Early Identification of Students at Risk versus Dropout

ONLINE EDUCA BERLIN

December 2004

Cape Peninsula University of Technology

- 27 000 students
- The only University of Technology in the Western Cape, together with three other Universities
- Offering 3 year diplomas, a four year B degree, Masters and Doctorate degrees

Structure of the presentation

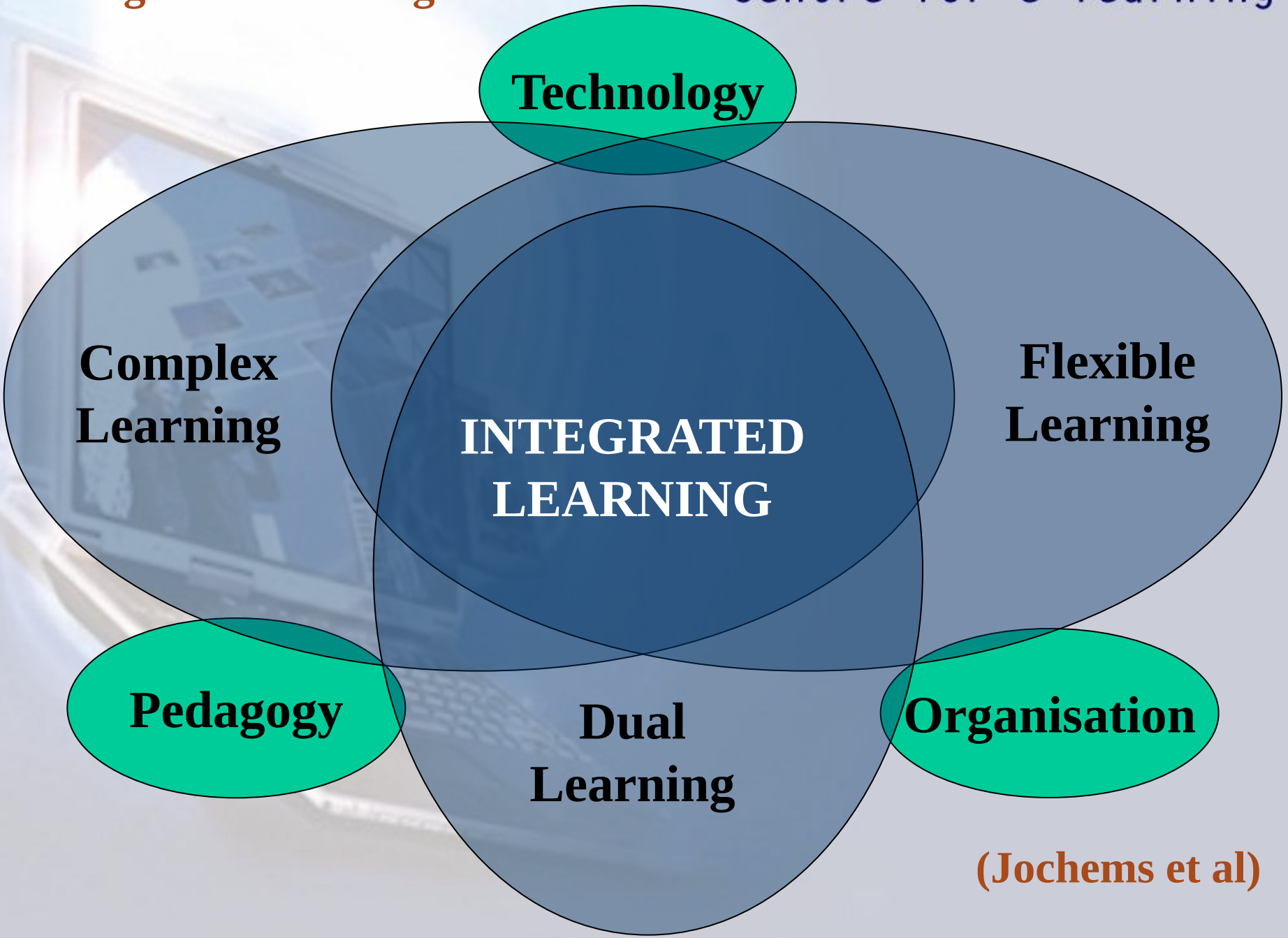
- e-Learning at CPUT
- Differentiate between admin/learning components of a LMS
- History of secondary and FET teaching in SA
- UoT's in SA (experiential learning)
- Drop out, retention, throughput and the need for placement

