Nature Observation Learning

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Nature Observation Learning
A Mobile Butterfly/Bird-Watching Learning System
行動賞蝶/鳥系統
The Relationship with ICEmanship
Knowledge
Features of BWL
Knowledge: develop meaningful knowledge in the authentic environment right in time
Digital close-up view of the target bird
Arouse the learner's attention and interest in birds
Searching queries as well as the electronic worksheet questions
Scaffold the learner's comprehension
Searching results from the nature database
Provide the most relevant knowledge for the learner
Creativity
Learning with BWL
Creativity: learning the outdoor activity of bird watching can be more independent and self-reliant
Observing a bird up close
Creates the fair opportunities and experiences necessary
Identifying bird features
Help the learner to develop the knowledge and skills needed to make responsible decisions
Searching for relevant information
Take actions dealing with their own learning
Project Leaders
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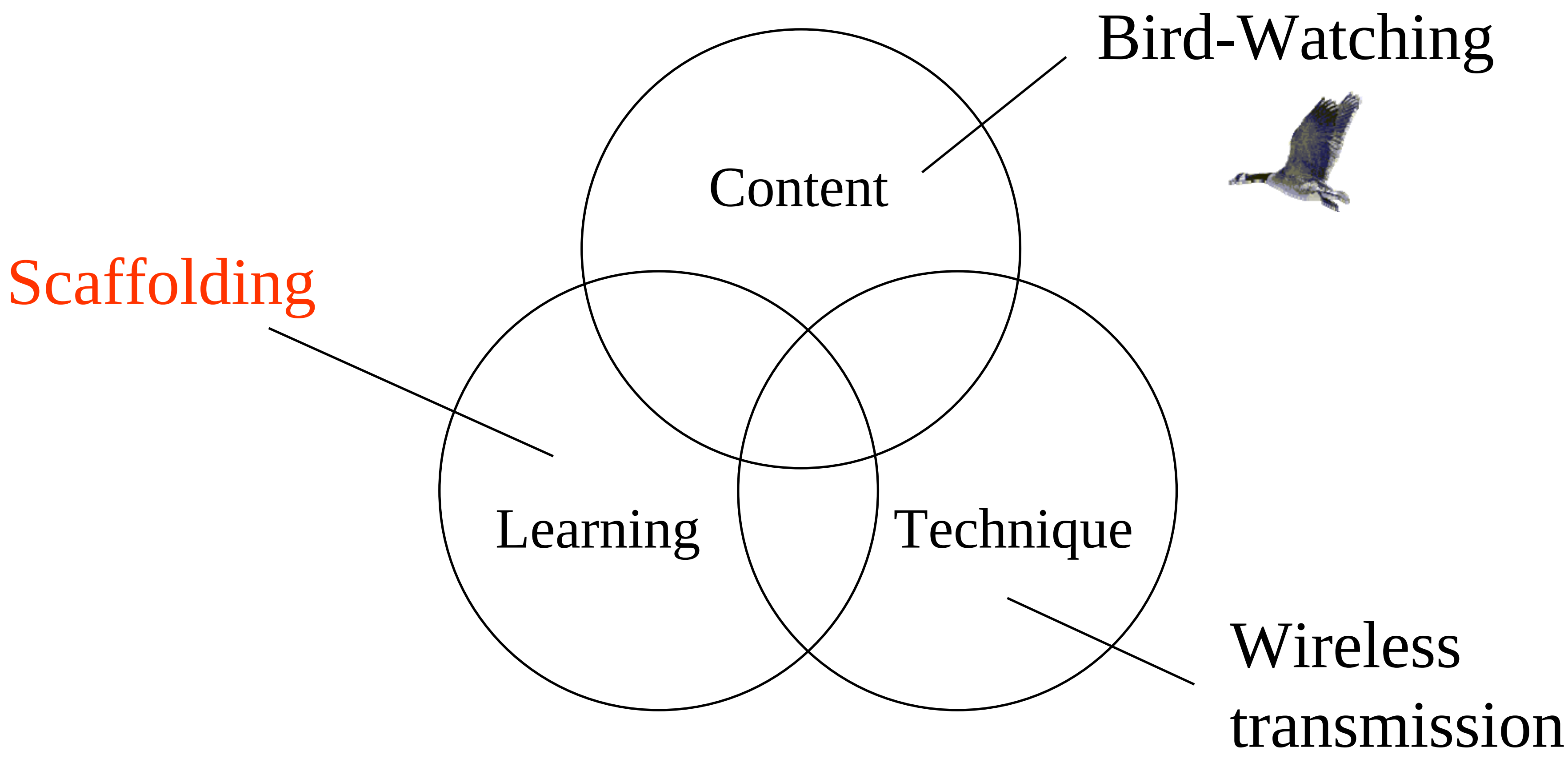
Prof. Michclle T. Kao (National Dong-Hwa University)
Prof. Gwo-Jong Yu (Aletheia University)
WMN

