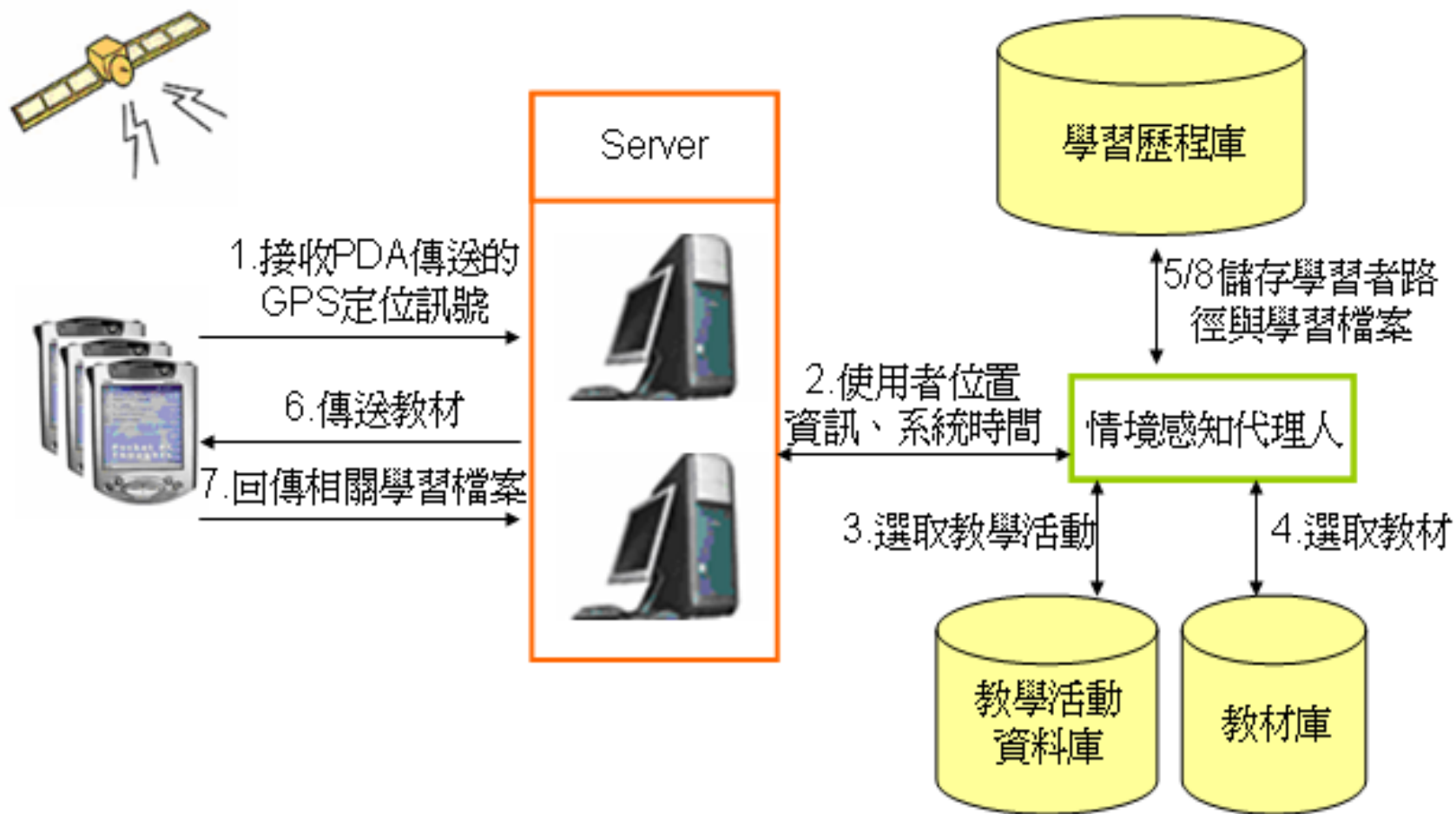
Gwo-Jen Hwang,Tzu-Chi Yang,Chin-Chung Tsai ,Stephen J.H. Yang , A context-aware ubiquitous learning environment for conducting complex science experiments [J].Computer & Science, 2009,(53):402-413

案例2：情境感知语言学习支持系统

- **日本德岛大学**
- 情境感知的语言学习支持系统
- TANGO、JAMIOLAS、JAPELAS
- TANGO注重词汇的学习
- JAPELAS注重礼貌用语的学习
- JAMIOLAS注重拟声词的学习
- 正在进行的LOCH for Outdoor Task-based Learning项目侧重户外基于任务的学习。
- 在日本的外国留学生日常学习日语提供服务
- 可以通过对外界环境的感知，随时随地向学习者进行提问

案例2：情境感知语言学习支持系统

Figure 6: Inquiries from TANGO in a room.

