A Mobile Scaffolding-Aid-Based Bird-Watching Learning System

Yuh-Shyan Chen, Tai-Chien Kao, and Jang-Ping Sheu

Department of CSIE, National Chung Cheng University, Chiayi, Taiwan, R.O.C.

Institute of Education, National Dong Hwa University, Taiwan, R.O.C.

Department of CSIE, National Central University, Taiwan, R.O.C.

Outline

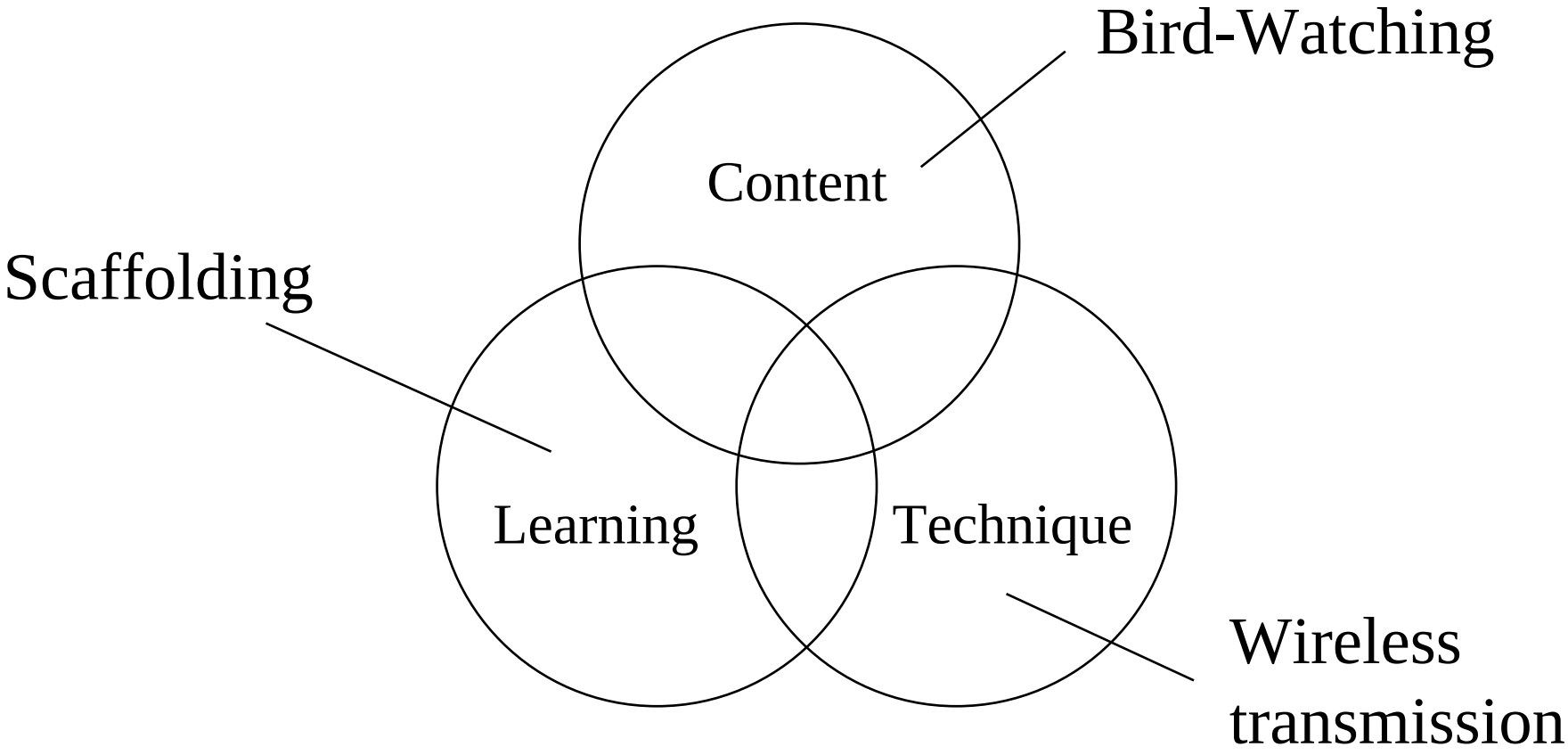
- Introduction
- Basic Idea and Challenge
- The BWL (Bird Watching Learning) System
- Formative evaluation
- Conclusions

Introduction

- This is a project result
  - Sponsored by the Ministry of Education, Taiwan: #90A-H-FA07-1-4

- The project aims to develop a mobile bird-watching activity based on the wireless techniques.