Universities of Technology

- **Characteristics:**
  - **Institutional autonomy & academic freedom but strong impartial public governance**
  - **Privately supported but publicly accountable and socially committed**
  - **Campus-rooted – internationally oriented**
  - **Knowledge-based, student-centred but learner focused**
  - **Technologically sophisticated but community-dependent**
  - **Quality-obsessed but procedurally efficient**

Integrated Learning

centre for e-learning



(Jochems et al)

Placement testing?

Historical Arguments

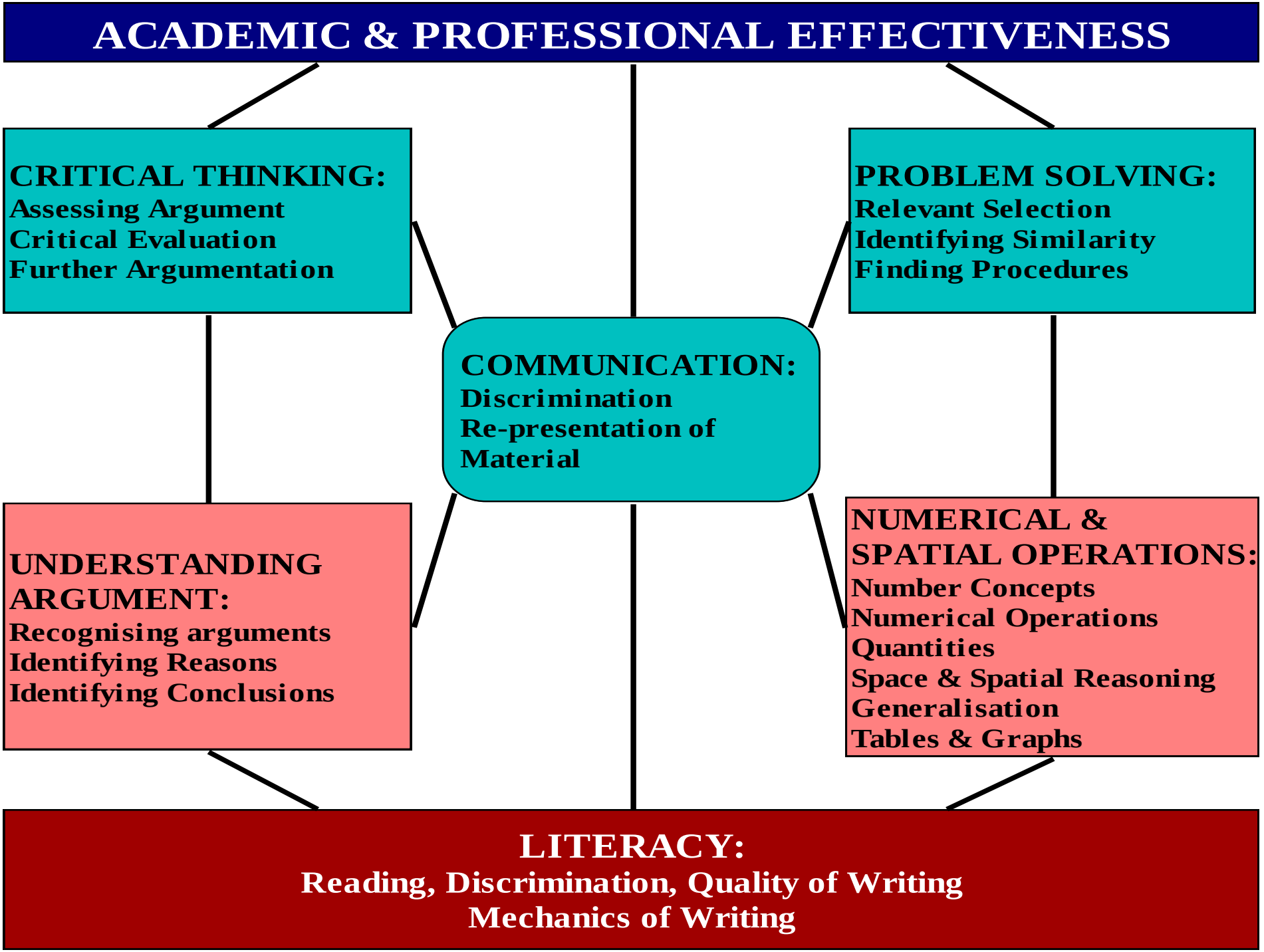
- **Neo-conservatives (Ball, 1990)**
  - ***"It is those students who can demonstrate in advance of entering that they have the capacity to benefit who should be admitted"***