(1) Where is the remote control of the air conditioner?

(3) Please put the can on the wooden desk into the wastebasket.

(2) Please put the remote control on the wooded desk.
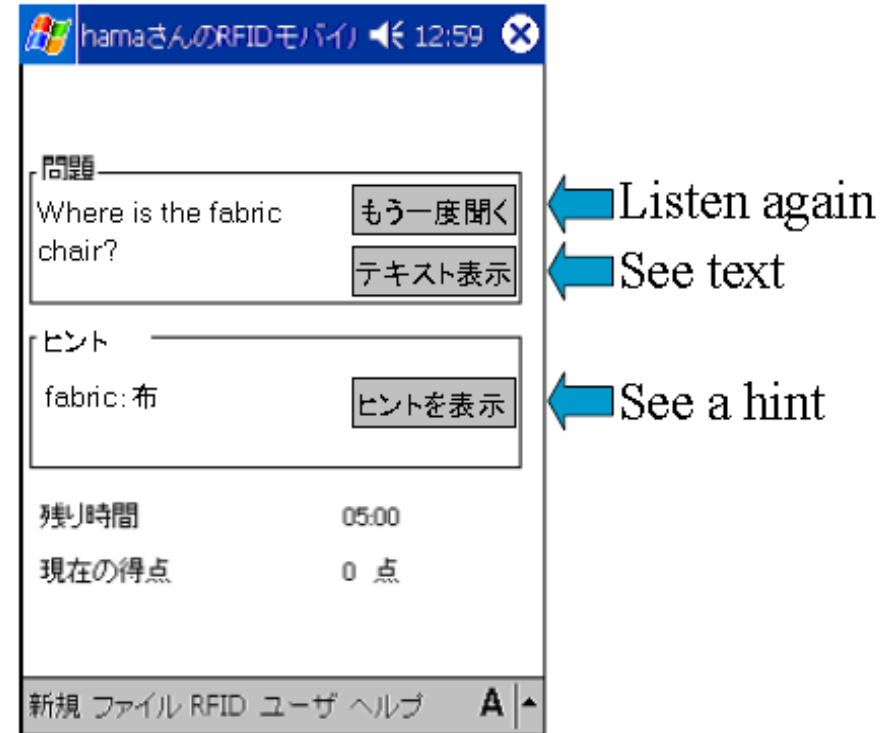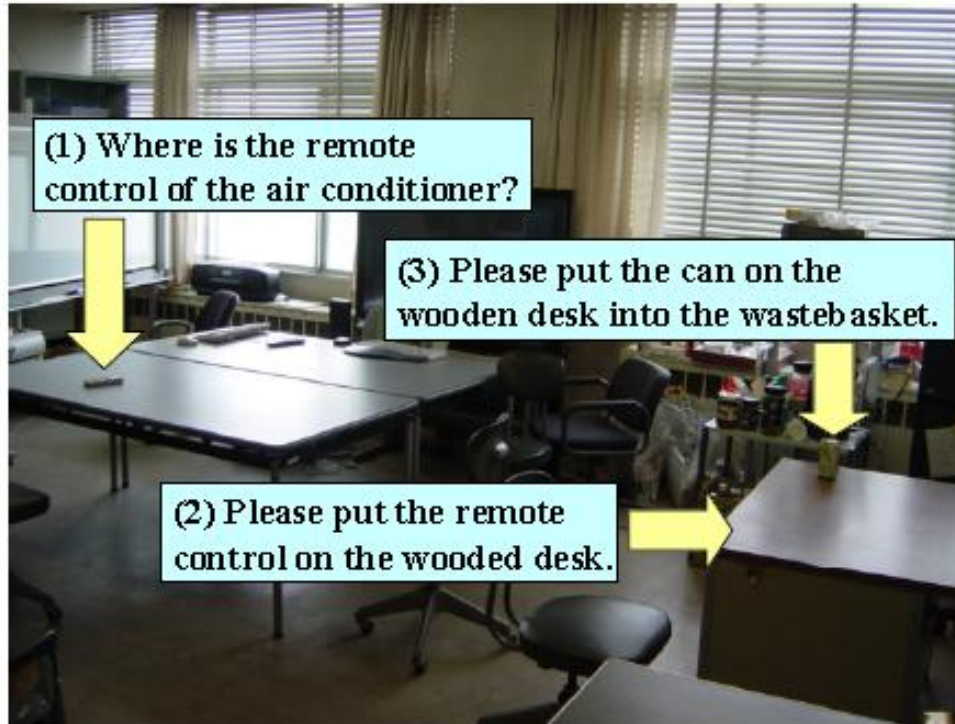
Figure 5. Screen snapshot of TANGO.