Knowledge Domains



Learning flow of outdoor group learning
-- mobile bird-watching learning as an example

1 Preparation

2 Create an ad-hoc classroom anytime and anywhere

3 Pre-evaluation

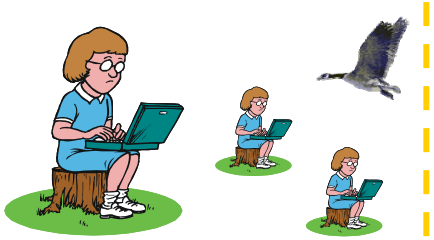
An ad-hoc classroom

4 The mobile bird-watching activity

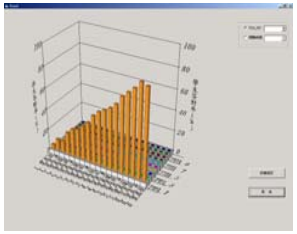
5 Mobile learning (wireless query from a bird-database)

6 Post-evaluation

An ad-hoc classroom



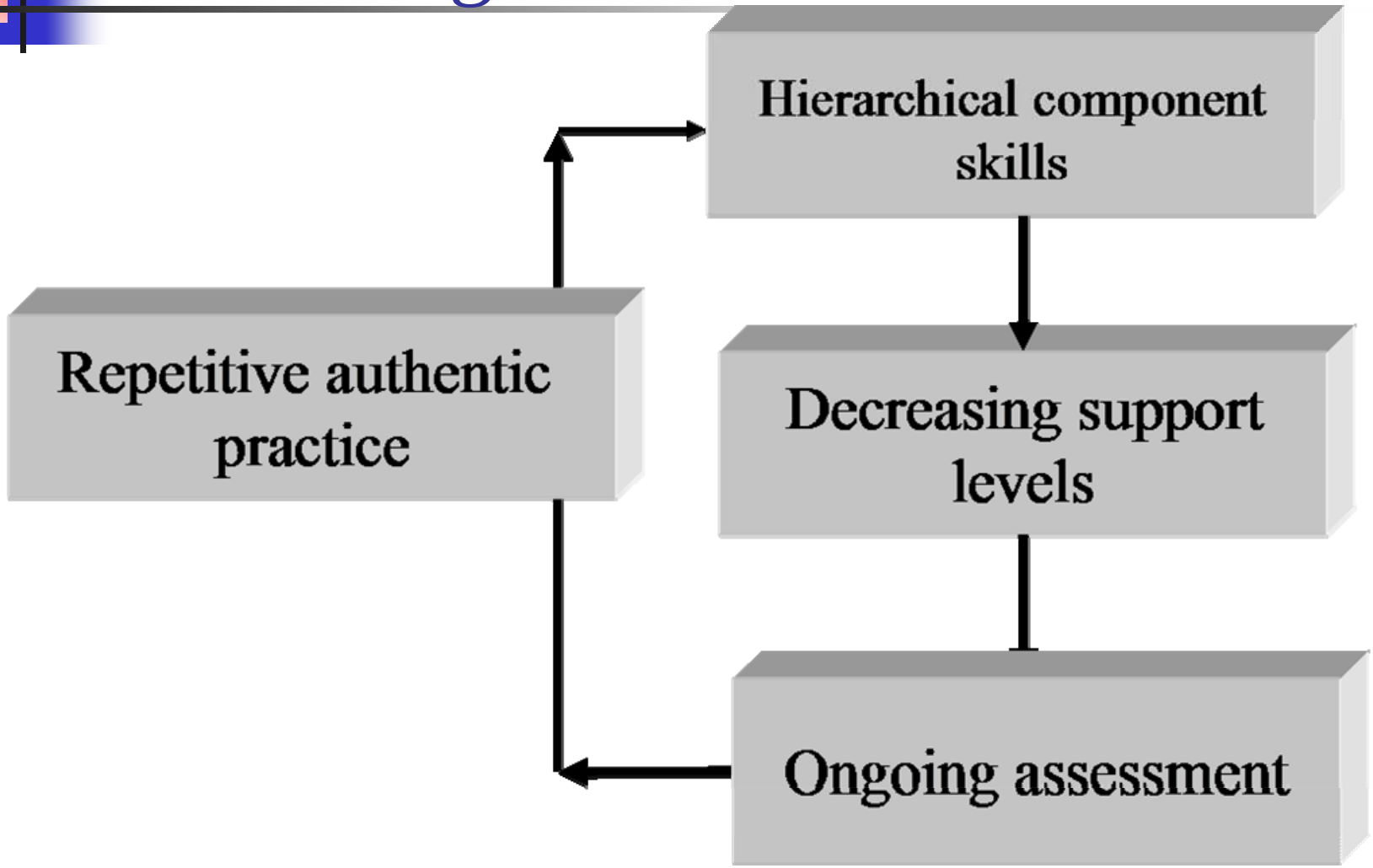
7 The learning result (from an analysis table)



