

## **Thinking Skills : Lateral or Logical?**

**The need for awareness of both our critical and creative thinking ability for effective problem-solving at home, at school, at work and in life.**

### **Presenter: DEBBY EVANS**

Debby Evans ( BA.Hons Natal; Secondary Teachers' Diploma UCT; Further Dip Ed. Pretoria; M.Ed –Curriculum Development, Natal ) is a free-lance education consultant, author and researcher. who specializes in the teaching of creative and critical thinking skills which inform decision-making and problem-solving across varied life contexts.

She was the founder and director of `Keys to Learning' – a publishing company which produces Learner Support Materials aligned to the NCS - New Curriculum Statement for Schools (bought by Cambridge University Press, 2005)

She has attended and presented papers at national and international conferences on thinking over the past ten years. Her books and courses translate recent theories of cognitive education into learner-centred resources within the frame-work of outcomes-based education.

Her interest in the teaching of thinking extends across many contexts – from schools and tertiary institutions to adult literacy initiatives in business and community settings.

## **CREATIVE & CRITICAL THINKING SKILLS And Effective PROBLEM-SOLVING STRATEGIES**

**The Need**

- For teachers and adults to be aware of the attributes of `good thinking' **themselves**, in order to be able to teach and model these to our students
- to help students / people in the workplace, become **autonomous thinkers and learners**, i.e. people who are not dependent on someone else ( e.g. another adult, teacher or `boss' ) to manage and dictate what and how they should learn
- to develop in students/ people in the workplace **a repertoire of creative and critical thinking skills and strategies** to be able to draw on **in any learning or problem situation**
- to teach people what it means, according to leaders in world research on the subject, about **intelligent behaviour** (e.g. to demonstrate **flexibility** /not rigidity in their thinking, **empathy** rather than ego-centricity, **persistence, precision and accuracy** and also **ingenuity and creativity** )

(In most learning & exam situations, from GET phase through to higher tertiary bands, students are asked to `analyse', `compare', `evaluate', `create' etc without having been taught these cognitive skills in their own right. There is a definite need to teach these skills **explicitly** – and not to presume they will be developed along with knowledge concepts in the various subject domains ).

## How can we do this?

- **Adopt and teach a problem-solving model and an eclectic mix of thinking skills from programmes devised by various world-leaders in cognitive research and emotional intelligence, and then apply these in different contexts and situations relevant to a particular group of students/learners**

## Critical Thinking

*“When we think critically we judge the accuracy of statements and the soundness of the reasoning that leads to conclusions. Critical thinking helps us interpret complex ideas, appraise the evidence in support of arguments, and distinguish between reasonableness and unreasonableness.” C.E.Grant*

## Creative Thinking (Over 400 definitions!)

*This is `effective surprise'; `the birth of imaginative new ideas'; `the imaginatively gifted recombination of known elements into something new'; that which `requires modification or rejection of previously accepted ideas.'*

## Problem Solving

**Intelligence** – recognizing and analyzing a problem and being able to define it

**Design** - being able to generate solutions

**Choice** - knowing how to select and implement a solution

**Problem Solving and Decision Making depend on both Creative and Critical thinking.**

## **What are some Creative Thinking skills?**

- **Idea generation techniques** – e.g **Brainstorming: free-wheel, hitch-hike and SCAMPER**
- **Practising fluency, flexibility, elaboration and originality in different contexts**
- **Lateral thinking strategies** ( e.g. from **Edward de Bono's CoRT Programme** , like `random input' or `concept challenge')

### **Activity 1**

**Fun exercise in creative thinking : one for verbal fluency and one for imaginative flexibility. Feedback, extracting principles.**

