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Cape Town, South Africa
Thursday 12 February

Keynote

Basic Conceptual Systems (BCS)

– tools for analytic coding and thinking: a concept teaching curriculum in Norway

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Where to find the BCS Curriculum on the web

http://statped.no/nyupload/moduler/statped/enheter/statped%20nord/dokumenter/fagomr%C3%A5der/sprakogkom/ct_and_bcs_curriculum.pdf

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Dr. Magne Nyborg (1927-1996)

- **Developed a comprehensive theory of learning and a corresponding practice.**
- **The latter in close collaboration with some colleagues, including Andreas Hansen**

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Nyborg's 4 instruments for educational thinking, planning and teaching practice

- A theoretical model of a learning person – the PSI-model – which is a depiction representing central parts of his theory of teaching and learning
- An inventory of Basic Conceptual Systems (BCS)
- A Concept Teaching Model (The CTM)
- A model for the teaching/learning of skills

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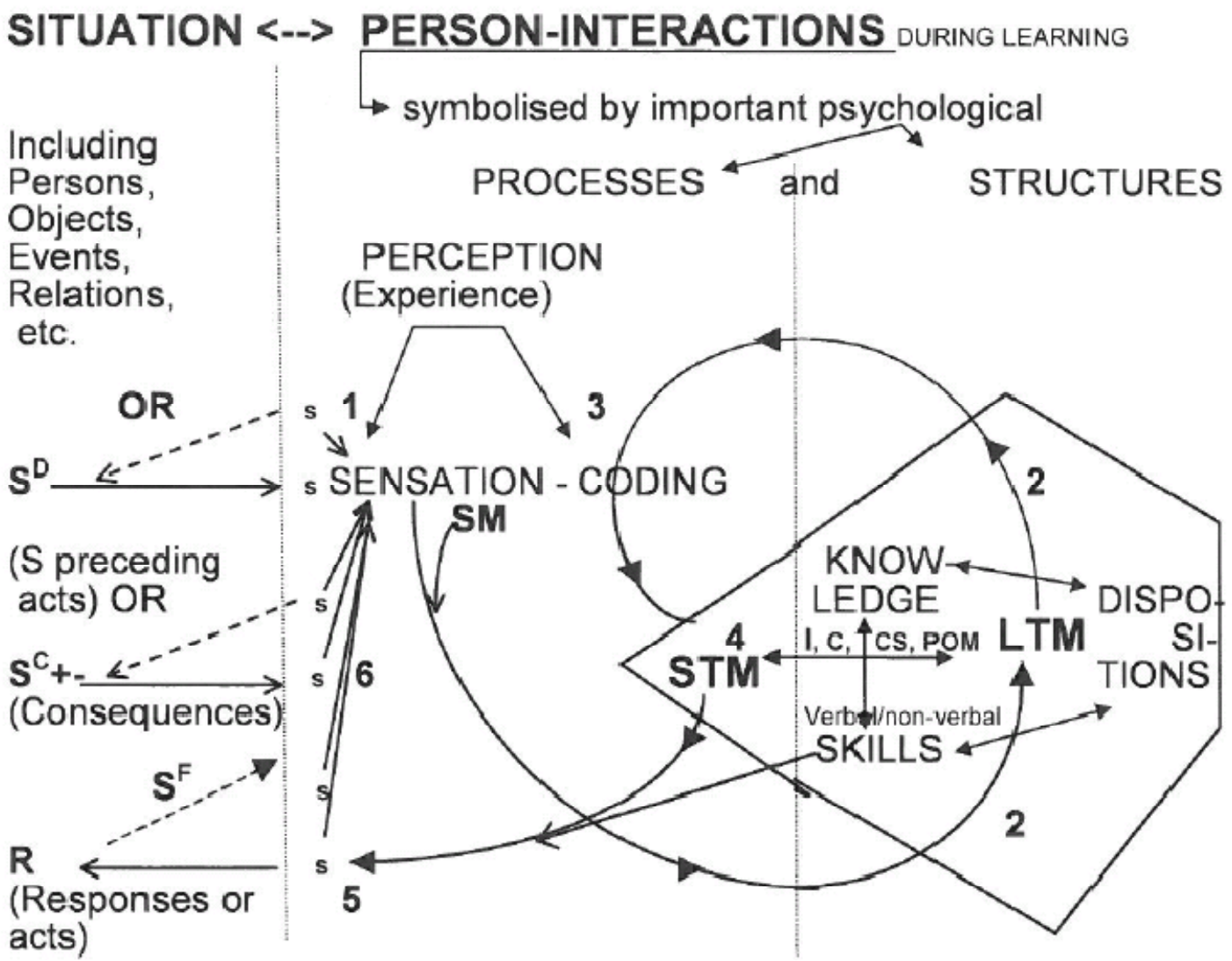
The PSI-model of a learning person (Nyborg: 1973-1992)