The Elements of Scaffolding

- Hierarchical component skills
- Decreasing support levels
- Repetitive authentic practice
- Ongoing assessment

A simple loop is used to combine all scaffolding elements



The BWL system

The scenario of a bird-watching activity

The Implementation of Scaffolding-Aid Model

- Implementation of Hierarchical Component Skills
- Implementation of Repetitive Authentic Practice
- Implementation of Ongoing Assessment
- Implementation of Decreasing Support Levels

Implementation of Hierarchical Component Skill

- The bird-watching and searching interfaces

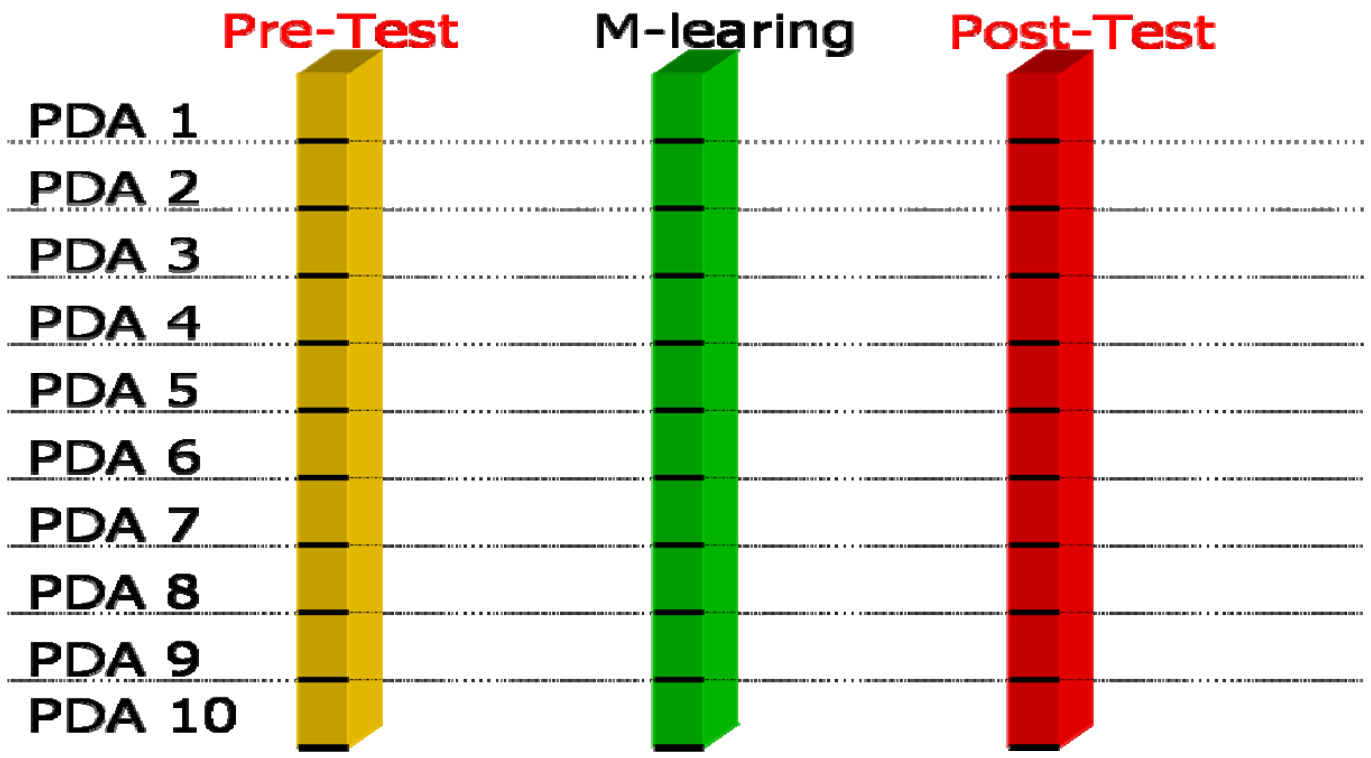
(a)