## **What are some of these critical thinking skills?**

- **Organisation** (What thinking does it entail – and a strategy for it )
- **Comparison** ( Comparison is fundamental to all decision-making)
- **Analysis** - How to Analyse . ( Making complex things simple in order to understand )
- **Evaluation** ( How to generate criteria in order to do this )
- **Categorisation**
- **Hypothesising, drawing conclusions, inferring**
- **Position-in Space perception** on both the **physical level** and the **psychological level** – in order to
  - **Detect bias**
  - **Avoid stereotypical thinking**
  - **See things from another's point of view**

### **Activity 2**

**An exercise in logical thinking and reasoning ability. Feedback, extracting principles.**

## **What are some Problem-Solving strategies?**

- **The TASC Problem Solving Wheel**
- **Osborn-Parnes Model**
- **CPS (Creative Problem Solving ) for Kids**

### **Activity 3**

**An example from Edward de Bono's CoRT 4 - Creativity: Random Input**

**Two examples from Feuerstein's IE programme : Organisation**

## **Comparison**

### **Which model can we choose for School Enrichment?**

#### **TASC (Thinking Actively in a Social Context) – Wallace and Adams**

The **TASC model** is a **thinking skills framework** that is generic. It is based on best practice in teaching and learning methodology, and is underpinned by the work of researchers in cognitive education world-wide (e.g. Sternberg, Feuerstein, Bandura, Borkowski, Vygotsky and Edward de Bono, amongst others.) TASC was developed by Wallace and Adams in the Curriculum Development Unit on the NU (PMB) campus in 1995, and subsequently is being applied in educational settings across the U.K. and in other parts of the world – especially in the education of the very able/gifted learner.

(Workshops by Debby Evans on the implementation of a selected model for use in schools and other social contexts.)

#### **OTHER MODELS / Resources for Curriculum Enrichment and the teaching of Creative and Critical Thinking**

**TASC (Thinking Actively in a Social Context) – Wallace and Adams**

**The Schoolwide Enrichment Programme – Joseph Renzulli**

**Edward de Bono's CoRT Thinking Programme & Six Thinking Hats**

**Feuerstein's Instrumental Enrichment programme and many derivatives**

**(Oxfordshire, and Somerset Thinking Skills programmes; Cagnet )**

**Creativity Workshops - Kobus Neethling / Eva Biebuyck**

**Story-Think! and Flexi-Think! Ideas for the teaching of thinking skills . Two books ( for Foundation and Intermediate Phases) Author: Debby Evans  
drakesleigh@gmail.com**

**HOPE Programme (Help Our People Excel in MATHS ) – Eva Biebuyck, JHB**

**FunKey Maths Top 20 Game** A rich resource for the classroom. Also used for inter-grade, and inter-school competitions. Fun and motivating- encourages flexibility in thinking and ability to 'think on one's feet'. (Cambridge University Press) Author: Detlef Wortmann, Wartburg, KZN

## **PRINCIPLES AND METHODOLOGY that underpin all above Programmes**

### **MEDIATION**

Certain key thinking skills are named and worked through in an explicit, content-free, interactive way, and then participants are required to practise them in the context of the environment in which they are working. For example, people are often required to 'gather facts and data' for needs assessments and social audits, or to make decisions on budgeting, spending, market campaigns and the like, but often do not possess the tools to 'define the problems', 'analyse', 'prioritise', 'decide' etc.(all critical thinking skills).

### **METACOGNITION**

The content of the workshops aims to get participants to consider what each of these thinking skills/cognitive processes involves and to become 'metacognitive' – to start monitoring and thinking about their own thinking. For instance, one cannot 'decide' (on a solution) before one has 'compared alternatives', and one can't 'compare' possible solutions before one has thought very broadly about multiple possibilities (creative thinking).

### **MODELLING**

These skills can be modeled by teachers/ facilitators. If one models good thinking one's self then students will learn by observation. We want evidence of 'thinking classrooms' and 'thinking workplaces' where thinking is discussed and valued in its own right – and where a new vocabulary of thinking is developed. Knowing about intelligent behaviour and what constitutes it, is an invaluable component in the life-long learning paradigm of transformation in education and training which speaks directly to the **first** of the **Critical Cross-field outcomes (CO's)** for democratic citizenship and growth in a democratic South Africa.

