

How can we tell if it works? Evaluating the effectiveness of cognitive education.

Presentation at IACESA Conference, Cape Town

February 2011

Emeritus Professor Robert Burden,

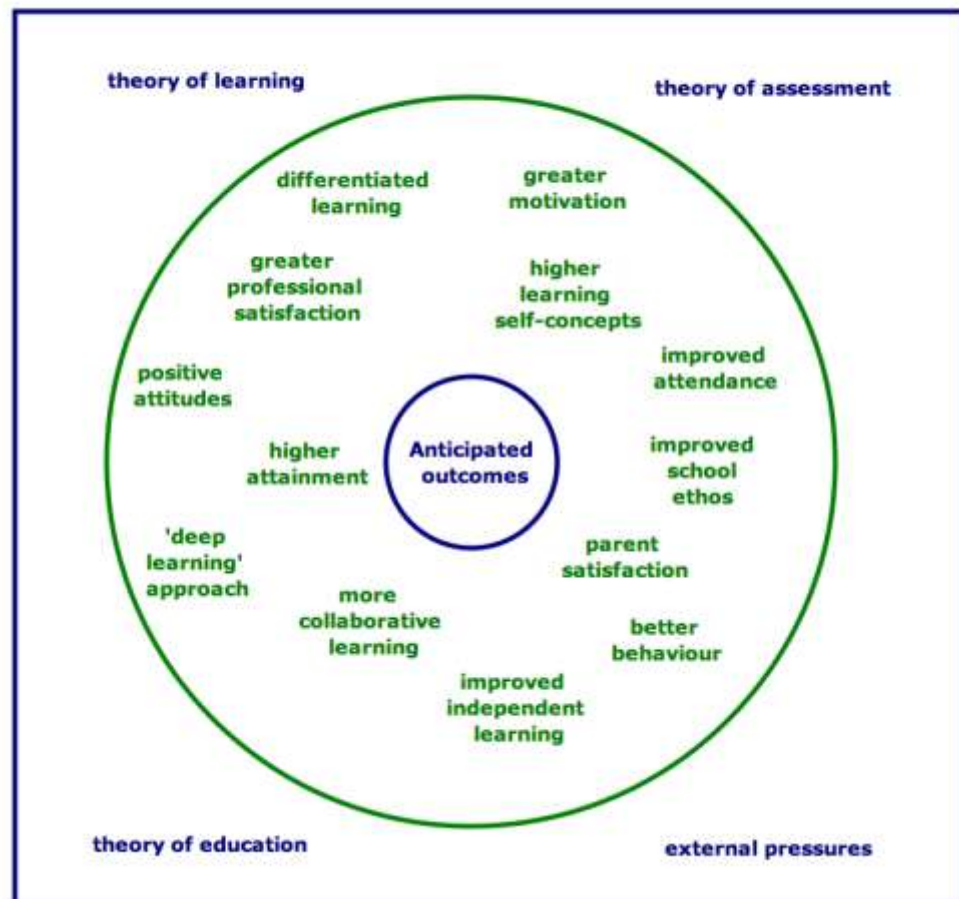
University of Exeter

Professor Lena Green, University of the Western

Cape

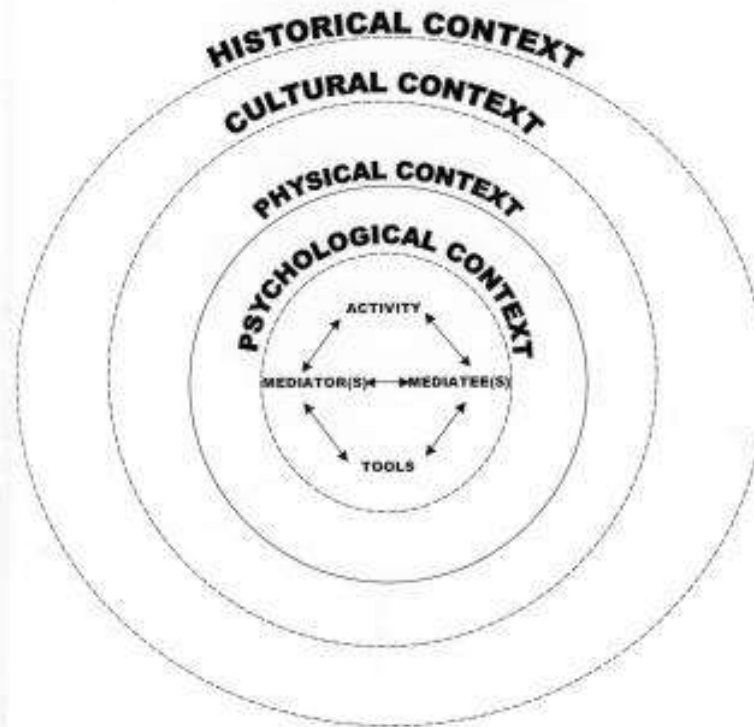
Thinking School Outcomes


Thinking Schools



Circular diagram of socio-cultural theory

Diagrammatic representation of socio-cultural theory






...all learning includes three dimensions, namely, the cognitive dimension of knowledge and skills, the psychodynamic dimension of motivation and emotions , and the social dimension of communication and co-operation - all of which are embedded in a societally situated context.

Assessment

Assessment has the function of providing valid evidence of learning achievement in order to inform students, to facilitate provision of further learning, or to certify that a required level has been reached.

Izard, 2008, p4 (Unesco)



When assessing learning achievements one has to take into account the way in which the information will be used, the persons who will have the responsibility of gathering the information, the types of task chosen to reflect curriculum intentions, the time and resource costs of administering such tasks to students and scoring their responses, and the effects of the chosen tasks on the remaining (untested) part of the curriculum.

Izard, 2008. p16 (Unesco)



Assessment for/of learning needs to take into account students' knowledge, skills, attitudes and dispositions.

Assumptions

- The Principal and Governing Body are enthusiastic about developing the school as a Thinking School
- There is substantial buy-in from the staff
- There is a plan in place re how to take this initiative forward

Thinking Schools Criteria

Evidence needed of

1. Whole school commitment by
 - Principal
 - All teachers
 - Support staff
 - School governors
 - Parents
2. Appointment of Cognitive Education Co-ordinator and ongoing task force.