Two Outdoor Mobile Learning Systems

- **Mobile Bird-Watching Learning System**

- **Mobile Butterfly-Watching Learning System**

Mobile Bird-Watching Learning System

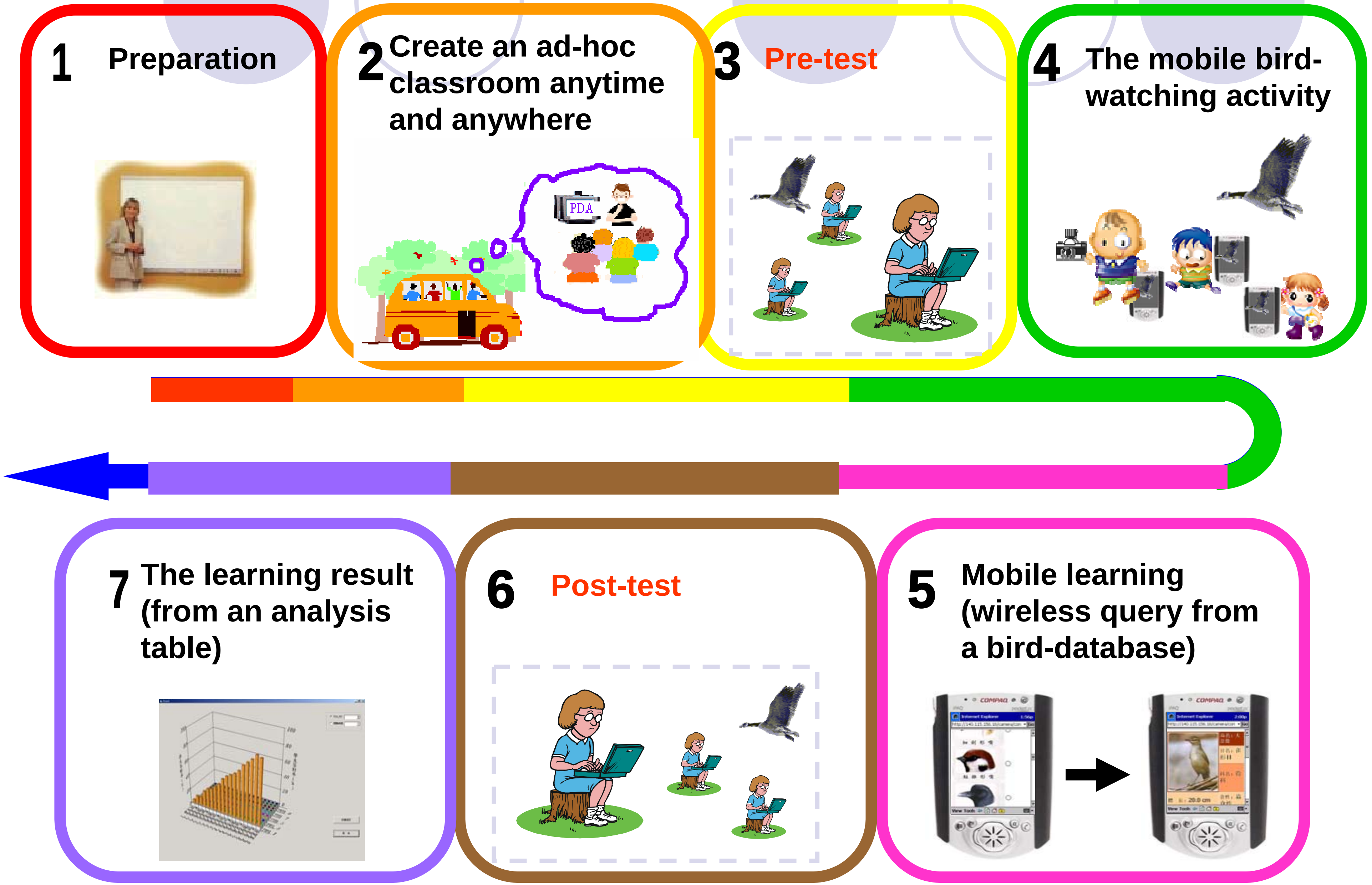



iPAQ
pocket pc
Start
5:08p
Today
IA Capture (FC_TW)
Internet Explorer
Notes
戶外賞蝶學習系統
蝴蝶辨識系統
Programs
Settings
Find...
Help
Menus
Sounds &
Reminders
Personal
System
Connections
D-Link


LifeView
FlyCAM-CF
D-Link Air
Wireless CompactFlash
802.11b Wireless Solution

Scenario of a Bird-Watching Learning Activity

Learning flow
-- mobile bird-watching learning




COMPAQ
iPAQ
pocket pc
Internet Explorer 1:56p
http://140.115.156.16/camera/con
Go
細 劍 形 嘴
短 錐 形 嘴
View Tools


COMPAQ
iPAQ
pocket pc
Internet Explorer 2:00p
http://140.115.156.16/camera/con
Go
鳥名：大葦鶯
目名：雀形目
科名：鶯科
體 長：20.0 cm
食性：蟲食性
View Tools


COMPAQ
iPAQ
pocket pc
行動學習單 1:36p
ok
鳥名 黑面琵鷺
鳥科名 八哥科
鳥目名 夜鷹目
多寡 無族群
鳥種 留鳥,過境
食性 肉食性
群性 單獨
已連線
儲存
10
10
資料新增完成，請進行測驗！
1 2 3 4 5 6 7 8 9 10

