IRS

使用IRS即時反饋系統
提昇醫護人員教學技巧

報告人:董譯森

享受e化．優質學習

先來“醒腦一下”

猜看看

本廣告是在模仿那一部卡通?

1.科學小飛俠

2.無敵鐵金鋼

3.機動戰士

4.小甜甜

IRS

開始進入IRS的世界

影響學習成效的重要個人因素

專注力

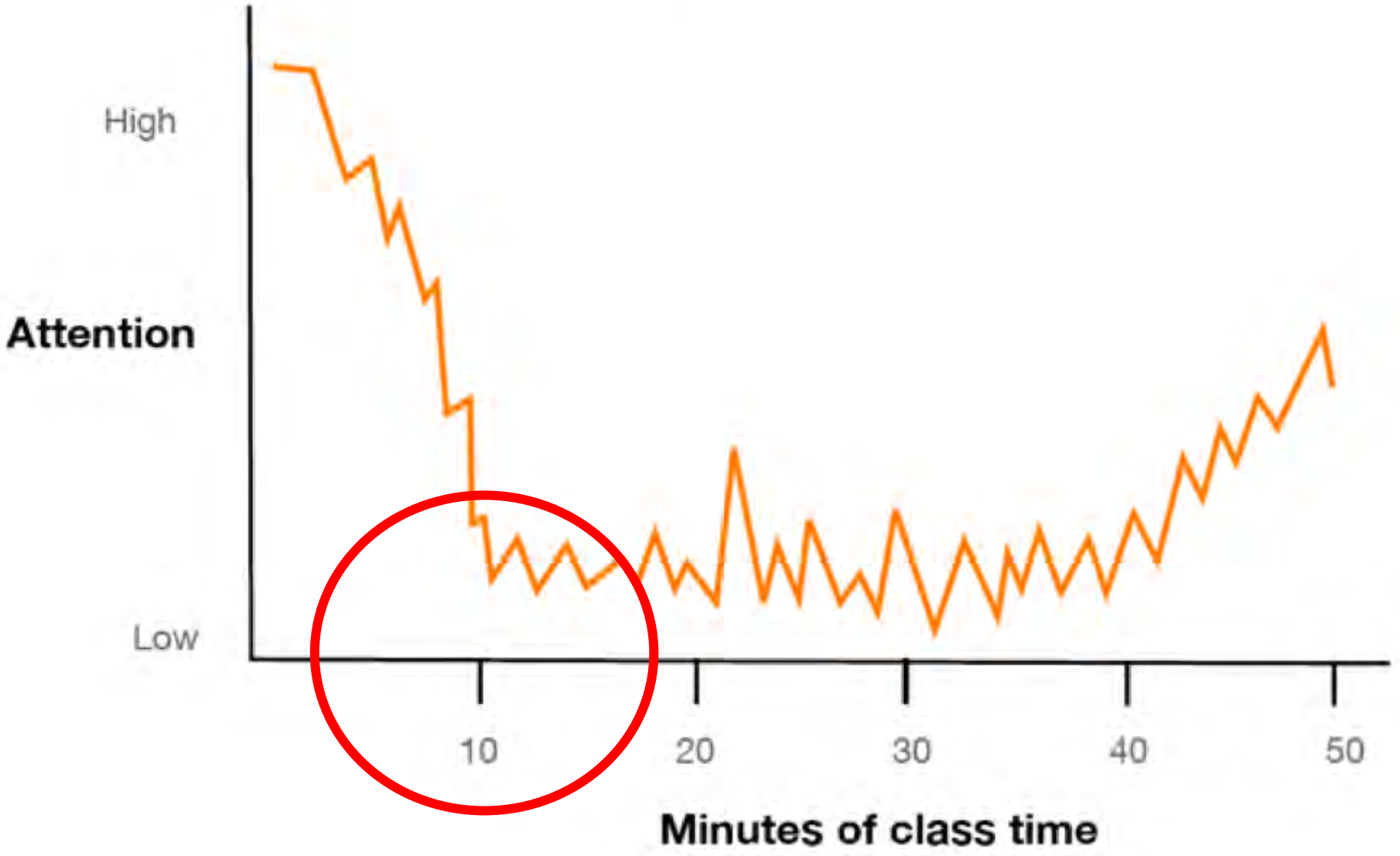
記憶力

From:大腦當家

學生上課幾分鐘後，就會失去注意力？

1. 七分鐘
2. 九分鐘
3. 十分鐘
4. 十五分鐘

The 10-minute rule



Source: www.brainrules.net/attention

大腦當家 Brain Rules

學習的記憶內容幾分鐘後，就會忘記90%？

1. 15分鐘
2. 30分鐘
3. 45分鐘
4. 60分鐘

何謂IRS即時反饋系統

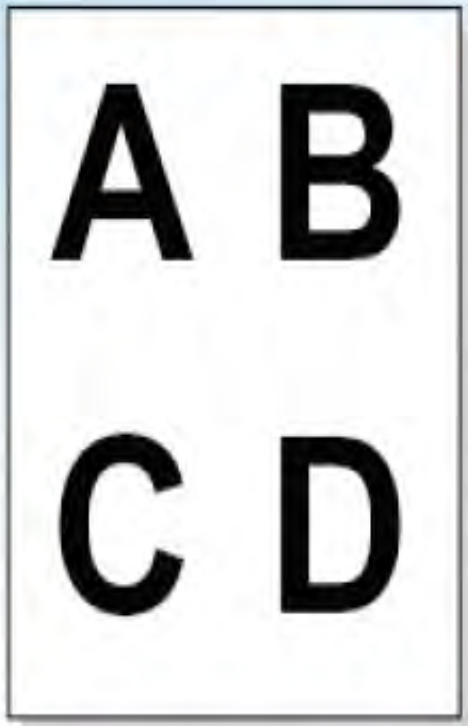
- IRS即時反饋系統
(Interactive Response System，
簡稱IRS)