Current Arguments

- **Liberal meritocrats (Williams, 1997)**
  - ***"who should be admitted to higher education, and how, revolves around the notions of 'qualified', 'accessibility' and 'under-representation', focusing upon the individual within the framework of these three factors"***

New? Thinking

- **Robbertson, 1994**
  - ***"Credit systems may be usefully judged against the proposition that they may help to improve the efficiency of higher education by attracting a wider range of students with previously untapped potential."***


ACADEMIC & PROFESSIONAL EFFECTIVENESS
CRITICAL THINKING:
Assessing Argument
Critical Evaluation
Further Argumentation
PROBLEM SOLVING:
Relevant Selection
Identifying Similarity
Finding Procedures
COMMUNICATION:
Discrimination
Re-presentation of Material
UNDERSTANDING ARGUMENT:
Recognising arguments
Identifying Reasons
Identifying Conclusions
NUMERICAL & SPATIAL OPERATIONS:
Number Concepts
Numerical Operations
Quantities
Space & Spatial Reasoning
Generalisation
Tables & Graphs
LITERACY:
Reading, Discrimination, Quality of Writing
Mechanics of Writing

Types of tests & Methodology

- Bottom up – educators test students themselves for own use
- Top down – institutional admission policies
- Integrated systems – All testing done in such a way as to minimize disruption, but results readily available to lecturers in a secure environment

Testing outcomes

- Placement Tests
  - Foundation courses for students who do not make the grade
- Diagnostic
  - Interventions for students in-between “normal” tuition

Background

- Grade 12 (Matric) results inadequate
- Other placement testing slow to implement, results buried in the back-end databases
- Identification of students at risk happens too late
- Transparent, fair, easy, fast result interpretation and analysis required
- Correct planning of interventions or special attention sooner than later

Mathematics Placement Tests

Cape Technikon design on the electronic LMS

Testing done by lecturers, statistical results available immediately

Current Testing

- Comprehension (and literacy)
- Numeracy
- Algebra
- Calculus
- Geometry & Trigonometry

Question 4 (1.0 points)

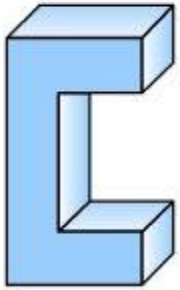
To tar a rectangle 4 m by 3 m a builder needs 9 wheelbarrow loads of tar. How many wheelbarrow loads will he need to tar a rectangle 8 m by 6 m?

- a. 27
- b. 13,5
- c. 18
- d. 36

Save answer

Question 5 (1.0 points)

A cube has six faces (facets). How many faces does this three-dimensional letter C have?



- a. 7
- b. 14
- c. 10
- d. 9

Save answer

Question 6 (1.0 points)

If ★ is an odd number, which one of the following is also an odd number?