Listen again

See text

See a hint

(Hiroaki Ogata ,&Yoneo Yano, 2004)

案例3：BSUL项目

- **日本德岛大学**

- BSUL(Basic Support for Ubiquitous Learning)系统旨在泛在计算系统融入课堂教学环境，为教室和现场活动提供泛在学习支撑环境，从而评估教室环境下泛在技术对学习者学习的影响及可能性。

- 在教室内，学生利用联网的PDA与指导教师和其他学习者进行互动。

案例3：BSUL项目

案例3：BSUL项目
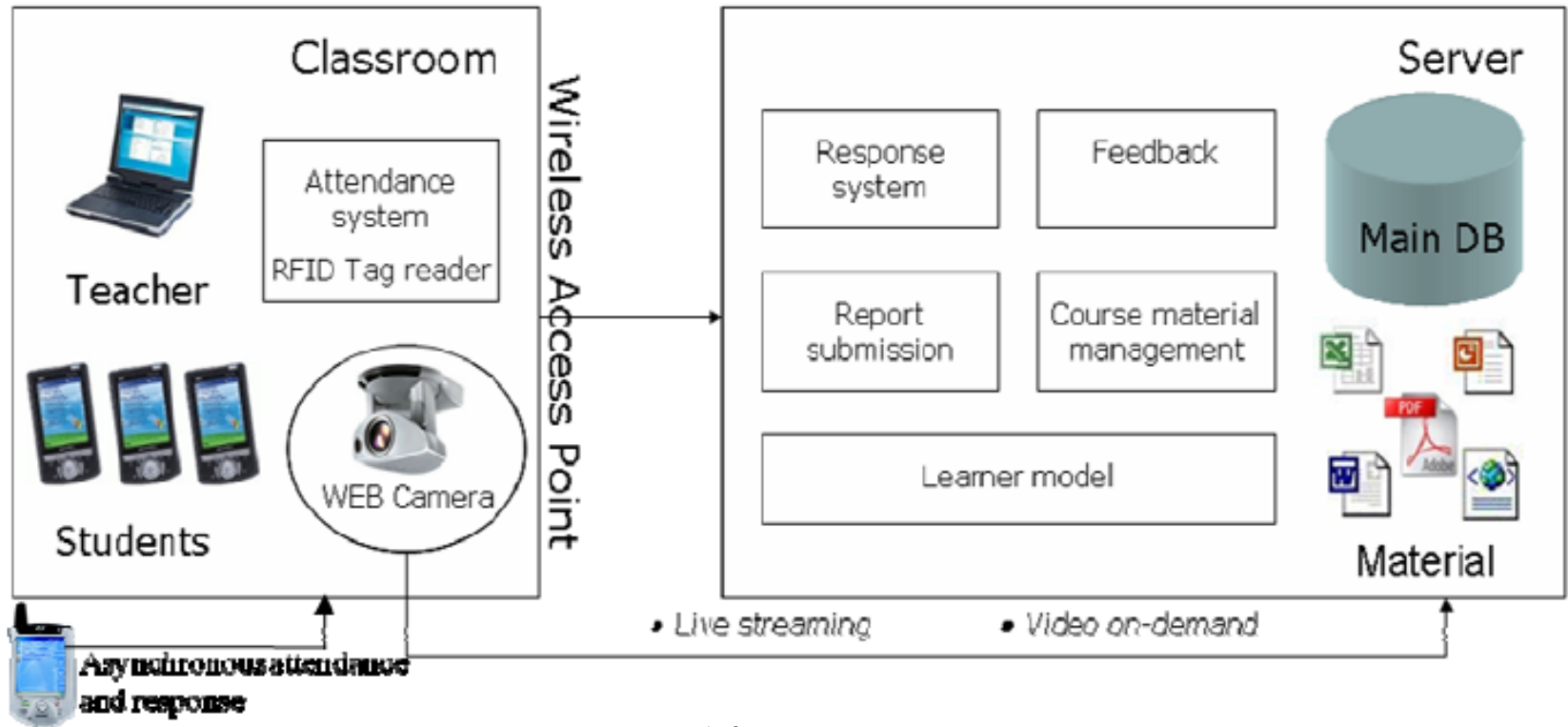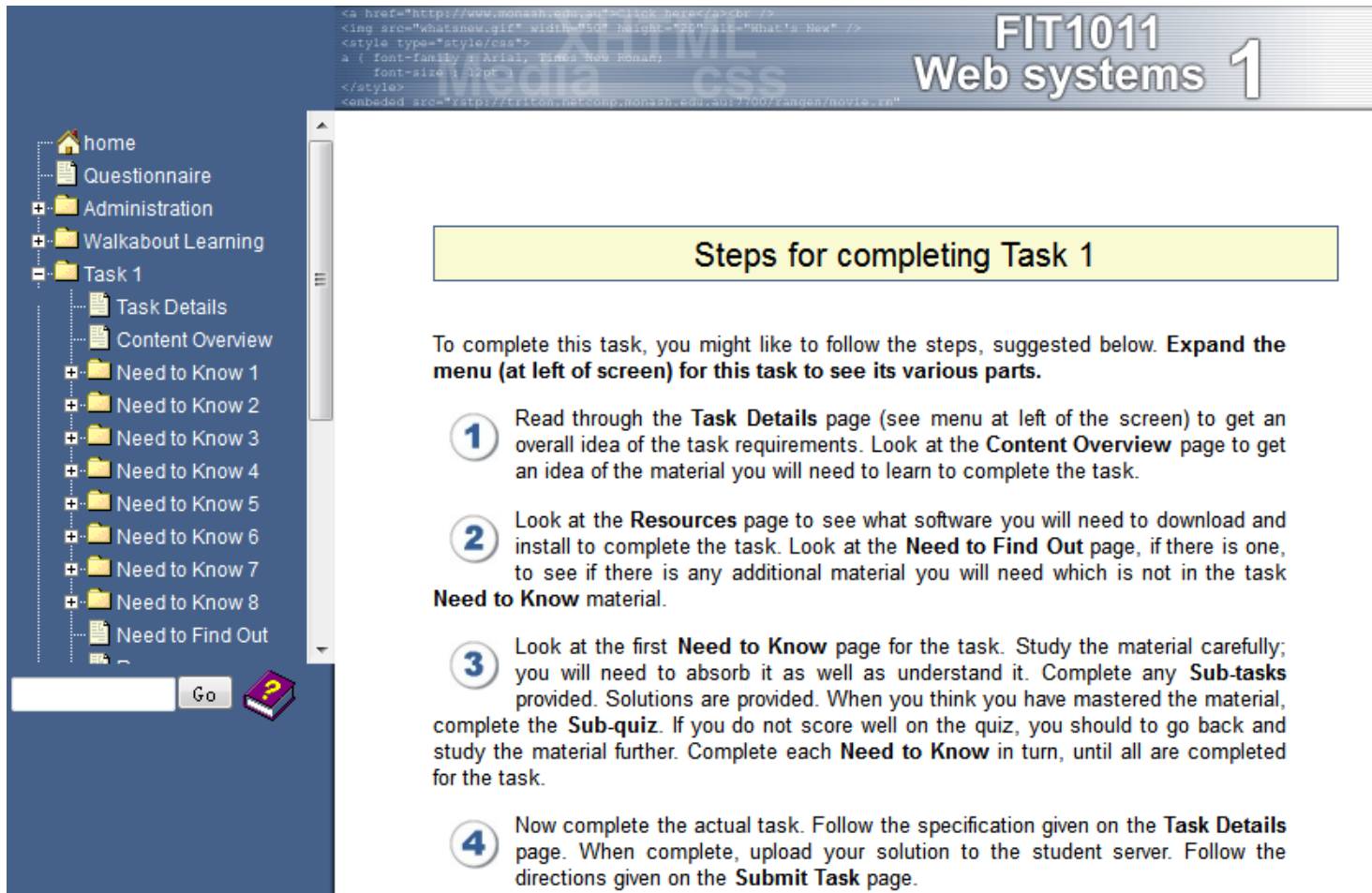
BSUL系统架构

Ogata, Hiroaki, Saito, Nobuji A., Paredes J., Rosa G., Supporting Classroom Activities with the BSUL System[J].Educational Technology & Society, 2008,11(1):1-16.