- 國外又稱之為Voting System，PRS，SRS…
等

- ***讓課堂中全班學生可以即時反饋資訊給老師的一種教學應用系統。***

過去…早期人工式的 IRS 系統

- Flashcards



現代…彩色版的Flash卡

IRS

傳統教學的學生反饋方式

1 老師提問　（有沒有問題：沒有！）

2 課堂即時抽樣（機率！）

3 隨堂小考

（出題苦，訂正苦，統計苦，登記苦，最苦是看到學生成績

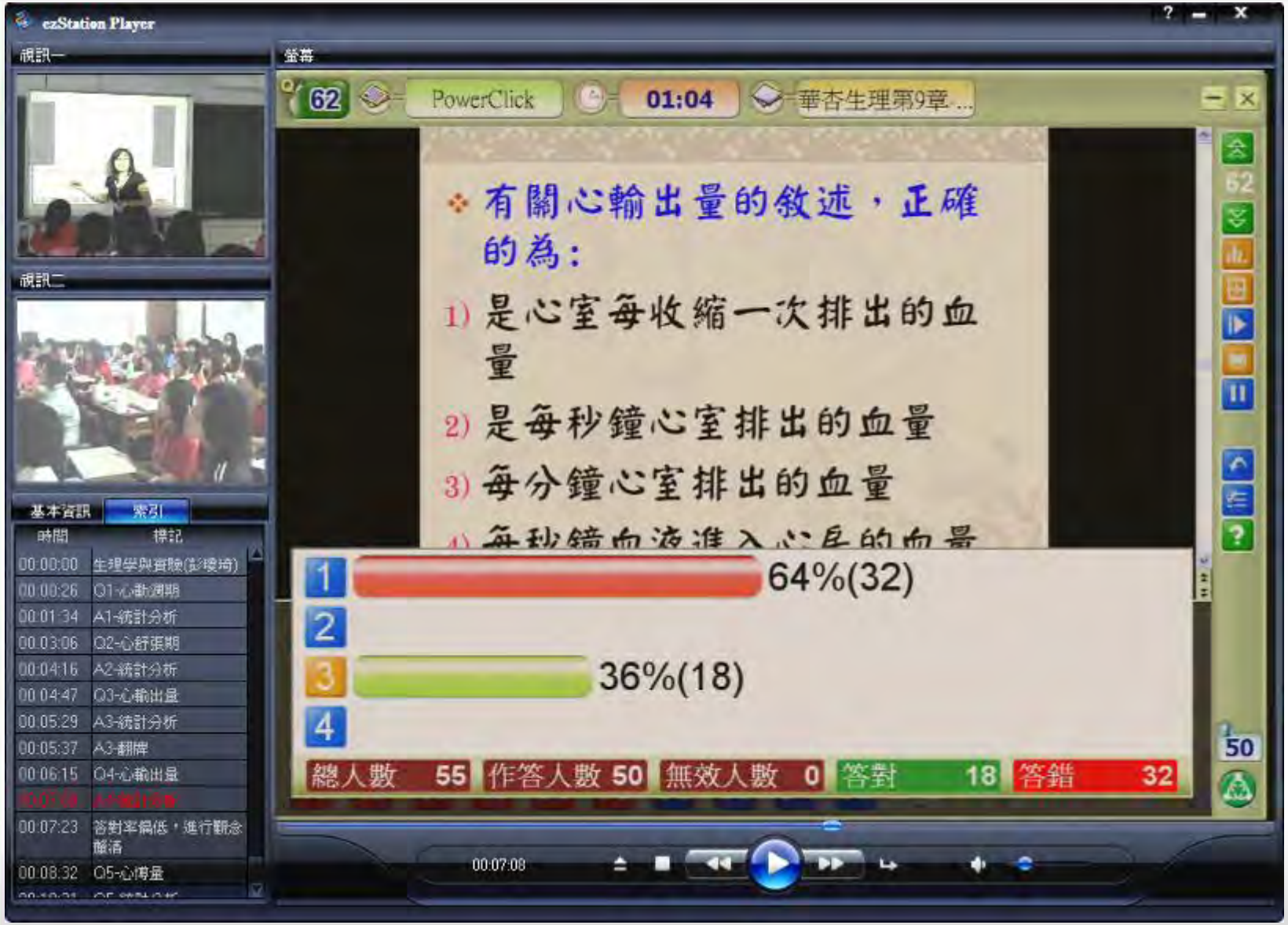
猶豫該回頭講，還是要放棄不懂的同學）

4 回家作業（成效?）

5 其他（學習平台線上小考…等）

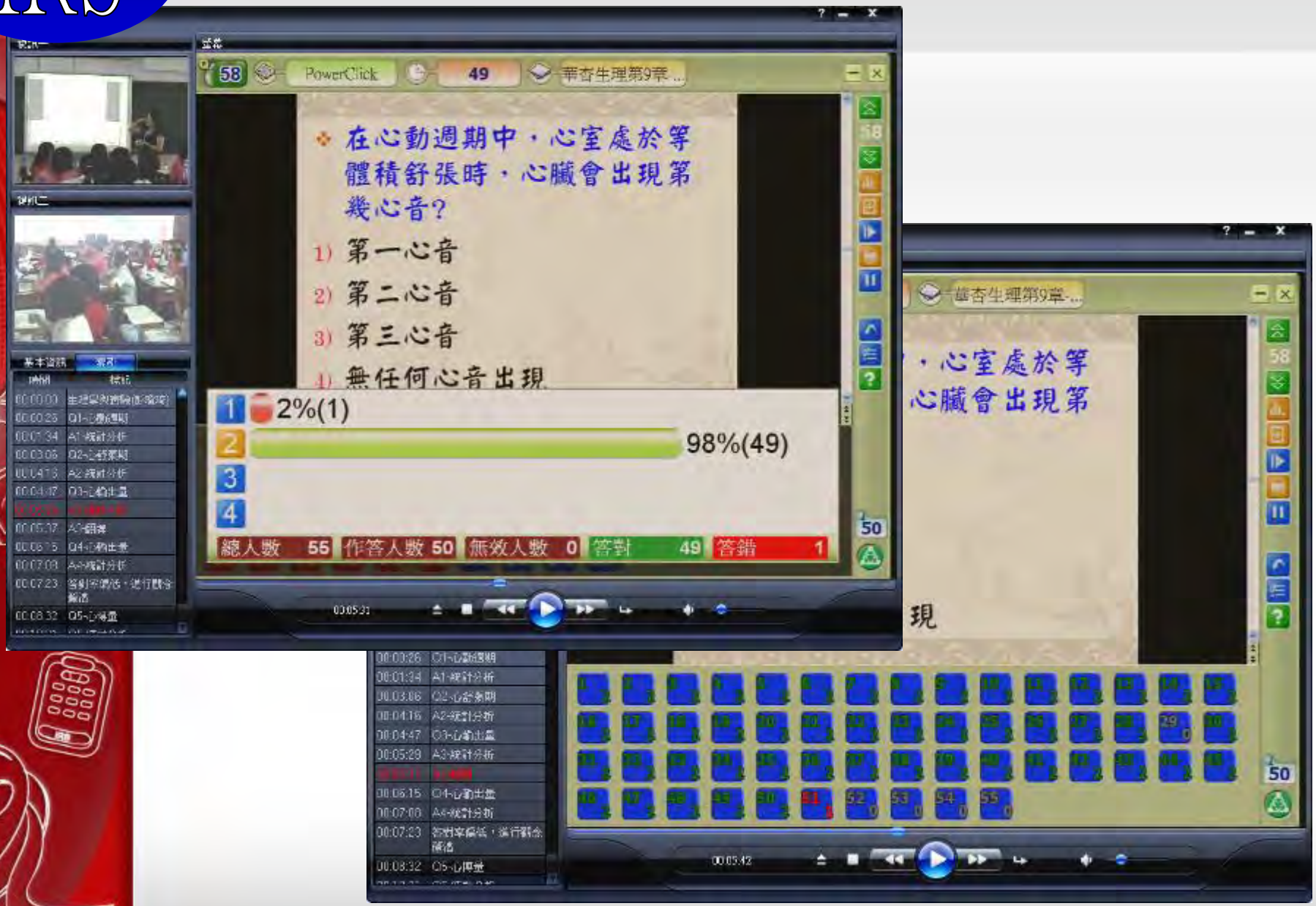
最大問題:無法即時掌握學生的吸收狀況

假如這一題沒有用IRS來問學生



IRS

有教無類


PowerClick
49
在心動週期中，心室處於等體積舒張時，心臟會出現第幾心音?
1) 第一心音
2) 第二心音
3) 第三心音
4) 無任何心音出現
2%(1)
98%(49)
總人數 55
作答人數 50
無效人數 0
答對 49
答錯 1

運用IRS即時反饋系統的目的

讓學生隨時保持專注

讓學習記憶更加深刻

IRS 設備內容

老師上課遙控器

學生作答遙控器

訊號接收器

IRS作業軟體

網奕資訊

IRS即時反饋系統運作方式

哈佛大學使用IRS研究

◎1991年物理系Eric Mazur教授，開始在課堂應用IRS來進行Peer Instruction教學法。

◎教學成效卓著，開始推廣到各大學，包括香港大學、台灣大學等。

哈佛大學

eer Instruction - Windows Internet Explorer

http://mazur-www.harvard.edu/research/detailspage.php?id=1&rowid=8

Live Search

(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)

Peer Instruction

工具(O)

MAZUR GROUP

home ▶ education

NEWS — RESEARCH — EDUCATION — PUBLICATIONS — PEOPLE

ne problem with conventional teaching lies in the
resentation of the material. Frequently, it comes
raight out of textbooks and/or lecture notes,
ving students little incentive to attend class. That
e traditional presentation is nearly always
elivered as a monologue in front of a passive
udience compounds the problem. Only exceptional
cturers are capable of holding students' attention
r an entire lecture period. It is even more difficult
provide adequate opportunity for students to
itically think through the arguments being
eveloped. Consequently, lectures simply reinforce
udents' feelings that the most important step in
astering the material is memorizing a zoo of
parently unrelated examples.

order to address these misconceptions about
arning, we developed a method, Peer Instruction,
hich involves students in their own learning during
cture and focuses their attention on underlying
oncepts. Lectures are interspersed with conceptual
uestions, called *ConcepTests*, designed to
xpose common difficulties in understanding the

CHAOS IN THE CLASSROOM?