- a. ★ x 2
- b. ★ + 2
- c. ★ + 3

Time Remaining

42 : 49 (min:s

Question Status

- Unanswered
- Answered
- Answer not saved

1	2	3	4
6	7	8	9
11	12	13	14
16	17	18	19
21	22	23	24
26	27	28	29

Question 7 (1.0 points)

Simplify: 54 ÷ 3

- a. 19
- b. 17
- c. 28
- d. 18
- e. answer not given

Save answer

Question 8 (1.0 points)

Simplify: 238 ÷ 17

- a. 15
- b. 24
- c. 16
- d. 18
- e. answer not given

Save answer

Question 9 (1.0 points)

Perform the indicated operation. Leave your answer in decimal form:
2,085 + 0,65 + 15

- a. 17,735
- b. 17,150
- c. 16,50
- d. 17,635
- e. answer not given

Save answer

Question 10 (1.0 points)

Perform the indicated operation. Leave your answer in decimal form:
33,04 - 5,28

Question 14 (1.0 points)

Simplify the algebraic expression: 2 + 3 × 4 =

- a. 16
- b. 14
- c. 20
- d. 24
- e. answer not given

Save answer

Question 15 (1.0 points)

Simplify the algebraic expression: 5 - 2 + 3 =

- a. -1
- b. 0
- c. -6
- d. -7
- e. answer not given

Save answer

Question 16 (1.0 points)

Simplify the algebraic expression: 12 ÷ 2 × 3 =

- a. 9
- b. 2
- c. 8
- d. 18
- e. answer not given

Save answer

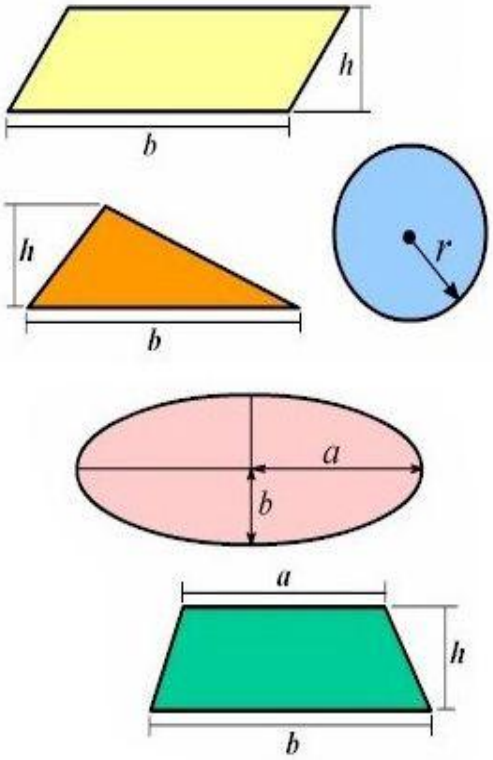
Question 17 (1.0 points)

Simplify the algebraic expression: 15 - 2(4 + 2) =

- a. -78

Question 2 (5.0 points)

Link the areas of the geometrical figures (on the left) to an equation (on the right).



a) Area = πab
b) Area = $2\pi r$
c) Area = h x b
d) Area = ½ (b+h)
e) Area = πr^2
f) Area = ½h(b-a)
g) Area = ½bh
h) Area = ½h(a+b)
i) Area = a x b x h

Matching pairs:

Parallelogram	—	Choose match
Triangle	—	Choose match
Circle	—	Choose match
Trapezium	—	Choose match
Ellipse	—	Choose match

Save answer

Question 3 (1.0 points)

The figure below represents two circles. The shaded area between the two circles is ....cm^2?

Unanswered
Answered
Answer not saved

1	2	3	4	5
6	7	8	9	10
11	12	13		

Conclusion

- Open standards design – any LMS
- Security issues addressed
- Academic ownership although the process may be administrative
- Statistics available immediately
- Integrated with back-end student data
- PROMPT ACTION CAN BE EFFECTED

Early Identification of students at risk

URL : e-learning.ctech.ac.za

smiti@ctech.ac.za

Thank you