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Concept Teaching (CT) – what, how and why

- **CT= Systematic Concept Teaching of Basic Conceptual Systems (colour, shape, size, position, place, direction, number etc) and related basic concepts, which are made verbally conscious by means of oral language skills.**

- **21-26 BCS depending on how they are grouped**

- **Half of the BCS are taught by the Concept Teaching Model**

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Concept Teaching (CT) – what, how and why

- **CT trains children to direct and take control of their attention.**
- **CT trains children in prolonging and expanding their Short Term Memory/Working Memory by conscious use of language in these processes.**
- **CT also trains children in applying a precise and decontextualized language when it is needed in communication, thinking, learning etc.**

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Concept Teaching (CT) – what, how and why

- CT also aims at changing negative expectations regarding learning into positive expectations
- Another aim for CT is to teach children how to learn (better)
- In the next stage Basic Conceptual systems and related concepts are deliberately applied as tools for teaching of school subjects including skills of different kinds

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An inventory of words for Basic Conceptual Systems (BCS) and related concepts

1. Colour
2. Shape
3. Position
4. Place – space/ temporal orientation
5. Size
6. Direction
7. Number
8. Sound
9. Surface pattern
10. Function/use
11. Substances / material
12. Surface properties (Smooth, rought etc.)
13. Properties of the substance (Hard, soft etc.)
14. Weight
15. Temperature
16. Smell
17. Taste
18. Time
19. Change in colour, shape, position…
20. Speed/movement
21 Value

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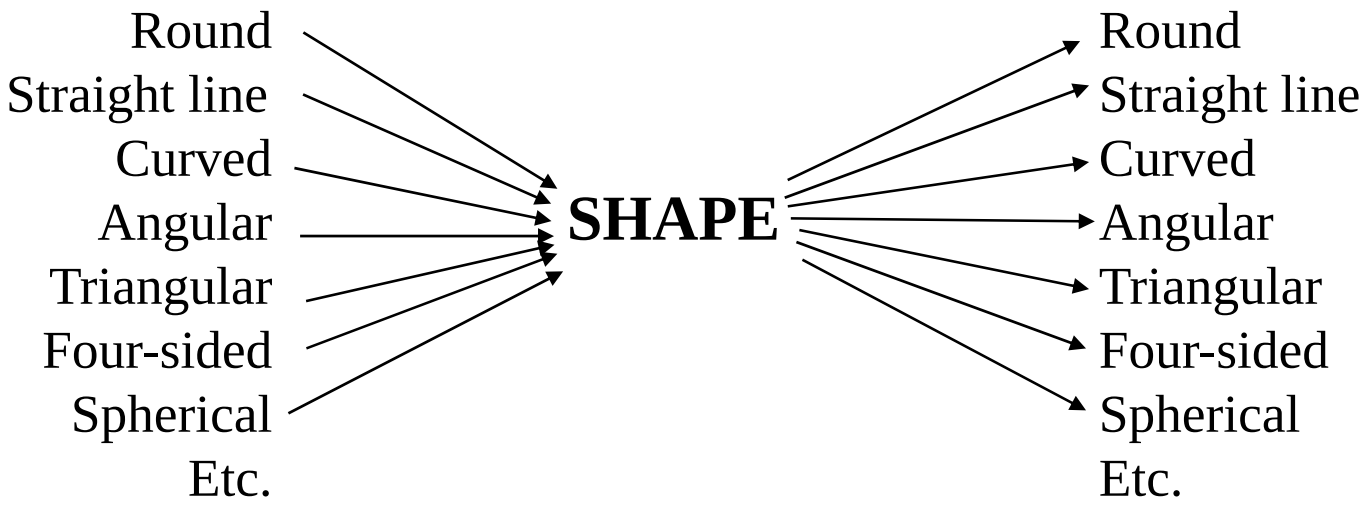
Words denoting a simplified Shape-BCS