(b)

(c)

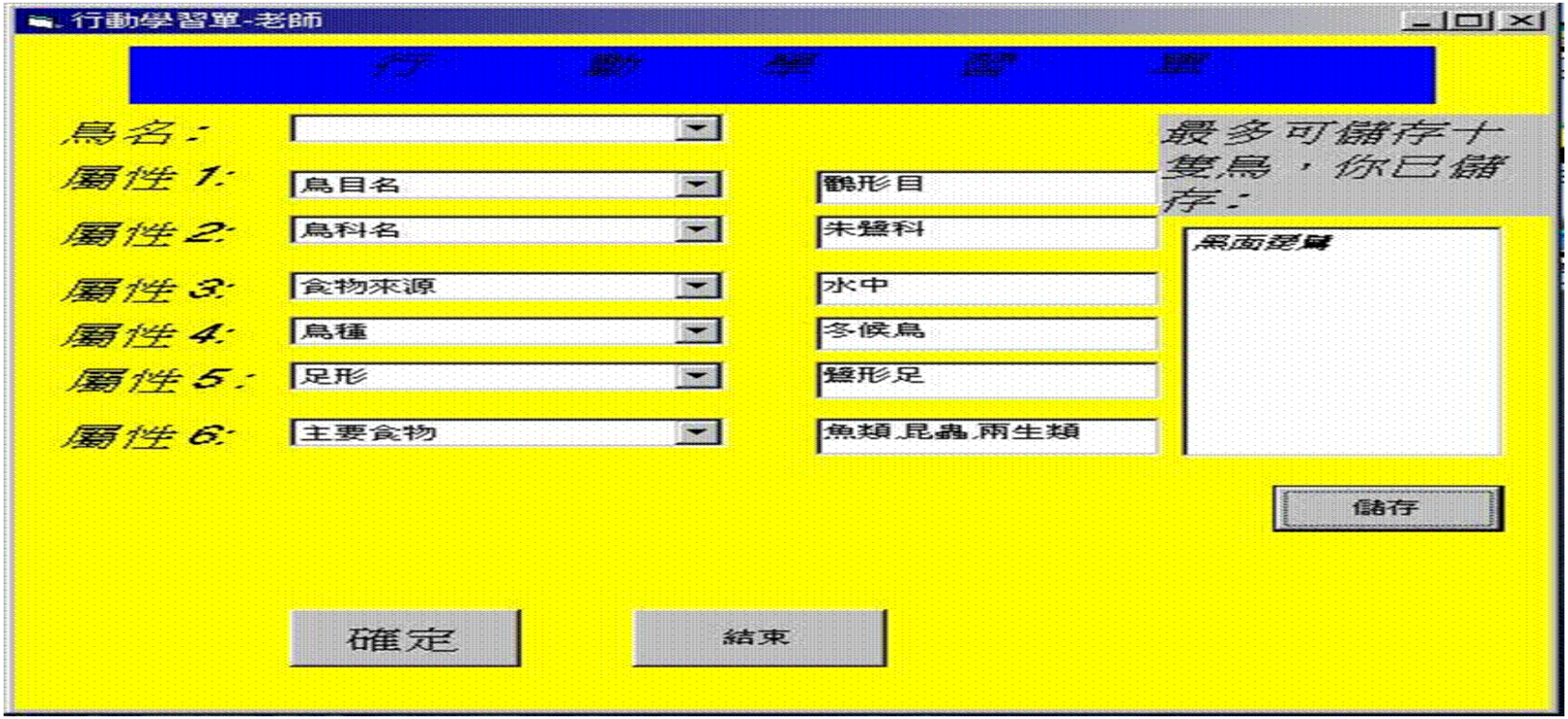
Implementation of Repetitive AuthenticPractice