Thinking Schools Criteria

3. Provision of external and 'in-house' training.
4. Ongoing whole school planning, implementation, reflection and reviews.
5. Alternative approaches to assessment.
6. Learning outcomes, attitudes, behaviours.
7. Positive whole school ethos.

NO RECIPES

- Every Thinking School is unique, although they each meet the criteria for a Thinking School
- Each Thinking School designs its own monitoring process, depending on its context

Important questions

- Are we doing what we said we would do?
- Does our plan need modification?
- Is the plan having the desired effect?

Two ways of collecting data

- Outsider view/external perspective (consultant)
- Insider views/internal perspectives (staff, students, parents)

Forms of evidence

- Changes in things that can be counted and noted to increase or decrease
- Changes in the quality of what happens in the school
- NB Distinguish between motivation and thinking/thoughtfulness

Possible sources of evidence

1. School documents

- Policy documents
- Cognitive Education Plan
- Agendas and minutes of staff & other meetings
- Posters and notices
- Curriculum guidelines
- School reports
- Discipline records
- School newspaper/newsletter

2. Classrooms: teachers

- Visible environment : physical order, system & time management (how effective and whose responsibility)
- Psychological environment /classroom climate (ways of interacting teacher/learner and learner/learner)
- Teaching and learning process (interactive discussion re how to select and use thinking tools in order to engage successfully with a specific task)

3. Classrooms: students

- Students use a repertoire of thinking words fluently and automatically, e.g. know, wonder suppose, mind, fact, opinion...
- When learning & solving problems students apply a repertoire of thinking tools increasingly independently of teacher guidance
- Students regularly assess their own thinking & learning
- Students , express, share and evaluate opinions respectfully