Three Elementary Schools for the BWL Activities

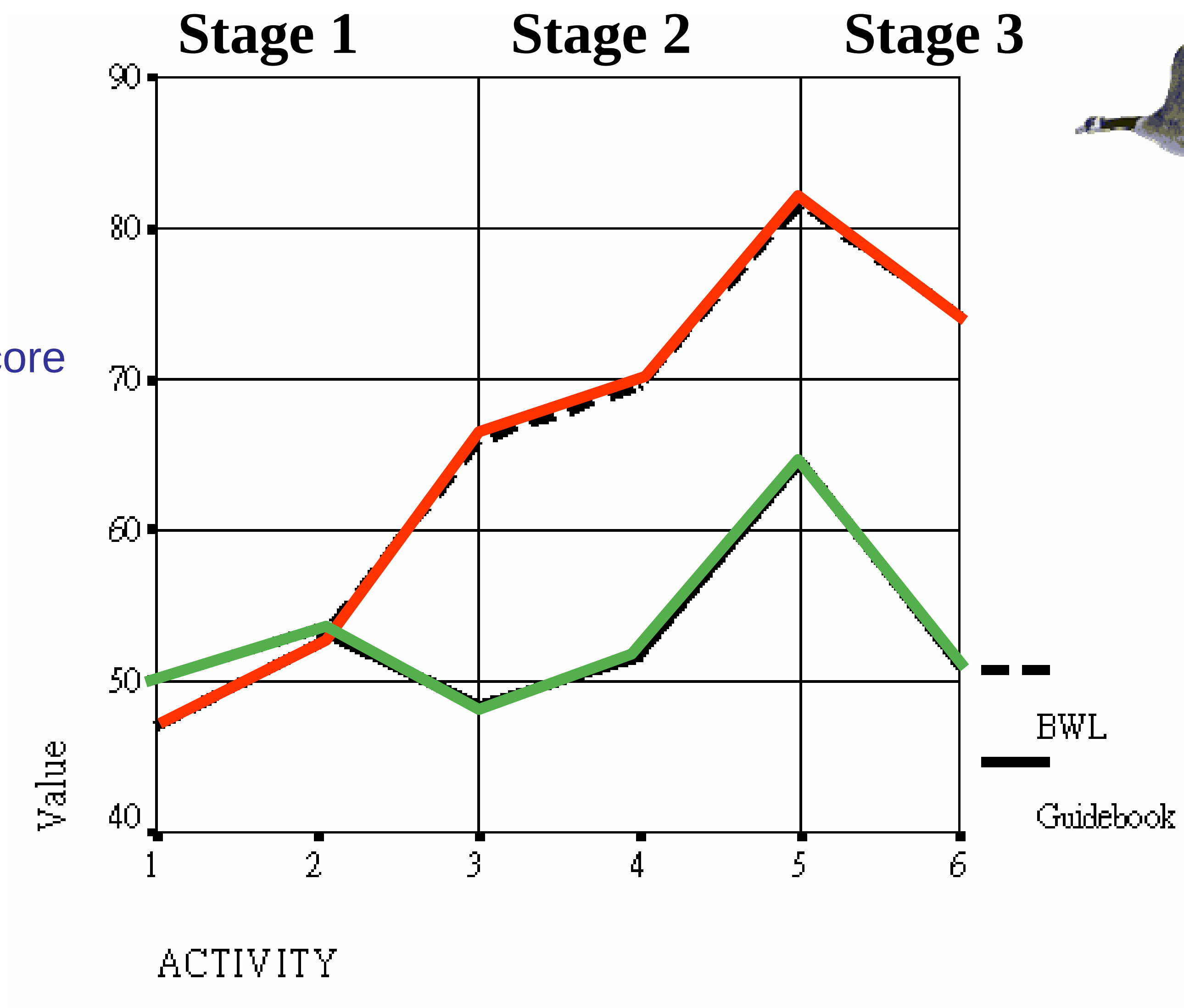
西門國小

長興國小

明道國小

BWL-assisted group/Guidebook-assisted group

Post-test mean score



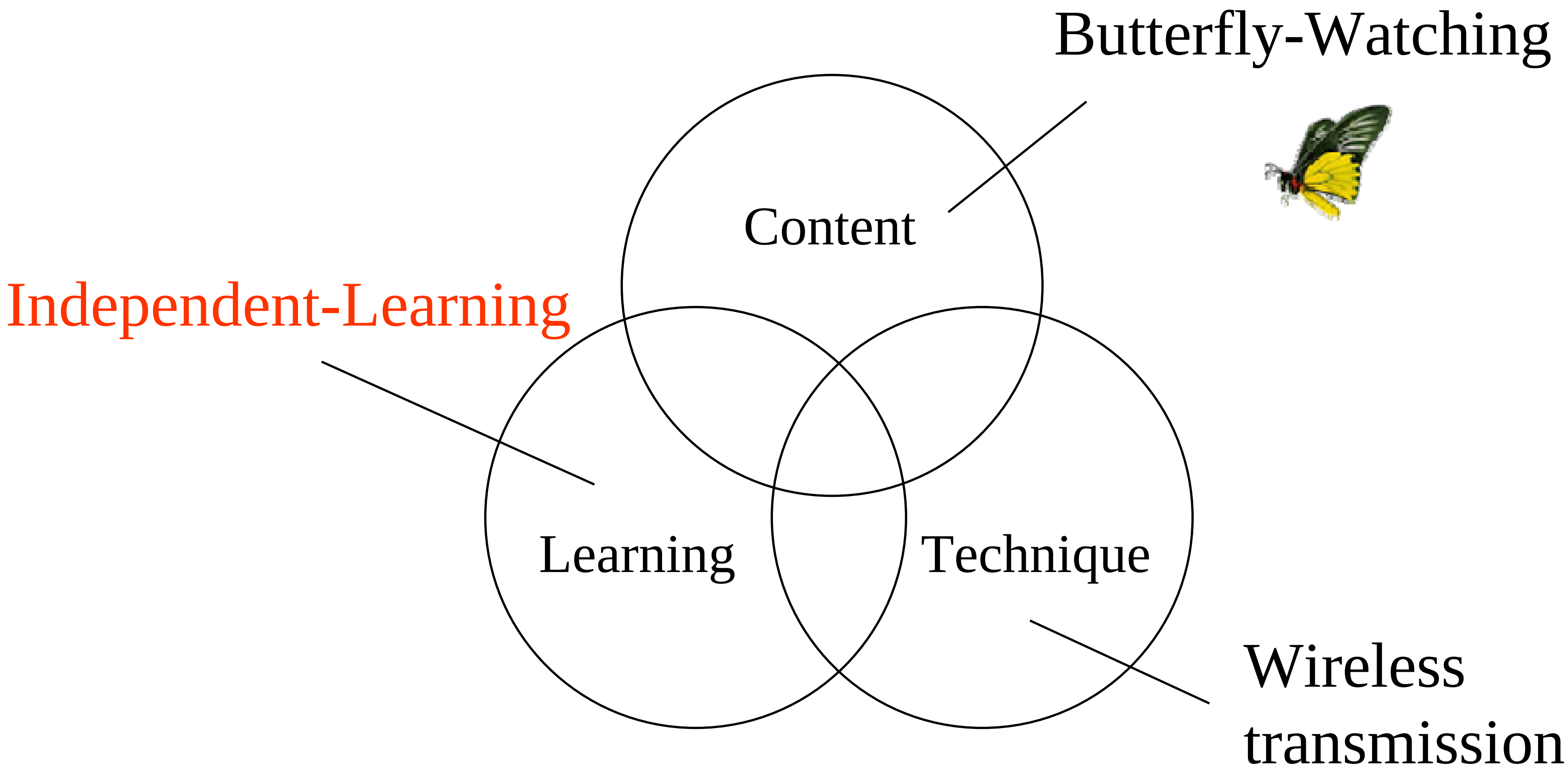
Publications

- "A Mobile Learning System for Scaffolding Bird Watching Learning,"
  - IEEE WMTE 2002: ***IEEE International Workshop on Wireless and Mobile Technologies in Education***, Teleborg Campus, Sweden, August 29-30, 2002.
  - ***Journal of Computer Assisted Learning***, (special issue on "Wireless and Mobile Technologies in Education"), Vol. 19, No. 3, pp. 347-359, Sep. 2003. (SSCI)