案例4：WALKABOUT项目

- **澳大利亚Des Casey博士主持**

- Walkabout U-Learning是基于任务或者专题的泛在学习系统研究项目

- 这一系统包含学习任务、特定学习领域、内容说明、学习活动、交流模块、管理模块

- 学习者通过完成1—12个任务(Task)或主题(Topic)来完成学习

案例4：WALKABOUT项目

http://walkabout.infotech.monash.edu.au/walkabout/fit1011/index.html

案例5：EULER项目

- **台湾龙华科技大学**

- 户外自然科学学习项目

- **关渡自然公园**(Guandu Nature Park in Taiwan)

- 小学教师和学生
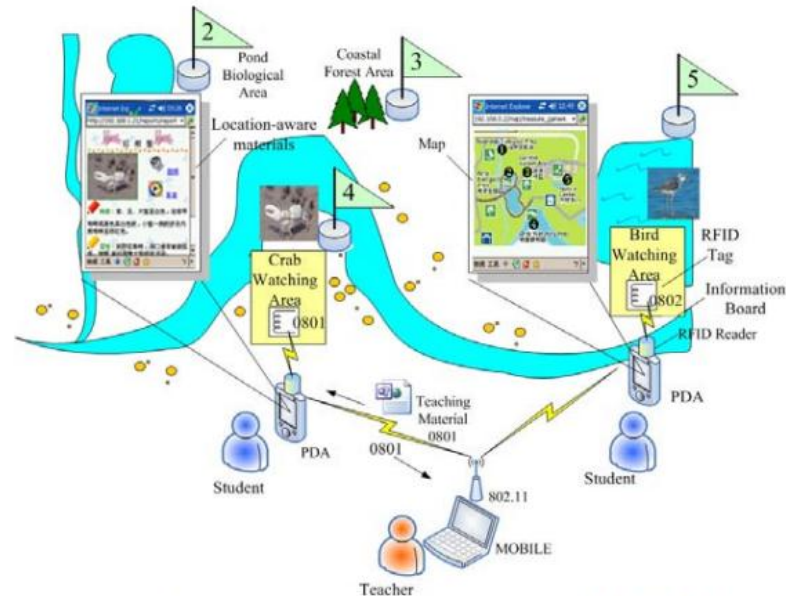
Figure 3. Guandu Nature Park scenario employing EULER