- Three tests in a bird-watching activity



Implementation of Ongoing Assessment

- The Bird-question assignment interface

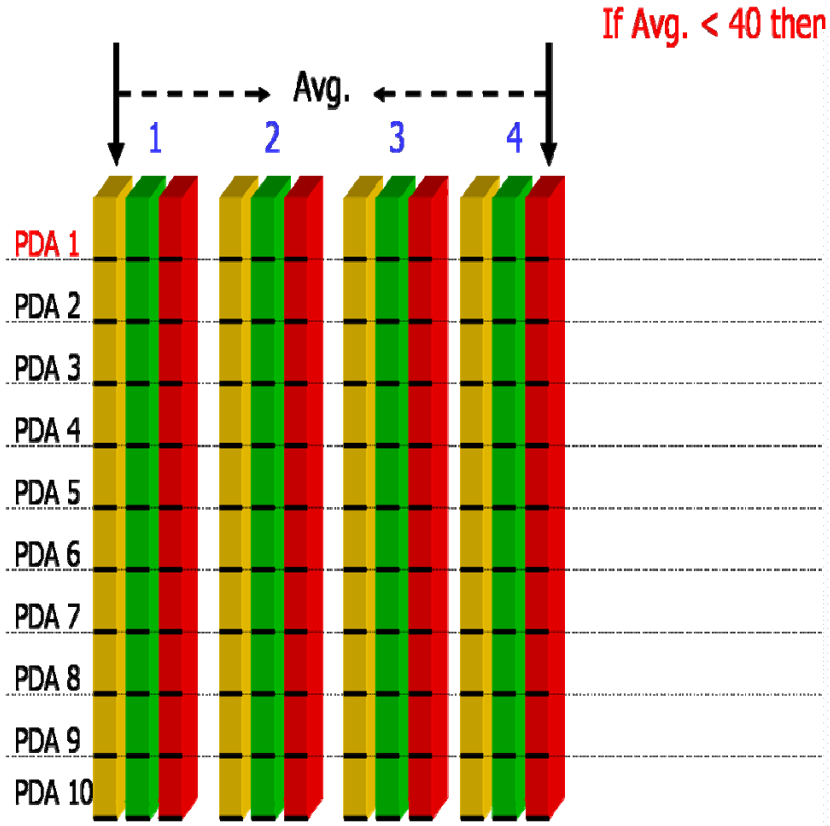


Implementation of Ongoing Assessment (cont.)

- The wireless bird-answer interface

Implementation of Decreasing Support Levels

- The example of decreasing support levels



Formative Evaluation and Statistical Results

- Affective Domain：Feelings & Values
  - PDA as Tool for Mastery Learning— Hsi-Men at Tainan

Questions	Highly Agree		Agree		No Opinion		Not Agree		Highly Not Agree	
	f	%	f	%	f	%	f	%	f	%
The activity is interesting	16	**29**	27	**49**	5	9	5	9	2	4

Formative Evaluation and Statistical Results (cont.)

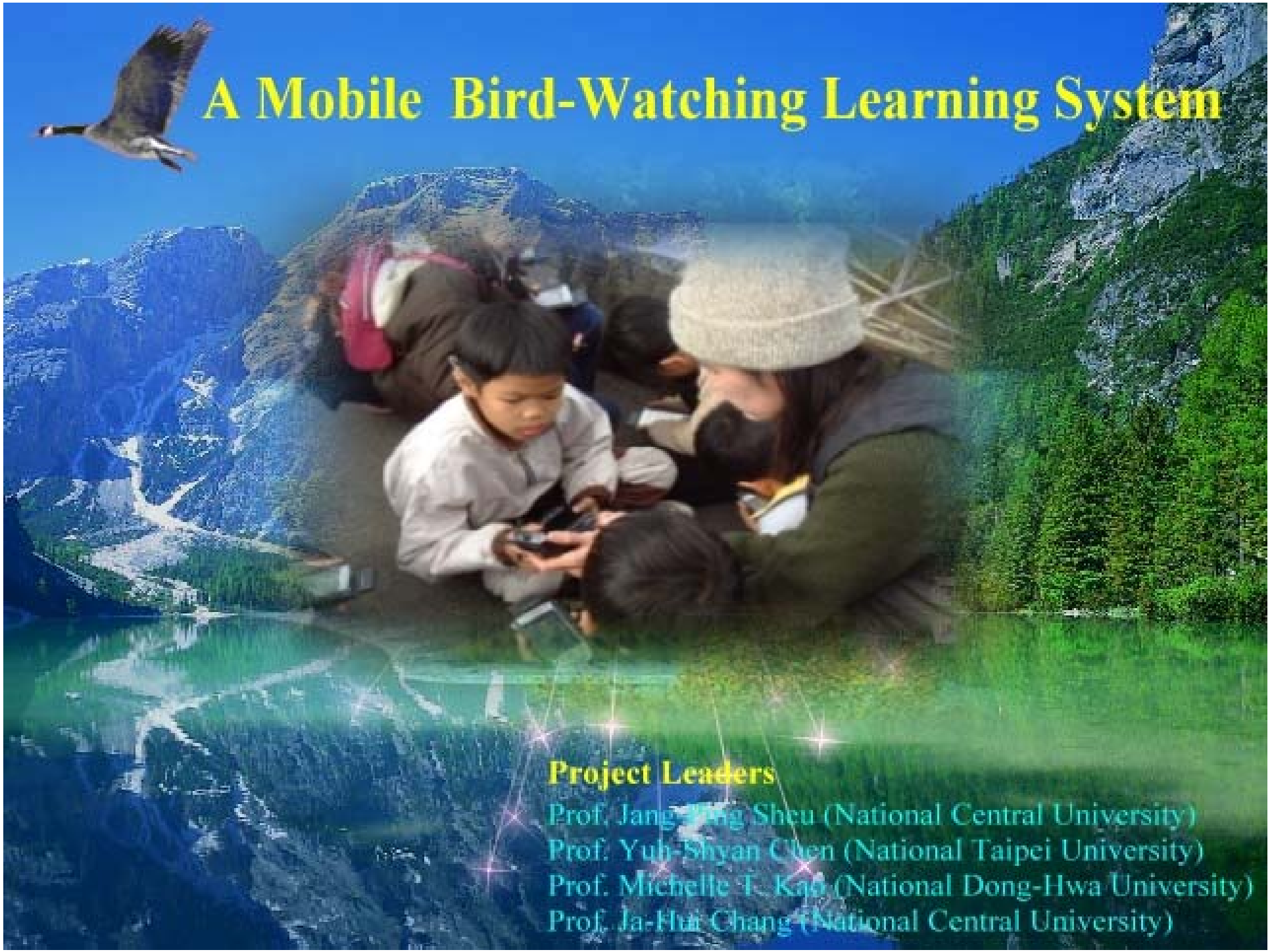
- PDA as Tool for Discovery Learning— Chang-Hsing at Keelung