It's the middle of a class period and two hundred students aren't listening to the instructor. Instead, they're engaged in over fifty simultaneous conversations with their neighbors. This probably sounds like a disaster to many teachers. But it's actually a rousing success: the students are discussing a question which challenges them to think about the material and justify their reasoning to their classmates.

http://galileo.harvard.edu/

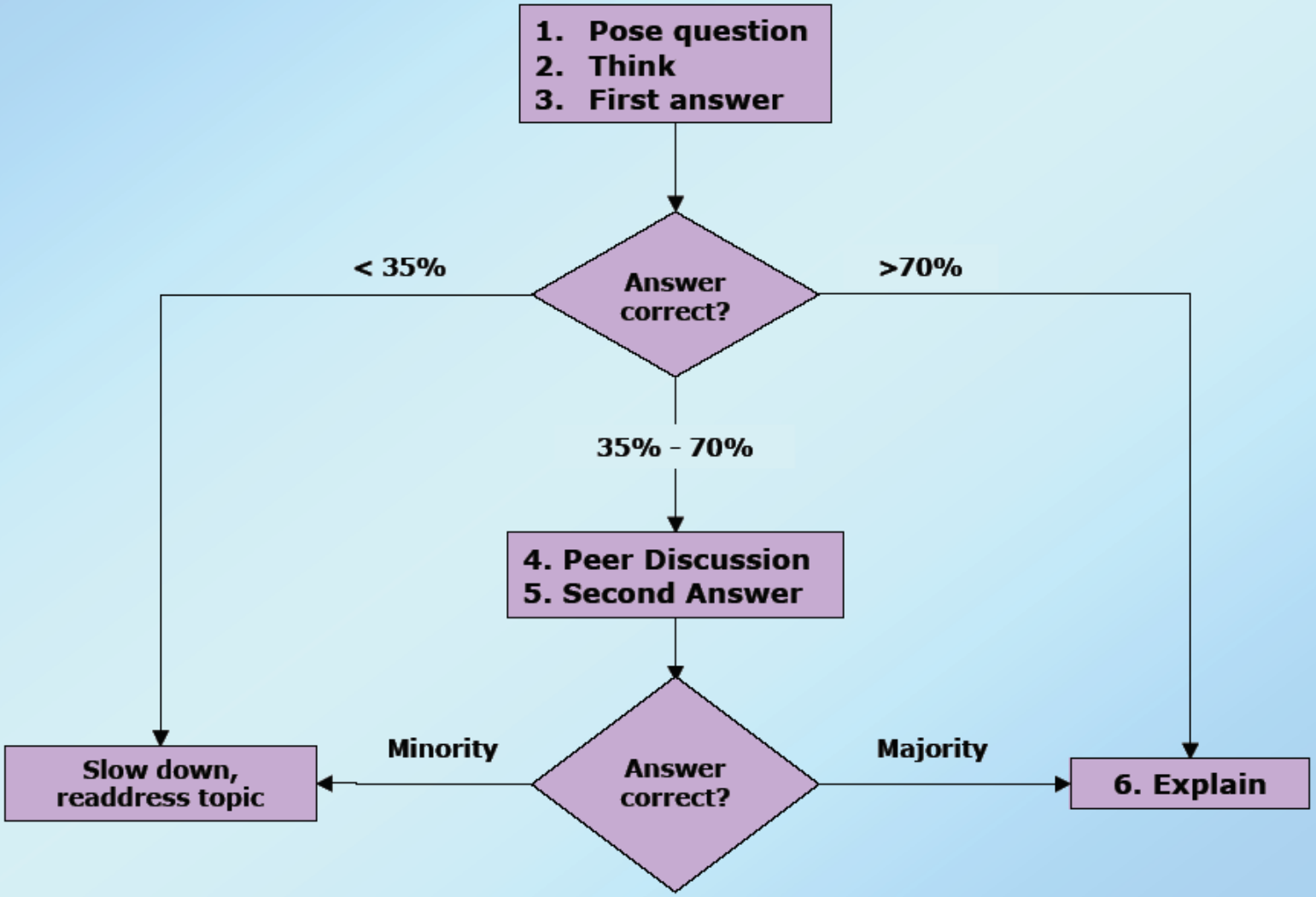
網際網路

100%

IRS

同儕教學法

Peer Instruction



Student Response System (SRS), NUIT, Northwestern University - Windows Internet Explorer
http://www.it.northwestern.edu/srs/
檔案(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)
Student Response System (SRS), NUIT, Northwestern ...
西北大學

Northwestern University
Information Technology

STUDENTS | STAFF/FACULTY | VISITORS/MEDIA | SITE MAP ONLINE DIRECTORY

Search | Search ► | Information Technology | Northwestern University

YOU ARE HERE ► NUIT > Student Response System (SRS)

- Student Response System (SRS)
  - Installing SRS Software
  - SRS Training Workshops
- SERVICES
- GET CONNECTED
- SUPPORT
- ACADEMIC RESOURCES
- ABOUT NUIT

Student Response System (SRS)

NUIT

Student Response System (SRS) refers to an integrated hardware and software system that allows instructors to pose questions and gather students' responses during a lecture. Student Response Systems are also called Classroom Response Systems, Personal Response Systems, Audience Response Systems or Clickers.

SRS has two hardware components; a remote (or clicker) for students, and a receiver for instructors. The SRS software component is an application installed on the instructor's computer that allows instructors to create an interactive PowerPoint presentation.

During class, students respond to the questions or problems in the presentation by using their clicker, and then the receiver on the instructor's computer gathers the data, and shows summaries of student responses to instructors and students. Answers are also stored electronically for later viewing.