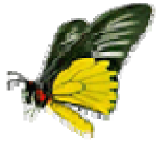
The system demo of the Bird-Watching Learning System has already illustrated last year

Mobile Butterfly-Watching Learning System

Mobile Butterfly-Watching Learning System

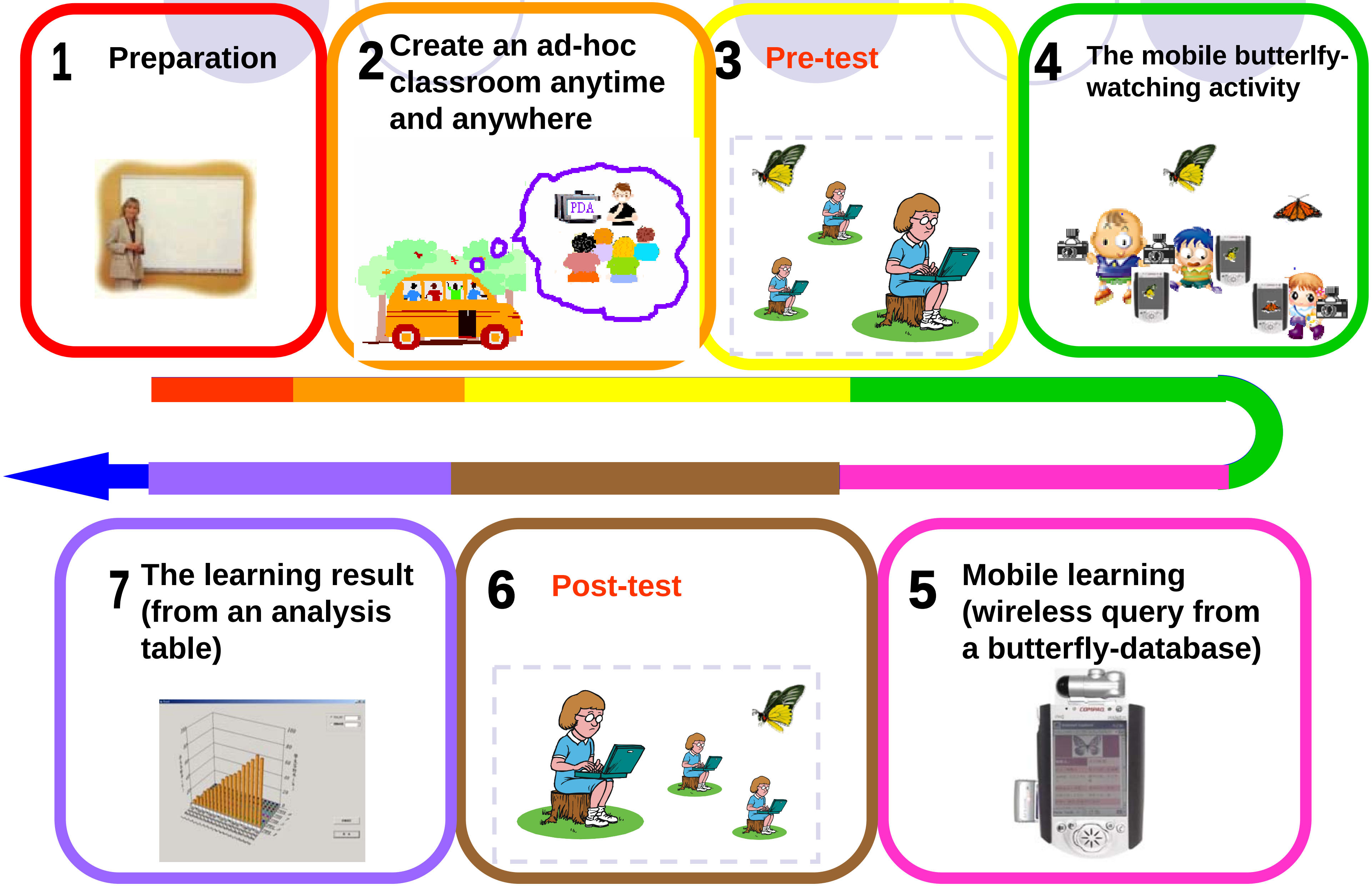


Paper writing

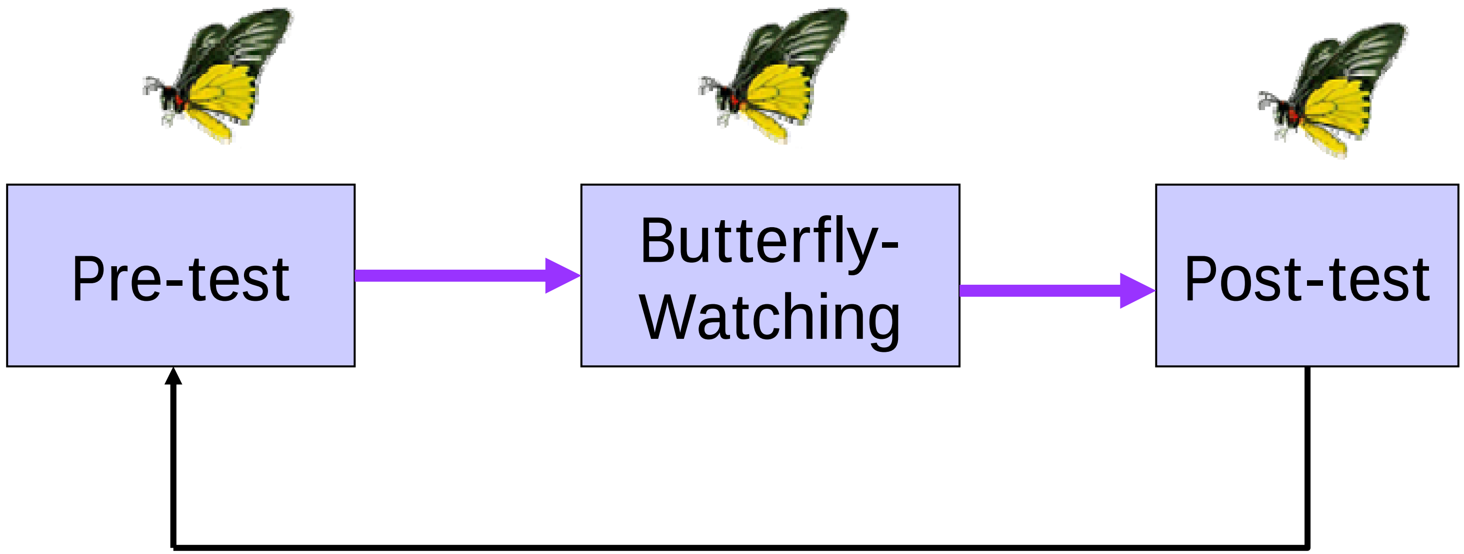


- "A Mobile Butterfly-Watching Learning System for Supporting the Independent Learning"
  - is accepted to IEEE WMTE-2004: *IEEE International Workshop on Wireless and Mobile Technologies in Education*, Taiwan, 2004.