4. Staffroom

- Cognitive Education co-ordinator and team knowledgeable, respected and respectful
- Discussion of thinking tools and their use across the school – sharing of positive and negative experiences - space created for this to happen
- Training – There is active interest in discovering more ways of encouraging thinking – suggestions, etc...
- Thinking tools that have been introduced are meaningfully used in staff discussions

Assessment

Skills

Pupils

Independent problem solving
Asking higher order questions
Working together in pairs and groups

Teachers

Mediation
Instuction
Questioning

Attainments

Pupils

Literacy
Numeracy
Subject related

Attitudes

Pupils

Towards school
Towards learning
Towards self

Teachers

Towards school
Towards learning
Towards self

Dispositions

Pupils

Confidence
Persistence
Strategic effort
Respect for others

Behavioural indicators

- pupils' ability to describe thinking tools and indicate clearly how, when and why one would use them
- evidence of this being put into practice
- high incidence and level of questioning
- indications of improved attainment/achievement in a range of areas e.g. language, literacy, maths, science, geography, history ...
- use of tools outside of school +/- across subject areas
- independent choice of tools to assist their learning
- successful group-oriented problem solving
- high levels of attendance
- low level of bullying
- low levels of disruptive behaviour/disaffection
- high expressed satisfaction, enjoyment in school
- understanding of the long-term purpose of schooling
- deep vs surface approach to learning
- differentiated learning outcomes

Attributional style

- strategic effort attributions
- flexible vs static view of intelligence
- high self efficacy
- strong locus of causality
- internal locus of control
- low learned helplessness
- high learning self concept

Dispositions

- high levels of concentration and attention
- strong motivation to learn
- increased persistence
- tendency to reflect on reasons for mistakes
- genuine regard and respect for others

Teachers' Attitudes towards Thinking Maps

25 items Semantic Differential Scale

Scoring Range 1 (most negative) to 7 (most positive)

4 factors:

- Perceived teacher benefits (5 items)
- Perceived learner benefits (8 items)
- Perceived general benefits (6 items)
- Case of application (6 items)

Teachers' Attitudes to Maps (2)

Scoring can be according to group or individual respondent, by individual item or factor.

Teachers' reactions to Maps 4 months after training

n = 15 across age range

Mid-size Primary school (n = 280)

Deprived urban area

Perceived teacher benefits

e.g. TM

...have broadened my awareness of pupil capabilities

...have improved my effectiveness as a teacher

...have enhanced my satisfaction in teaching

Ave score: 5.2

Ease of application

e.g. TM

... were easy for me to learn

... are easy for most of my students to learn

... can easily be understood by classroom assistants

Ave score: 5.44

Perceived learner benefits

e.g. TM

... help improve student information

... enable students to reflect on learning strategies

... have helped reduce student impulsivity

... encourage collaborative learning

Ave score: 4.38

Perceived general benefits

e.g. TM

- ... provide useful terminology for problem solving
- ... help in differentiating classroom learning activities
- ... facilitate small group discussions

Ave score: 4.83

Items receiving most positive reactions

e.g. TM

- ... are easily understood by CAs (6.4)
- ... encourage collaborative learning (6.3)
- ... facilitate small group discussions (6.1)
- ... generalize well across the curriculum (5.9)
- ... invite a teaching style I am comfortable with (5.9)
- ... provide an excellent return for time and effort (5.6)

Items receiving most negative reactions

e.g. TM

- ... have provided no interest from parents (2.0)
- ... show no sign of being used outside school (2.0)
- ... have no effect on students' impulsivity (4.0)

Learner Metacognition

20 item scale relating to teacher actions (10) and learner reflections/actions (10)

4 response choices: ALWAYS – SOMETIMES – NEVER – NOT SURE

e.g.

‘Our teacher helps us to think about the ways we learn.’

‘You can learn a lot from hearing other people’s opinions.’

‘I am good at working independently.’

Sample responses from Accredited Thinking School pupils

- n= 15 (across the primary range)

1. I feel confident to ask questions in class(26/28)
2. The way we do things in class has made me a better learner(23/28)
3. Working in pairs or groups is a helpful way to learn(22/28)
4. Thinking about why you make mistakes helps you to learn(21/28)