Northwestern has standardized clicker devices and supporting software from

完成 網際網路 100%
開始 收件匣 - Mi... Student Res... Microsoft P... CH 下午 10:10

http://www.cchem.berkeley.edu/demolab/general_txt/PRSreport3.pdf - Windows Internet Explorer
http://www.cchem.berkeley.edu/demolab/general_txt/PRSreport3.pdf
Live Search
(F) 到(G) 我的最愛(A) 說明(H)
06.04.2003 - Researchers cre...
http://www.cchem.berkele...
網頁(P) 工具(O)
柏克萊大學

Program Evaluation: PRS in Pimentel Hall

PREPARED BY MARK KUBINEC, DIRECTOR, DIGITAL CHEMISTRY PROJECT AT THE UNIVERSITY OF CALIFORNIA BERKELEY.

MKUBINEC@UCLINK.BERKELEY.EDU

OVERVIEW:

The Personal Response System (PRS) was installed in 1 Pimentel Hall over the 2002 winter break. The system is used in every Chemistry 1A lecture this semester. The system is very easy to use, has performed to our expectations and we have had essentially no problems or downtime.

DESCRIPTION OF THE PRS

The Edcue Personal Response System (PRS) is designed for collection and display of real time polling data in a classroom setting. It is composed of a set of receivers (permanently mounted on the walls or ceiling) and individual transmitters for each student. Students use the transmitters (see figure 1) to respond to in-class polls or quizzes. The receivers collect the responses and interface with software on a PC that analyses and displays response data in real time, usually in the form of a bar graph (see figure 2). Systems of this sort are widely used at universities and K-12 schools across the country with pedagogically effective results.

1 / 4
121.32%
檔案: [8.50 * 11.00 in]
不明的區域

-Clicker Polling - Windows Internet Explorer
http://atc.cit.cornell.edu/course/polling/index.cfm
Live Search
(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)
i-Clicker Polling
網頁(P)
康乃爾大學

Cornell University
Cornell Information Technologies

Faculty Support Services for Teaching with Technology

Course Technologies | Blackboard | Training & Materials | ATC Facility | Request Services

In This Section

- Consulting Services
- Course Web Sites
- Audio and Video
- Surveys
- Course Communication Tools
- Computer Labs
- Statistical Software
- **i-Clicker Polling**
  - Student Clickers
  - Instructor Services
  - Teaching with Polling
  - Polling FAQ
- Guidelines for Use
- Cornell TV

Home > Course Technologies > i-Clicker Polling

i-Clicker Polling

What is a Personal Response "Polling" System?

Personal response systems (PRS) enable students to use a remote control or "clicker" to answer questions posed by their professors. Personal response systems (PRS) can be used by an instructor to obtain real-time feedback on student comprehension. A typical PRS comprises hand-held transmitters, or "clickers," for students to submit answers, receivers that collect the answers, and software that creates the question slides and displays the statistics of the student answers in real time. PRS technology has potential value in large-enrollment courses because it can be used to quickly collect and display information. Taking attendance, checking for understanding during a lecture, administering quizzes, and engaging students in peer-to-peer learning are some examples. When an instructor or professor asks a question using PRS, students answer with their clicker. The responses are sent to a computer and, after a set time, tabulated and projected so that both the professor and the students see a "live" picture of the group's understanding, performance, or opinion. The format of questions and answers varies with the software and hardware (multiple choice, true/false, numerical, etc.). Responses can be anonymous or tracked by students over the course of the semester.

http://atc.cit.cornell.edu/course/polling/index.cfm
網際網路
100%

Qwizdom in LSA: Home - Windows Internet Explorer
http://sitemaker.umich.edu/qwizdom/home
檔案(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)
Qwizdom in LSA: Home
密西根大學

UNIVERSITY OF MICHIGAN

Qwizdom in LSA

- Home
- Instructor Support
- Student Support
- Updates
- Known Issues
- Feedback

Background
Used to promote interactivity and guide the grasp of concepts, student response systems or "clickers" offer faculty a means to give students a new way to engage with course material and simultaneously assess their level of understanding. Using aggregated data showing responses to question slides, instructors are immediately able to see what students understand and then tailor class time as a result. See Educause research and resources on Student Response Systems.

For the past 2 semesters, an LSA-sponsored pilot of the Qwizdom response system has been highly successful, with over 7000 enrolled students using the clickers in 27 LSA courses. Overall faculty and student reaction and formal evaluations have been very positive. As a result, the LSA Dean's Office has approved Qwizdom as the standard system that will be supported in LSA. The College will provide instructors who would like to explore using Qwizdom in class with the equipment they need to get started, free of charge.

Using Qwizdom in Fall 2007: Deadline June 1
So that remotes can be available for your Fall class, we will need to communicate with the ITCS Computer Showcase by June 1 to request the remotes be in stock for student purchase. Contact Carla Stellrecht (cstellre@umich.edu) if you would like to use the Qwizdom student response system in Fall 2007.

Qwizdom remotes will be available for students to purchase through the ITCS Computer Showcase in the Fall. To see Showcase Qwizdom information:

Qwizdom Student Remote

OR

Showcase Form for Requesting Qwizdom for Fall Courses

網際網路 2007年7月16日
開始 0_PPT 美國大學... Qwizdom in... CH 下午 09:51

OIT AS - Educational Technologies Center - Clickers - Microsoft Internet Explorer
檔案(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)
上一頁 搜尋 我的最愛 媒體
網址(D) http://www.princeton.edu/~etc/ETC/clickers.shtml
移至

普林斯頓大學

CRS

Princeton University

THE EDUCATIONAL TECHNOLOGIES CENTER

TECHNOLOGY CONSULTANTS FOR FACULTY

OIT Home Page
AS Home Page
Consulting, Design, & Training
Film, Video, & Digital Media
Hardware & Software
Research
Teaching & Classroom
Computational Science & Engineering Support
Database Application Services
Education & Outreach Services
Educational Technologies Center
Language Resource

Clickers

Classroom Response Systems allow for the collection and graphical display of student answers to instructor questions. Known by several different names (Personal Response Systems, Clickers, Student Response Systems, etc), these systems provide new avenues for gauging the understanding of the topics being dealt with in class and for refocusing attention during lecture. Results from class responses can be displayed during class to prompt further discussion, can be saved in a spreadsheet for later analysis, and can be used as a form of student assessment if desired.