Learning flow
-- mobile butterfly-watching learning

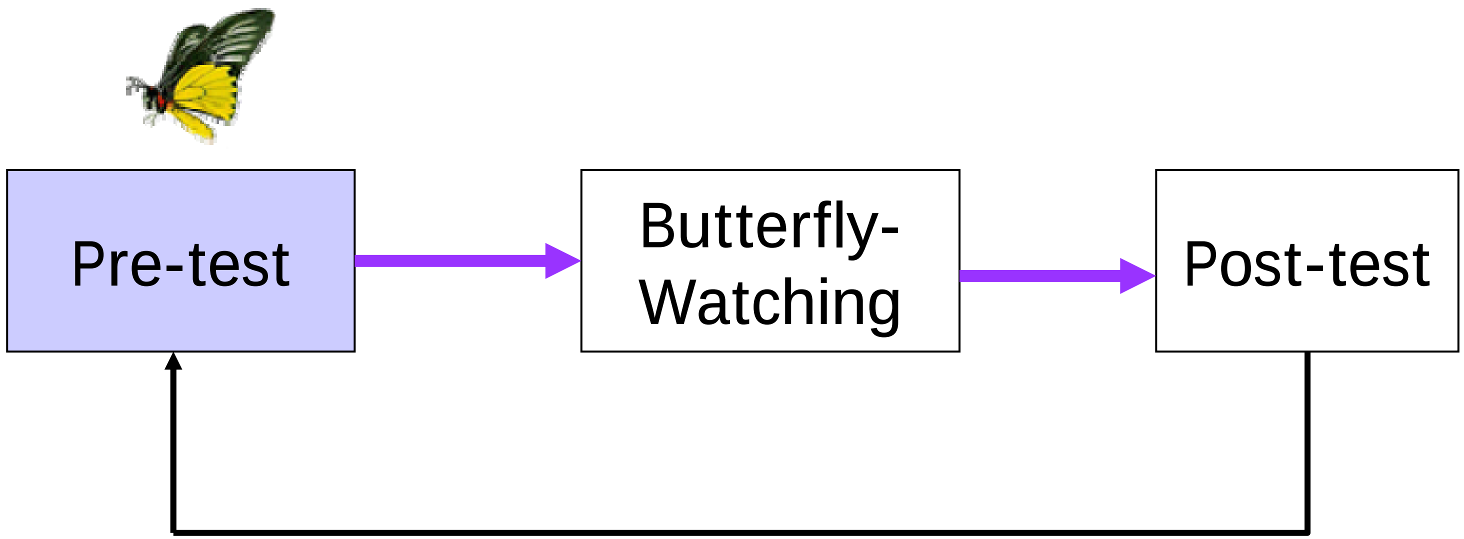


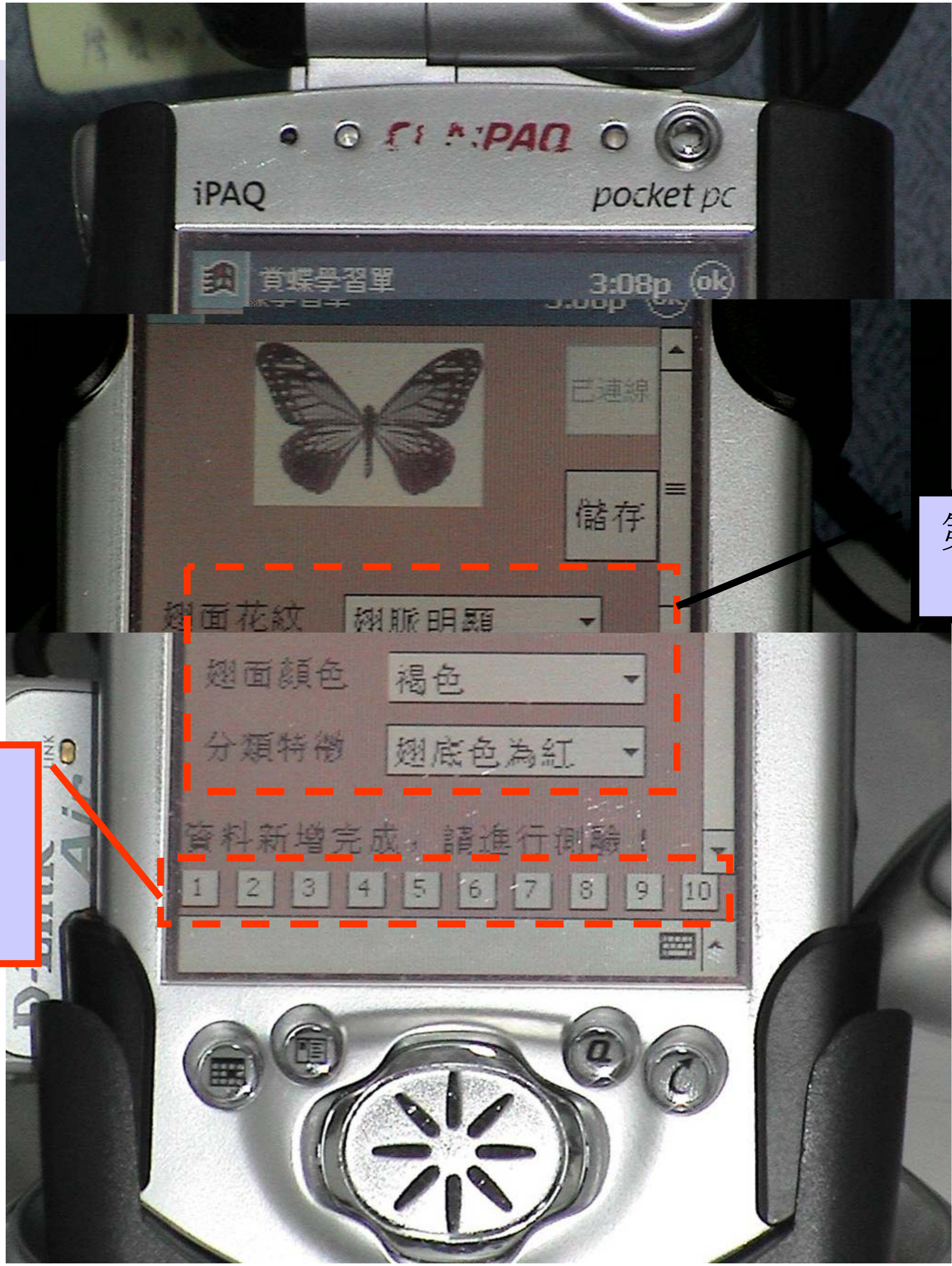
Mobile Butterfly-Watching Learning Procedure