Questions	Highly Agree		Agree		Not Agree		Highly Not Agree	
	f	%	f	%	f	%	f	%
Birds are creatures with wisdom	13	**50**	11	**42**	2	8	0	0
Birds are creatures with motions	13	**50**	9	**35**	3	11	1	4
The Environment for birds has been destroyed	14	**54**	3	**11**	7	27	2	8

Formative Evaluation and Statistical Results (cont.)

- PDA as Tool for Individualized Learning—Ming-Tao at Taipei

Response	f	%
Interesting	19	**86**
Expecting	1	5
Nice environment	1	5
No response	1	4
Total	22	100


A Mobile Bird-Watching Learning System
Project Leaders
Prof. Jang-Ping Sheu (National Central University)
Prof. Yuh-Shyan Chen (National Taipei University)
Prof. Michelle T. Kao (National Dong-Hwa University)
Prof. Ja-Hui Chang (National Central University)

靈點e鳥賞技科新

用好大大 「統系識辨類鳥」的選點即立可發開授教位多

黃文杰／中壢報導

由中央大學許健平教授、台北大學陳裕賢教授及東華大學高台茜教授共同主持執行的「戶外鳥類生態學習教室計畫」，將新科技的無線網路技術和傳統的戶外教學活動，做了完美的結合。

所謂「戶外鳥類生態學習的計畫」，主要是延伸了未來教室學習的理念，將無線通訊技術結合PDA，應用在國小的戶外賞鳥教學活動中，發展出一套可供學童立即近觀、立即點選、立即查閱的「鳥類辨識系統」。

目前該計畫經廿多所國民小學申請，由專家審慎評估後，結果選出南市西門、基隆長興及北市明道三所小學進行下一階段學習實驗工作，讓專家、同儕和教材做快速有效率的互動。

以北市明道國小為例，由於具備關渡雁鴨公園及華江橋雁鴨生態的豐厚優勢，在眾多學校脫穎而出，尤其該校自然科黃麗珠老師有完整的賞鳥經驗，在她帶領下，學生學習效果將不輸一般野鳥協會專家。

南市西門國小更是成果豐碩，在林勇成老師用心經營下，該校建立完善鳥類生態學習網站，尤其該校自製的戶外鳥類生態教學影片參加教學媒體競賽，榮獲台南市第一名殊榮；長興國小在PDA的操作上更驚人，小朋友皆可正確下達指令，順利達成老師的要求，尤其鳥科鳥類觀察是全國最佳的地點。