Classroom Response Systems consist of response pads (similar to TV remote controls) that students use to indicate their responses to questions presented by the instructor, a small radio receiver connected to the instructor's presentation computer, and software for collecting the responses. The Educational Technologies Center owns two classroom response systems: eInstruction's Classroom Performance System and iClicker. Both systems use radio frequency communication to transmit student responses, an improvement over infrared-based systems, and software for tabulating and displaying response data. Both systems have software available for the Mac and PC platforms.

For more information about the Clicker systems in use at Princeton University or if you are interested in using such a system in your class, please contact the Educational Technologies Center.

eInstruction CPS Student Response Pad

iClicker Student Response Pad

ETC Home
Meet the Staff
Portfolio
Services & Resources
Blackboard
Almagest
GIS
Request Work

Contact Information:

Educational Technologies Center
330 Frist Campus Center
Princeton University
Princeton, NJ 08544

Phone: 609-258-6903
Fax: 609-258-6904

ETC Director
Janet Temos
330 Frist Campus Center

完成
網際網路

Handheld Transmitters Connect Students and Teachers in Class - Microsoft Internet Explorer
檔案(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)
上一頁 搜尋 我的最愛 媒體
網址(D) http://news.duke.edu/2005/02/transmitters_02051.html 移至
杜克大學
CRS

Duke UNIVERSITY

News & Communications

Cleaning Up Duke's 'Swamp'
Duke project brings signs of life to a local wetland

Melissa Gilmore and Rebecca Laws send their responses to a question posed by physics instructor William McNairy.
Photo by Jim Wallace

Handheld Transmitters Connect Students and Teachers in Class

Faculty teaching in large classes get instant assessment on whether students understand material

Friday, February 4, 2005

Print This Page

Students in a Duke pilot program are wielding handheld infrared transmitters that closely resemble television remotes. But rather than using the gadgets to channel surf, they are pushing the transmitters' buttons to respond to teachers' questions posed during lectures.

The result of the new approach to student feedback, say the teachers, is a significantly enhanced educational process.

"Teaching a large class without a classroom response system is like driving with your eyes closed," said William McNairy, lecturer in physics at Duke and an expert on classroom response systems. "We don't drive cars that way, but it is how we teach, with eyes closed until a midterm and a final."

完成 網際網路

Teach Newsletter, Fall 2006 - Microsoft Internet Explorer

檔案(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)

上一頁 搜尋 我的最愛 媒體

http://iteach.wustl.edu/newsletters/fall06/clickers-fall06.htm

華盛頓大學

PRS

TEACHING and TECHNOLOGY
at Washington University

NEWSLETTER

Fall 2006

To Page One

Geospatial Information Systems Q&A

Clicking in the classroom?

GIS Day, November 16, 2006

Beth Fisher, new Teaching Center assistant director for graduate student programs

Amanda Gailey, new Humanities Digital Workshop associate director

Digital Library Services debuts

iTeach symposium, January 2006 wrap-up

New iTeach website to be launched Nov 1

Graduate student summer workshops 2006

Getting help with Telesis and update on use

FEATURE STORY

Clicking in the classroom?

A personal response system in education can be defined as an instructional technology tool consisting of a software application running on an instructor's computer, a wireless receiver and multiple handheld units assigned to students to record and tabulate their responses to questions. Think *Who Wants to be a Millionaire* when the contestant decides to poll the audience for help and the results are displayed for all.

Eric Richards and Bob Kranz, Professors in the Biology department might define these "clickers" as a useful teaching tool with significant challenges to classroom implementation. Richards and Kranz have real-life experience to back up their claim. In the Spring 2005 semester, using a personal response system from eInstruction, http://www.einstruction.com/, they offered a modified version of L41 Biology 2960 Principles of Biology I. According to the vendor's website, courses at Stanford, Rutgers, Penn State and other universities have also used this system to support teaching and learning assessment.

Richards and Kranz arranged for students to purchase wireless, handheld units to carry with them for class meetings. In addition, the

完成 網際網路

國內IRS使用後
案例調查與報告

桃園楊明國小

	A	B	C	D	E	F	G	H
87	96年上下學期五年級-社會四次定期考- 參與實驗班級成績表							
88	分數區間	100	89	79	69	59	平	標
89		|	|	|	|	|	均	準
90		90	80	70	60	0		差
91	B1班 -96-5A-01-test	17	6	4	1	4	83.84	14.79
92	B1班 -96-5A-02-test	25	5	0	1	1	92.34	9.71
93	B1班 -96-5B-01-test	22	6	2	0	2	89.19	12.06
94	B1班 -96-5B-02-test	20	4	5	1	1	87.9	11.78
95	B2班 -96-5A-01-test	18	7	3	1	2	85.97	16.14
96	B2班 -96-5A-02-test	22	5	1	1	2	87.58	15.95
97	B2班 -96-5B-01-test	26	3	0	0	2	90.13	16.48
98	B2班 -96-5B-02-test	24	4	0	1	2	88.68	15.71
99	B3班 -96-5A-01-test	5	14	10	3	1	80.79	10.68
100	B3班 -96-5A-02-test	17	13	3	0	0	88.58	7.7
101	B3班 -96-5B-01-test	23	9	1	0	0	92.21	6.83
102	B3班 -96-5B-02-test	20	9	4	0	0	90.12	7.4
103	註：1. -96-5A-01期中考前，全部班級皆未使用按按按E化測驗							
104	註：2. -96-5A-02期末考前，僅藍色班級使用按按按E化測驗，每單元二次至三次							
105	註：3. -96-5B-01、02期考前，每單元測驗紅色1～2次；綠色2～4次；藍色4～6次							
106	註：4.密集實驗藍B3班不僅平均成績提高，標準差亦縮小，中後段學生明顯進步							