NewBreed
Spinosaurus

Mobile Butterfly-Watching Learning Procedure



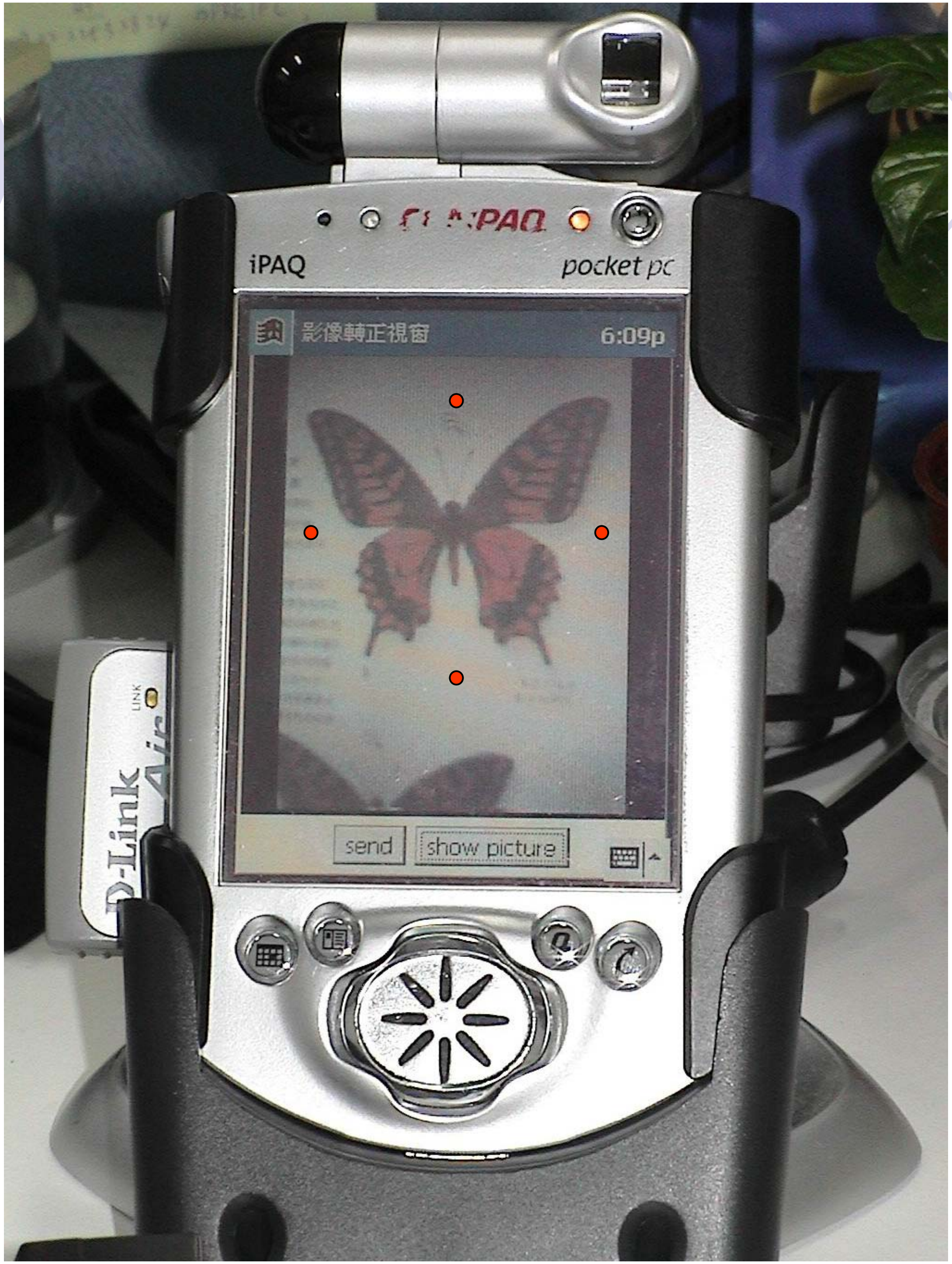


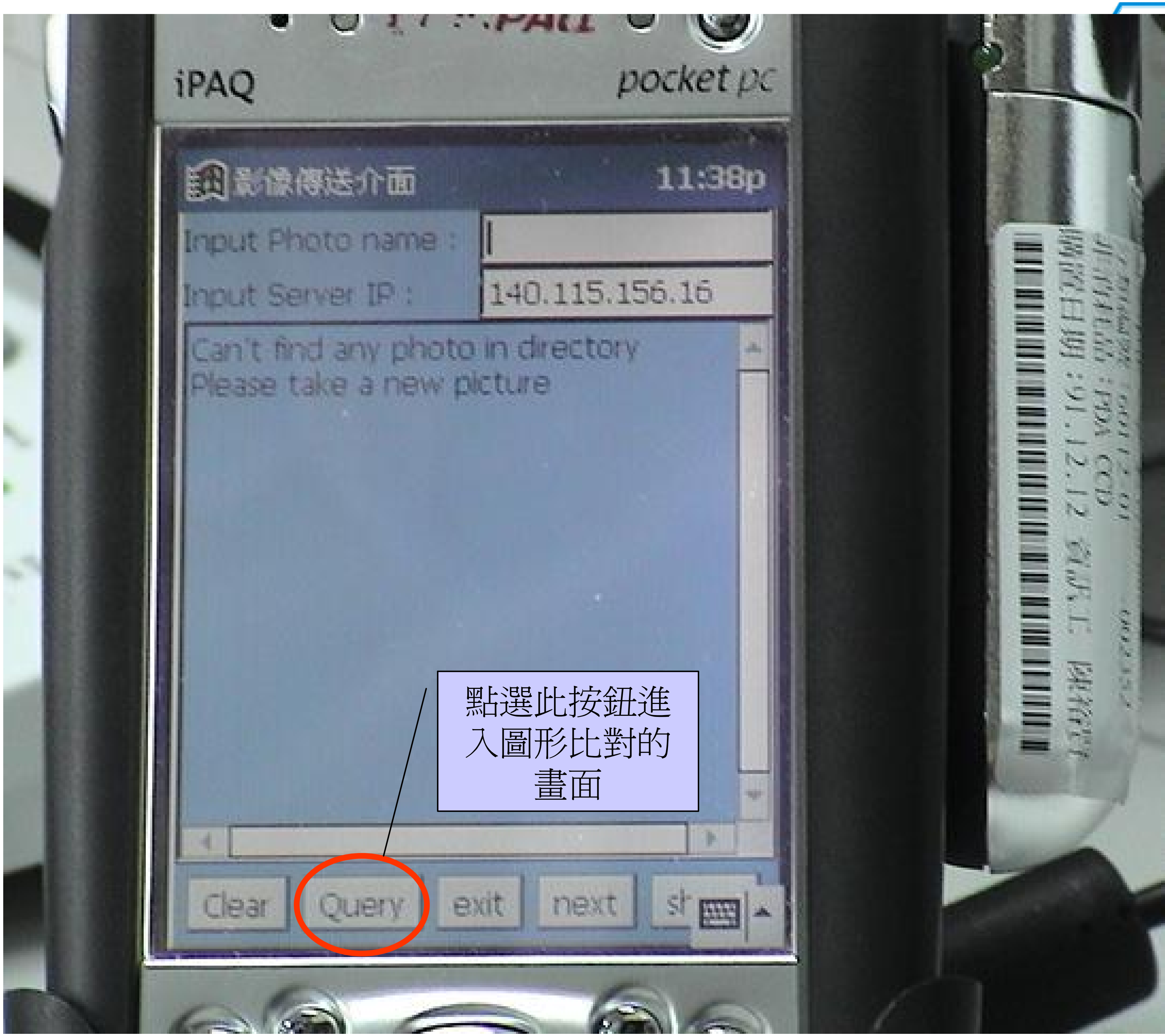
第三步：開始答題

第二步：點選"題數"按鈕，顯示題目。

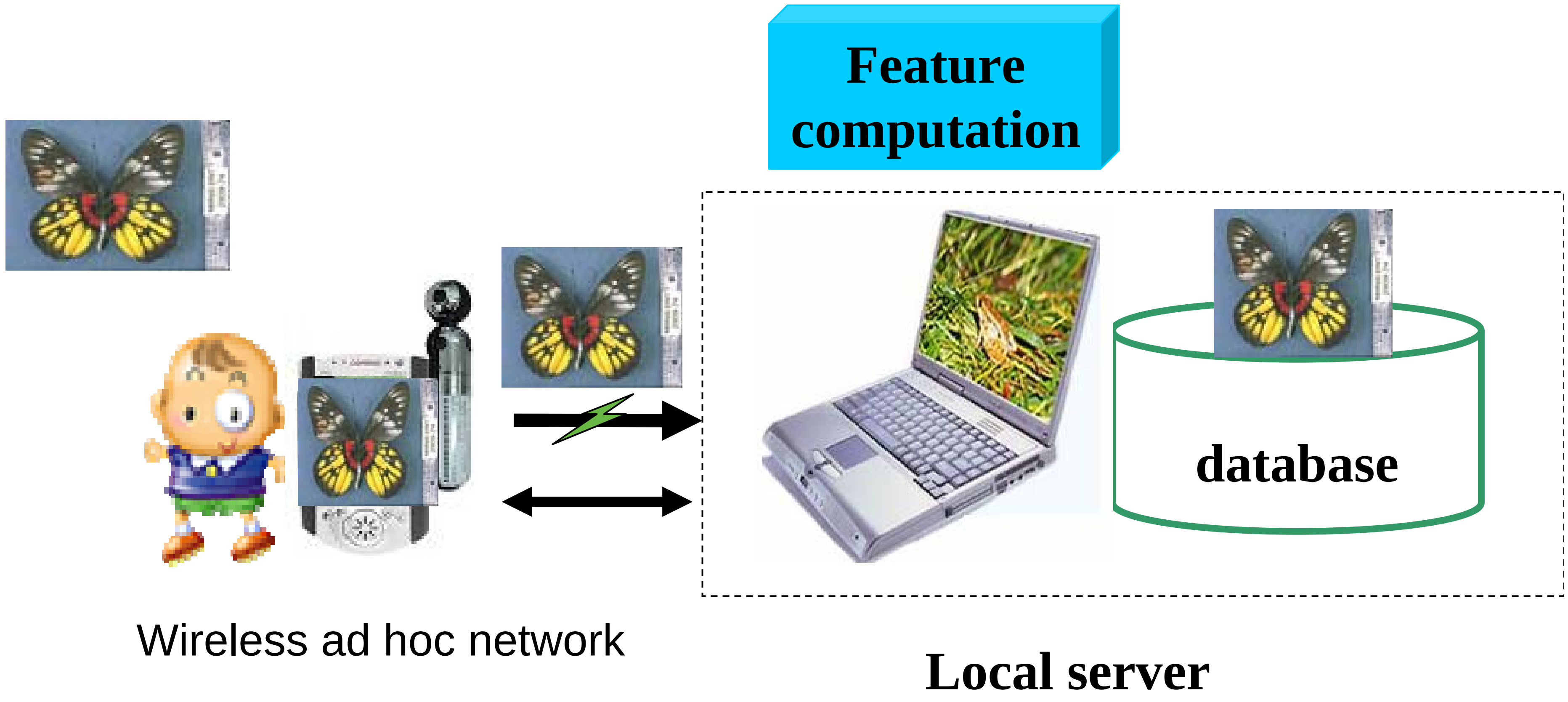
Take the butterfly-picture

點選此按
鈕後拍照