**Examples of where Creative and Critical Thinking and the TASC model have been applied by the presenter in practice**

- In a number of **Independent Schools** ( e.g. St. Mary's JHB; St Peter's Prep; TWC.) Teacher-training seminars and staff development work shops – leading to the teaching of thinking as a subject in its own right in the classroom)
- In an **ESKOM initiative** to fast-track women graduates engaged in studying for their Masters degrees
- in **Venture Creation & Entrepreneurial Sectors** ( A Small Business Development Course written for the Centre for Adult Education ( UKZN – PMB)
- in an NQF- aligned module for the PDCE (Participatory Development Certificate in Education) for **community development workers** ( CAE at UKZN, PMB)
- in the **ECD ( Early Childhood Development ) sector** – training practitioners in dynamic **thinking skills and problem-solving strategies** to be proactive in dealing with the horrific effects of the HIV/AIDS pandemic on orphans and vulnerable children ( TREE- REACH research Project UKZN – Durban campus – on-going )
- in ABET ( **Adult Basic Education and Training**) settings: An Adult Literacy/ Community Development project in Cramond, KZN ( over 5 years)
- **in a middle-management course** in corporate settings ( for **Supermanagers, Pinetown**)

## Courses

**(Some –described here- are applicable to educational settings / others for corporates - most can be adapted for business contexts)**

- The Course: **Effective Study Methods - Developing Creative and Critical Thinking Skills : Duration-** 2 days of 5-6 hrs a day
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- **'Keys to Thinking' Workshops for Facilitators / Teachers** ( Minimum of 14 hours – 2 or 3 day workshop (customized to the needs of the institution) or 2 hours once a week spread over 5 weeks e.g. Fri afternoons 13:00-15:00 (includes a working manual for up to 20 participants )
- **Flexi-think! Workshops for Schools:** training for teachers using Flexi-think! Manual. Designed to take Learners –Grades 6- 9 - through 40 Lessons ( finding keywords, main idea, comparing, analysing, mind-mapping applied to content subjects, categorising, points of view, etc within a Problem-Solving Model that is explicitly taught.)This could run for a year - with the teachers being trained on one day and the lessons being applied immediately by them in the classroom for the following week. Each Teacher would need the book - and the Learner pages are photocopyable . Price negotiable.

- **Edward de Bono's CoRT Thinking Skills Programme – CoRT 1** ( 10 Basic Thinking Strategies ( extremely useful as life skills for everyone, students, facilitators and people in business) and some of **CoRT 4 - Creativity** –Tools to develop Creative Thinking **Duration** : 2 days of 5 hours.
- **More Effective Thinking- at Home, at Work, in Life : Developing Creative and Critical Thinking Skills** This course is based on the TASC ( Thinking Actively in a Social Context) framework and includes a Problem-Solving Model with a repertoire of useful thinking `tools' that can easily be taught and applied in everyday life. Duration – and Price negotiable )
- **Creative and Critical Thinking for the Workplace** ( a 9 module print course and/or a computer-based version at ABET Level 4/ NQF Levels 1 &2 ) - Details on request. EDL Foundation, JHB
- **Workshops on Creativity ( Various choices and levels)**

### **Professional Organisations promoting Cognitive education**

ICEP Internation Association of Cognitive education and Psychology  
[www.iacep.coged.org](http://www.iacep.coged.org)

IACESA: The International Association of Cognitive Education: email [iacesa@polka.co.za](mailto:iacesa@polka.co.za)

Renzulli Learning Systems : [www.renzullilearning.com](http://www.renzullilearning.com)

Google the following under Thinking Skills:

David Perkins – Harvard

Robert Fisher- UK

Carol McGuiness – British National Curriculum / Thinking Skills

Matthew Lipman - Philosophy for Children