Sheet1 / Sheet2 / Sheet3

中央大學的IRS研究報告

前、後測試

Group	Pre-Test Score		Post-Test Score		(p< .05)	
	Mean	Std. Deviation	Mean	Std. Deviation	t	p
Experimental group	60.5	13.11	83.6	11.17	2.03	0.047
Control group	58.3	12.82	76.2	16.54		

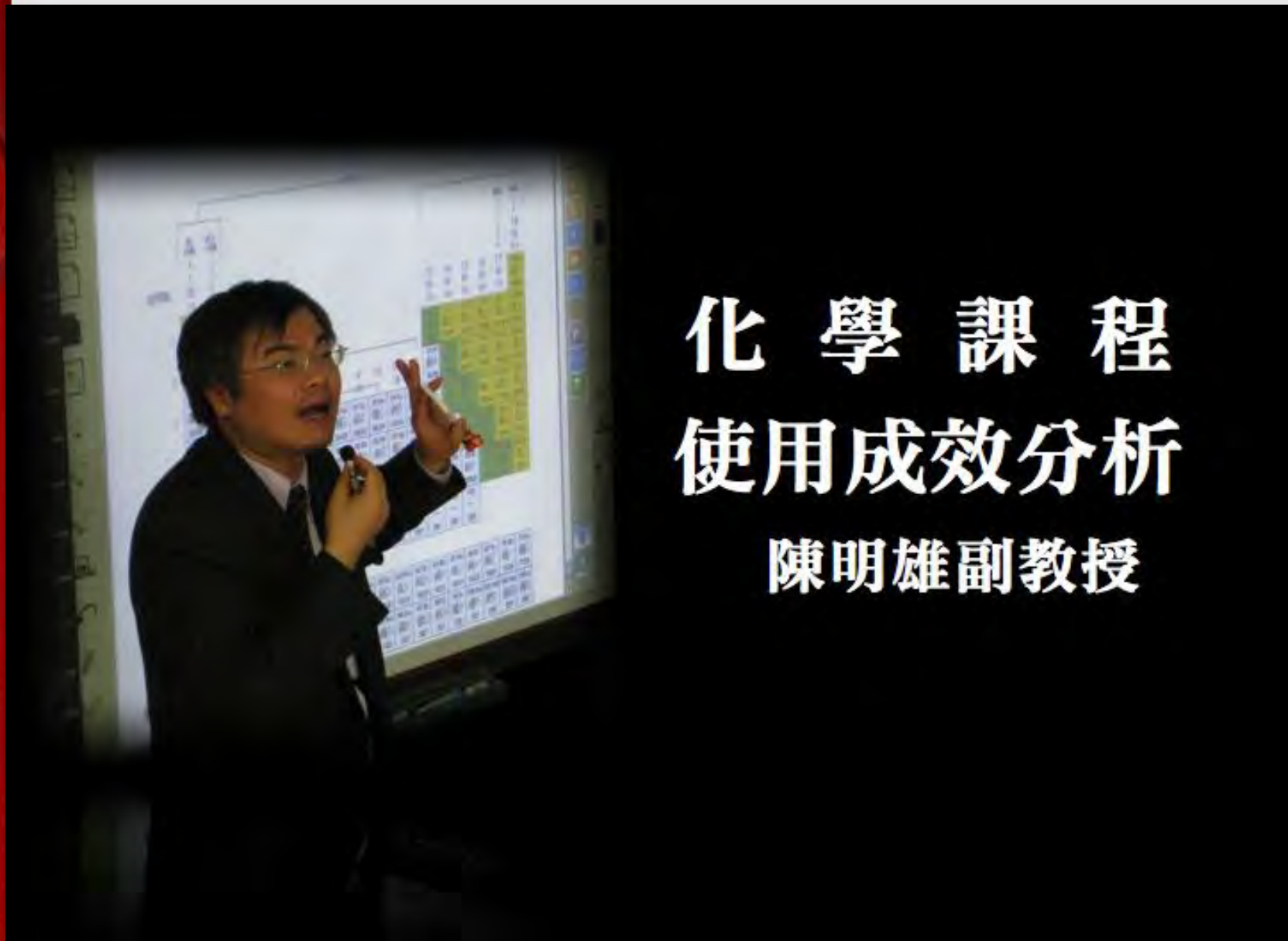
遞延測試

Group	Post-Test Score		Postponed-Test Score		(p< .05)	
	Mean	Std. Deviation	Mean	Std. Deviation	t	p
Experimental group	83.6	11.17	81.55	12.182	2.392	0.020
Control group	76.2	16.54	73.33	14.101		