Liu, T.-Y., Tan, T.-H., & Chu, Y.-L. (2009). Outdoor Natural Science Learning with an RFID-Supported Immersive Ubiquitous Learning Environment. Educational Technology & Society, 12 (4), 161–175.
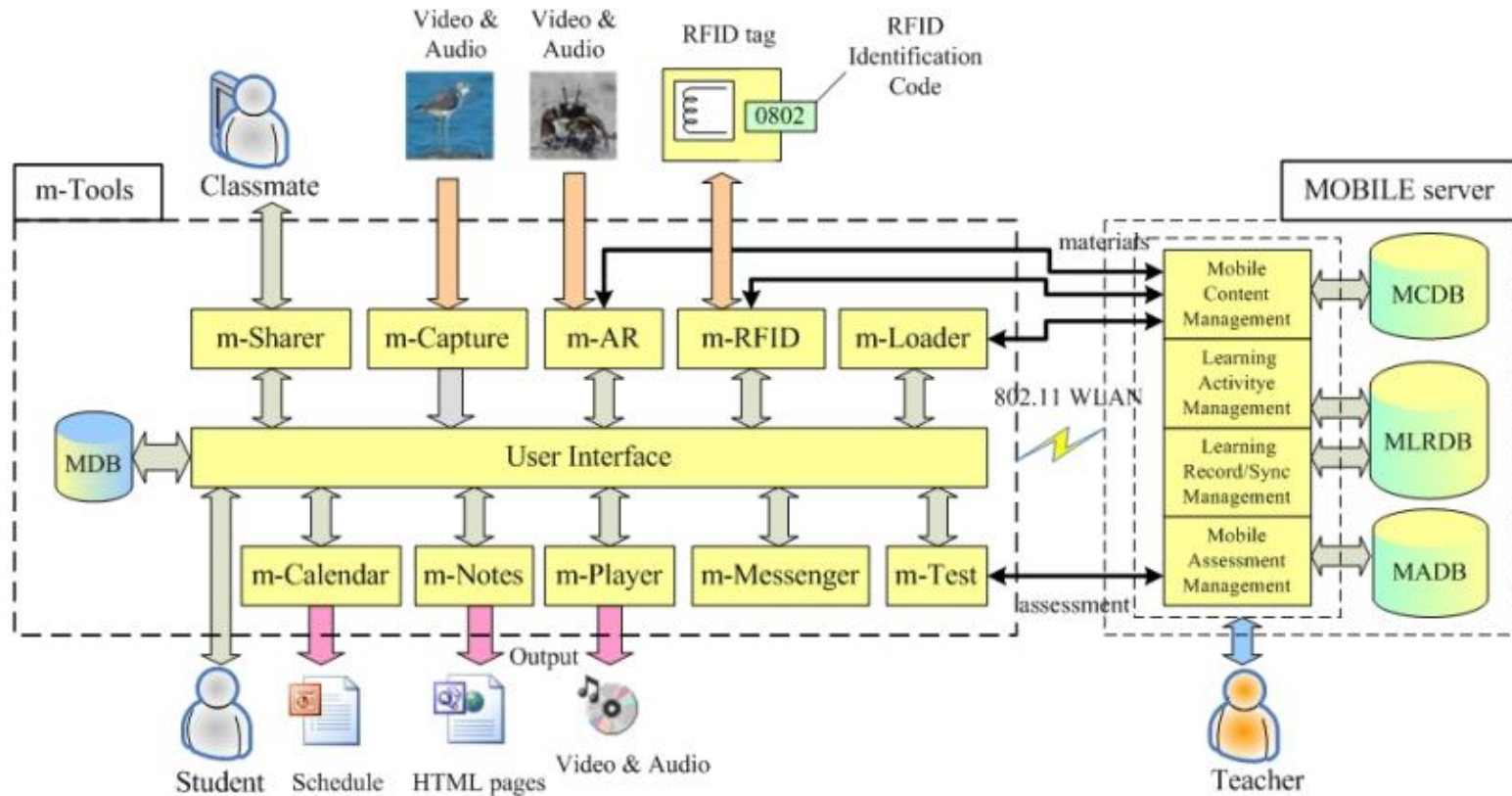
案例5：EULER项目

Figure 1. Structure of EULER and its two subsystems — the MOBILE server for teacher use and m-Tools for student use

案例6：智慧泛在课堂

- **上海交通大学**

- 图书馆、教务处、网络信息中心进行资源整合，推出"智慧泛在课堂"，颠覆了传统的学习方式

- 个性化定制的超星学习终端

- 200位学生、500门课程的近2000套教参资料

http://www.edu.cn/jxpt_6502/20111027/t20111027_699189.shtml

值得思考的几个问题

Some Questions Worth Thinking

两种观点

观点1：泛在学习是为克服数字学习(e-learning)的缺陷或限制而提出的一个全新概念

观点2：泛在学习是e-Learning的延伸和发展，是e-Learning的高阶形态

产生影响

- **泛在学习将对未来教育、学习和培训产生何种影响？**
  - 学习/培训模式、资源建设、学习评价、技术环境….

潜在应用

- 泛在学习如何在实践中发挥作用？有哪些可行的应用场景？
  - 基础教育
  - 职业教育
  - 高等教育
  - 终身教育
  - 家庭教育
  - ……

相 关 资 源 推 荐

Some Professional Resources Recommendation

Ubiquitous learning Institute

- Ubiquitous learning Institute
  - http://education.illinois.edu/uli

Ubiquitous Learning Journal

- Ubiquitous learning: An international journal
  - http://ubi-learn.com/journal/

- *Ubiquitous Learning: An International Journal* sets out to define an emerging field. Ubiquitous learning is a new educational paradigm made possible in part by the affordances of digital media.

Ubiquitous Learning Conference

- The 5th Ubiquitous Learning Conference
    - http://ubi-learn.com/the-conference

泛在学习研究小组

- 北京师范大学现代教育技术研究所
- 学习元平台：http://lcell.bnu.edu.cn
- UL文献整理：
  http://lcell.bnu.edu.cn/cankaowenxian.jsp

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＊ Actions speak louder than words ＊