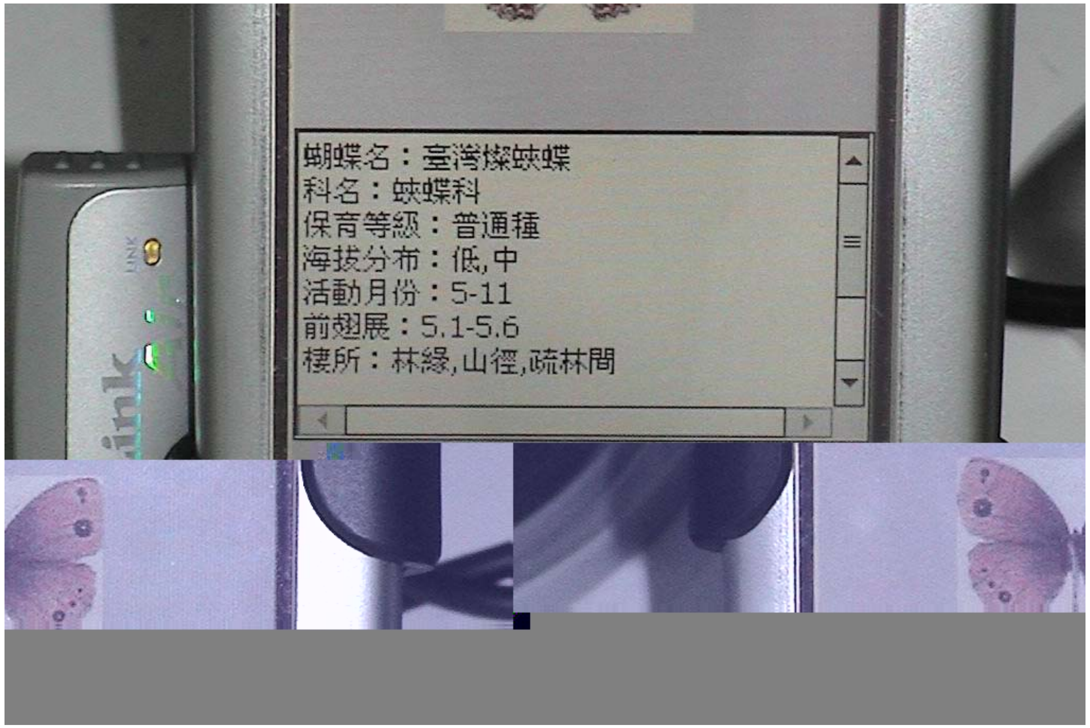

COMPAQ
iPAQ
pocket pc
影像轉正視窗
6:09p
send
show picture
D-Link
LINK


iPAQ
pocket pc
影像傳送介面
11:38p
Input Photo name :
Input Server IP :
140.115.156.16
Can't find any photo in directory
Please take a new picture
Clear
Query
exit
next
點選此按鈕進入圖形比對的畫面

Butterfly Recognition Subsystem (content-based image retrieval technique)




iPAQ
pocket pc
第一順位比對到資料
2:24p
蝴蝶名：大眉眼蝶
科名：蛺蝶科
保育等級：稀有種
海拔分布：低
活動月份：3-12
前翅展：4.8-5.2
棲所：林緣,溪流沿岸,疏林
exit frame2
up
next
離開程式
顯示下一筆資料
回到前一個畫面


蝴蝶名：臺灣燦蛺蝶
科名：蛺蝶科
保育等級：普通種
海拔分布：低,中
活動月份：5-11
前翅展：5.1-5.6
棲所：林緣,山徑,疏林間