資料來源:中央大學

IRS

馬偕醫護管理專科學校

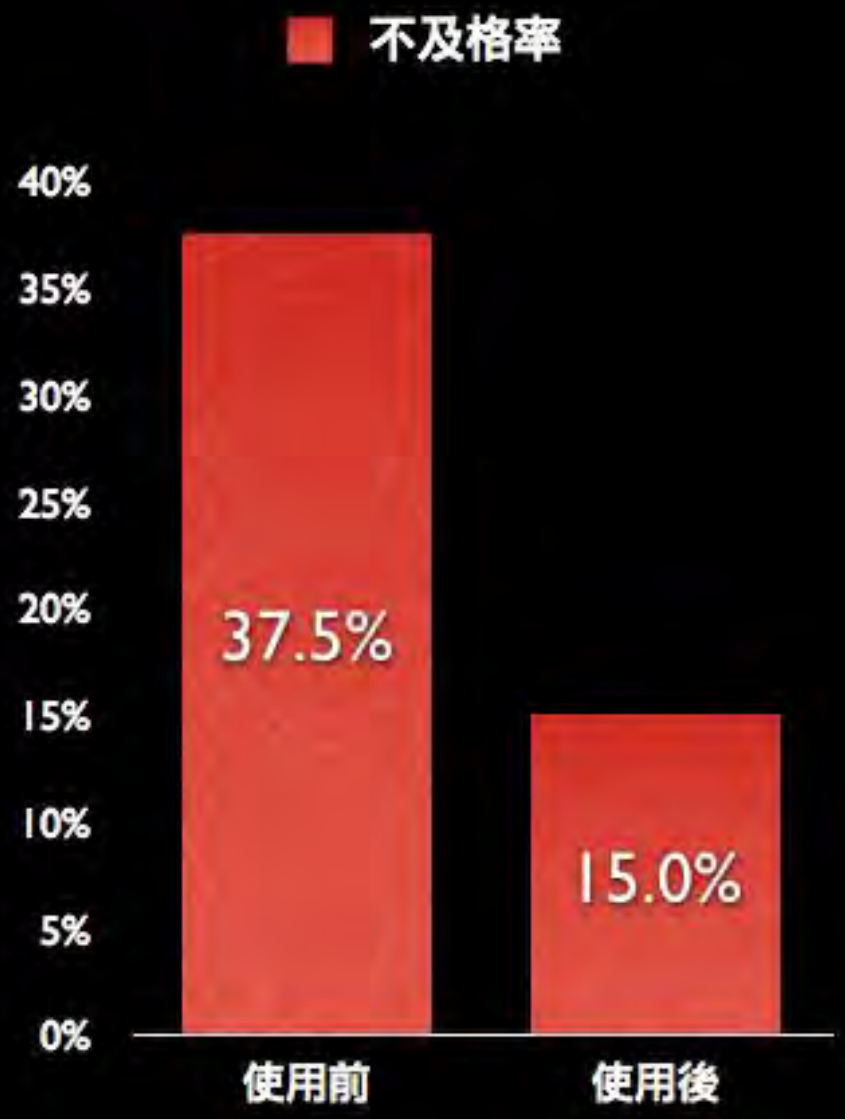


96學年度第二學期	
班級數	七班
每班時數	2小時
每周時數	14小時
整學期時數	252小時
學生人數	365人
使用總人次	91980人次

97學年度第一學期	
班級數	4班
每班時數	2小時
每周時數	8小時
整學期時數	144小時
學生人數	133人
使用總人次	19152人次

96學年度第二學期

班別	人數	不及格率	總平均
A班	40	25%	60分
B班	55	9%	70分
C班	55	11%	71分
D班	54	6%	72分
E班	53	4%	74分
F班	55	0	78分
G班	53	0	81分



97學年度第一學期

班別	人數	上課睡覺	不及格率	總平均
A班	41	0	0	84.6分
B班	37	0	10.8%	70.5分
C班	37	0	5.4%	73.8分
D班	18	0	5.5%	70.2分

1.期中末考試題難度提高

2.平均及不及格率與上學期接近

3.上課狀況比上學期更佳

學生的使用反應

96236039 王[redacted]琳

老師教學非常特別，

上課完全不會讓學生有想睡覺的感覺，

反而上了後會不想要有下課時間啦，

實在是太喜歡這種上課感覺啦!!

96236046 許[redacted]

我個人認為這樣的教學系統對學生幫助挺大的，

也很有學習效果，不再是單向傳授，

可以製作剪輯重點，不再像用課本這樣死板板，

所以我個人對這樣的教學方式挺認同的

IRS

學生的使用反應

97123014 黃楚君

這樣學習比較好，教完馬上小考，
可以增加學習精神，
也可以增加我們的信心，
比較容易學習。
換另一種教學方式，這樣不錯。

97123011 胥成傑

上課系統非常的現代化，
比以往的上課方式來的有趣，
老師又會重點教學偶而課堂小考，
比較容易記的起來。

IRS實際再操作

1.直接結合 PPT檔
(單選)

2. 進階編題
(搶權，搶答，淘汰)

IRS系統運用在教學上的特色

1. 部份版本支援PowerPoint簡報檔直接出題，甚至是出版社的命題系統也能出題，老師不用改變習慣即可上手。

2. 搶答、搶權、淘汰賽、挑人/組作答等多種互動模式，讓教學、評量一氣呵成。

3. 支援影片、Flash、圖片、音效等多種多媒體模式。

4. 自動統計成績，產生學習記錄，減輕老師教學負擔。

5. 部份版本還能連結遠端平台，自動上傳分析，做出學生個人的學習歷程

目前 IRS 運用上的限制

- 教學是主體，學生是主角，IRS只是工具
- 導入初期的陣痛期會比較辛苦
- 推動e化教學不只是組長或主任的責任
- 要搭配教學策略，並擬妥願景與目標
- 把成效量化，讓大家都看得見
- 經費運用的取捨

IRS

簡報結束