許健平教授指出，使用PDA來輔助戶外賞鳥活動，有許多功用是傳統的鳥類鑑賞教學所無法比擬的，學生樂在其中，運用新科技享賞鳥之樂，可以作為九年一貫教育之跨學科的主題式教學活動。

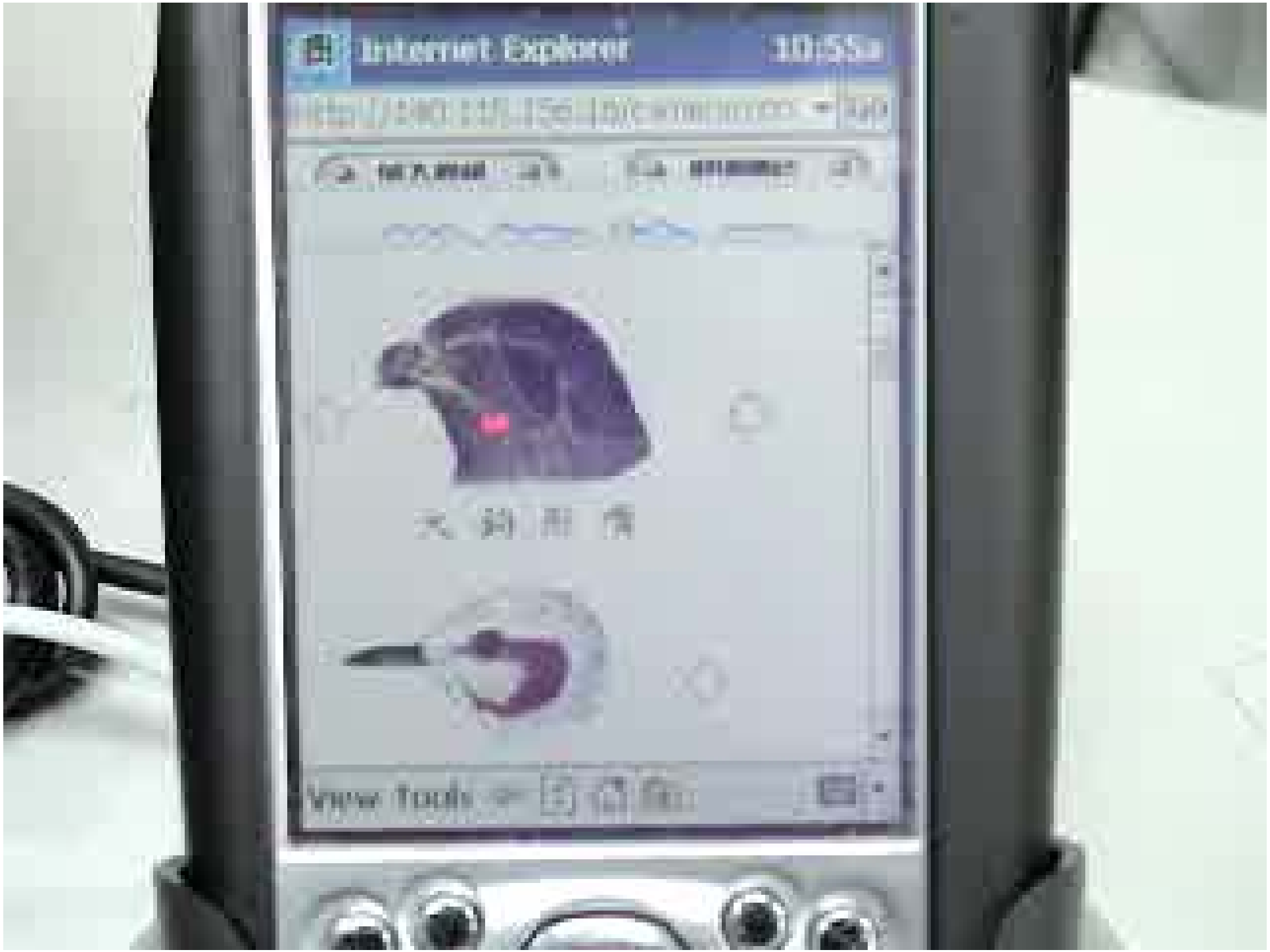
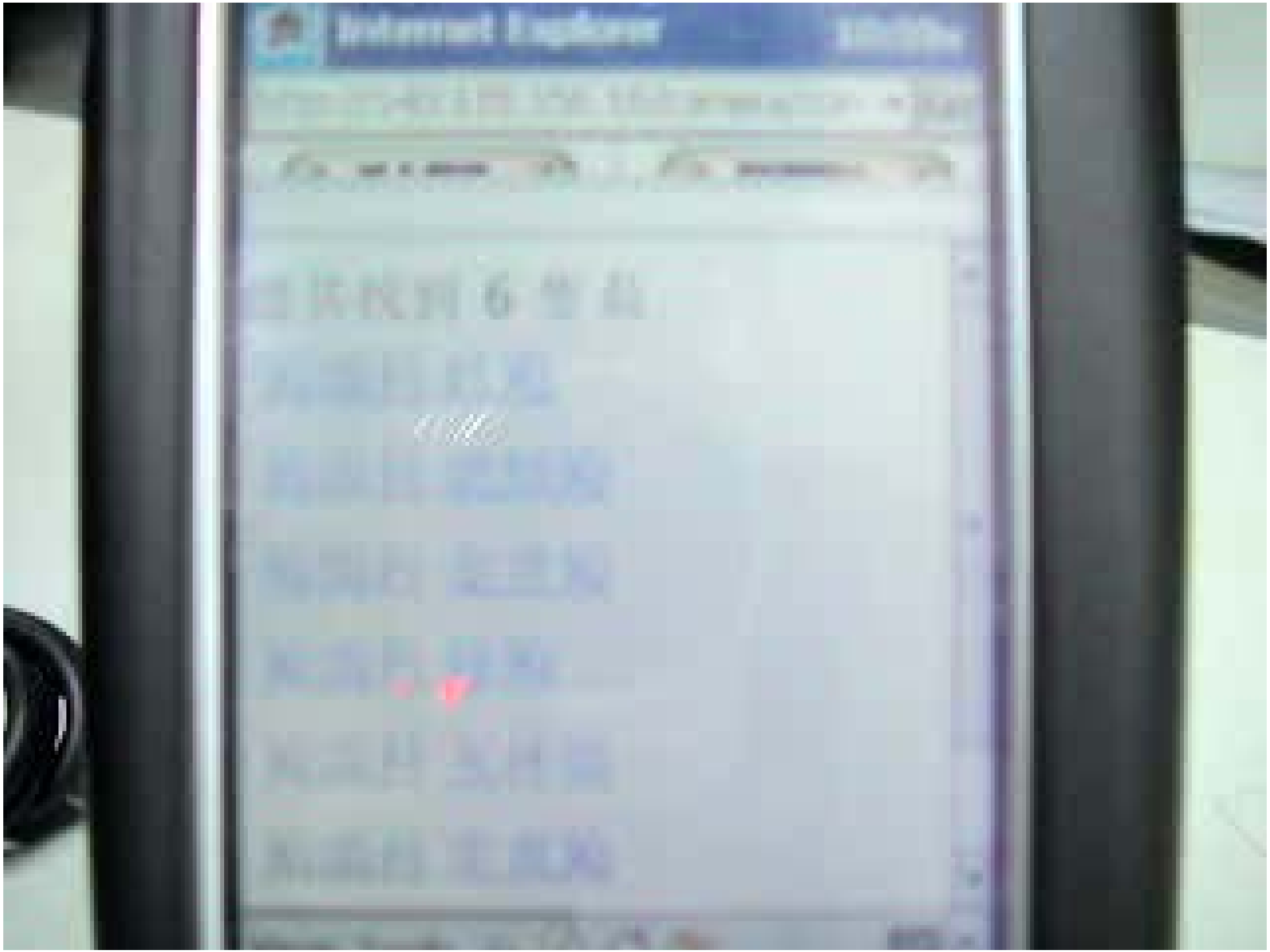
計畫近期內將對資料庫內容完整性、動態影像檔之無線擷取與傳輸、行動學習單的輔助與利用，做進一步的探究，可望以新科技為未來教育型態與方式帶來啟發和創新。賞鳥網址：http://bird.educities.org

中國時報
CHINA TIMES
電話：總機23087111 採訪組23064553 訂閱服務專線 0800033088
中華民國卅九年十月二日創刊 社址：台北市大理街一三二號 廣告23818720
Copyright © 2001
張大十國地外海 元五十價訂份每 張大二十
文圖報本範轉得不，意同報本經非
號三五五八一第

Sporty
MINO JUN

NIKE NIKE

COMPAQ
iPAQ
pocket PC
PocketTV MOV00016
2:58p
ok
00:04
00:14
8.39 fps
728 Kb/s
Tools


Internet Explorer
10:55a
www tools