the promise and reality of ICT in learning

Ron Oliver
Edith Cowan University

the history of technologies

- radio
- television
- audio
- video
- computers
- Internet & WWW
- knowledge management systems

the promise of technology

- customised learning
- intelligent tutoring
- adaptive learning
- increased achievement
- easier learning
- teacher-free learning

what does research show?

- how do teachers use computers?
- what gains are achieved?
- under what conditions?

proven gains

- enhanced achievement
- enhanced retention
- quicker to learn
- enhanced motivation

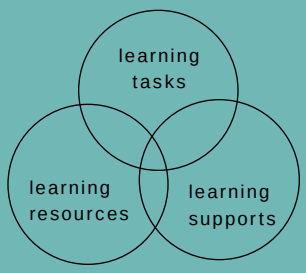
increased achievement

- primary 0.47 (Kulik, Kulik, & Bangert-Downs, 1985)
- secondary 0.36 (Bangert-Downs, Kulik& Kulik, 1985)
- tertiary 0.26 (Kulik & Kulik, 1986)
- adult learning 0.42 (Kulik, Kulik & Schwab, 1986)
- but... (Hattie, 1992)

instructional design

- creating learning opportunities
- choosing resources
- implementation strategies
- providing feedback mechanisms

learning designs



learning tasks

previous		contemporary
decontextualised	→	authentic
fragmented	→	global
sequenced	→	constructive
fixed	→	negotiable

learning resources

previous		contemporary
structured	→	open
linear	→	non-linear
sequenced	→	flexible
fixed	→	negotiable

learning supports

previous		contemporary
teacher as expert	→	teacher as coach
individual effort	→	collaborative effort
fragmented assessment	→	integrated assessment

effective learning

1. experience in knowledge construction
2. multiple perspectives
3. realistic and relevant contexts
4. ownership and voice in the learning
5. learning in social experience
6. multiple modes of representation
7. self-awareness of knowledge construction process

WWW opportunities

- information access
- interactive learning
- networked communication
- Web publishing

information access

genetics

global classroom

usage patterns

individualised instruction	93%
collaborative learning	12%
inquiry-based	28%
open-ended	10%
browsing	76%
information analysis	32%
problem-solving	5%
additional resources	21%
alternative evaluation	2%

approaches to Web learning

- design strategies
- development strategies
- delivery strategies

design strategies

- electronic conversion
- complementary activities
- re-engineering

electronic conversion

authentic settings

development strategies

- individual activities
- systemic design
- reusable tools and templates

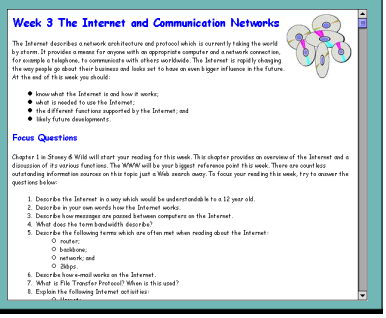
WebCT

problem-based learning

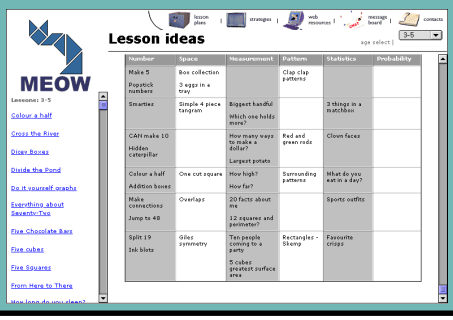
delivery strategies

- HTML
- database-driven
- new options

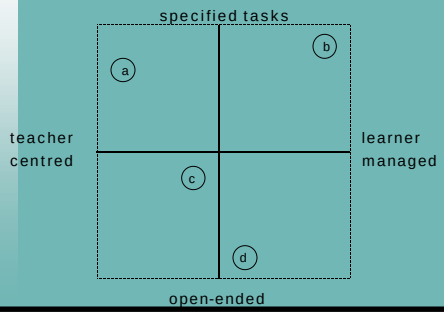
HTML



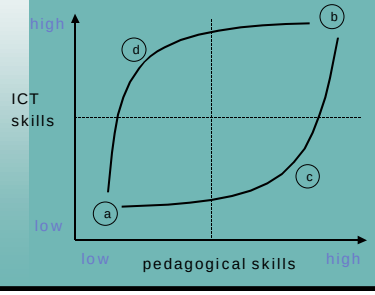
MEOW



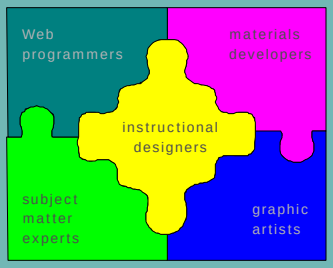
on-line learning

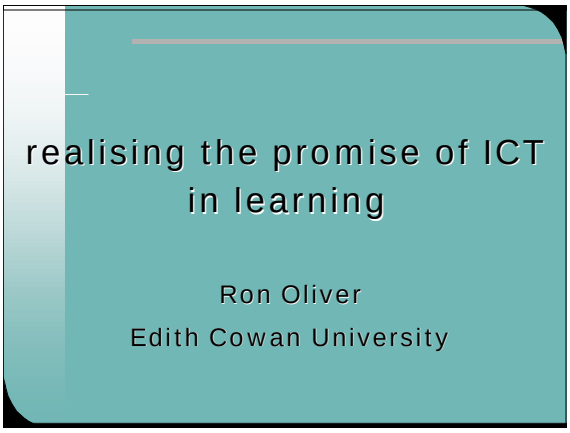


moving ahead



design approaches




realising the promise of ICT in learning
Ron Oliver
Edith Cowan University