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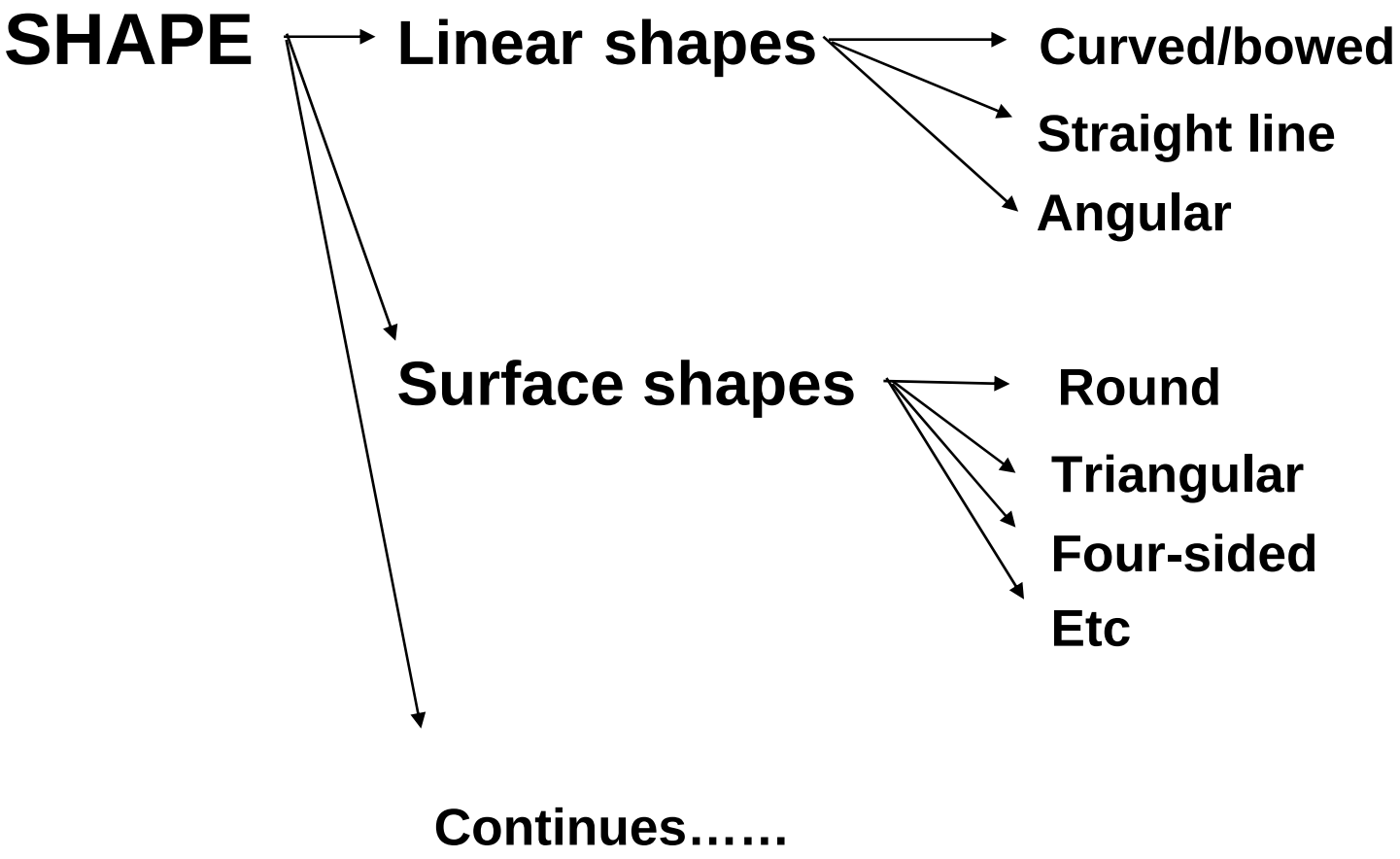
Shape-BCS



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Shape-BCS continues…

SHAPE

- **Spatial shapes**
  - **Spherical**
  - **Cylindrical**
  - **Cubical**
  - **Prismic**
  - **Etc**
- **Shapes named according to the item that they resemble**
  - **Heart shape, egg shape, star shape**
  - **Etc**

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Analytic coding by means of BCS of a letter L

- What are the number of parts?

  The letter consists of (the number) of two parts.

- What shape do the parts have?

  They both have a straight line shape.

- What positions do the parts have?

  One is in vertical position; the other in horizontal position.

- How are the parts placed in relation to each other?

  The vertical one is placed on the left hand side of the other, and the horizontal one is placed at the lower end of the vertical line.

- What is this letter a symbol for in reading and writing?

  The letter is a symbol for the phoneme /l/

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The Concept Teaching Model (the CTM) and its three phases

The model is divided into 3 different phases that are named according to the processes that in particular are represented in each phase.

- Phase 1: **Selective association**
- Phase 2: **Selective discrimination**
- Phase 3: **Selective generalization**

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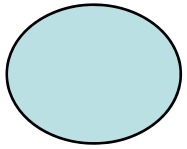
The CTM
Phase 1: Selective association

- **A example from the first part of this phase**



Teacher: This cardboard has a <u>round shape</u> because…. . What shape does it have?

Child: It has a <u>round shape</u>.

T: You said that nicely. Very well done.

- **The children are then presented for various examples of round shapes.**

- **Towards the end of this phase the children are invited to ”produce” something with round shapes.**

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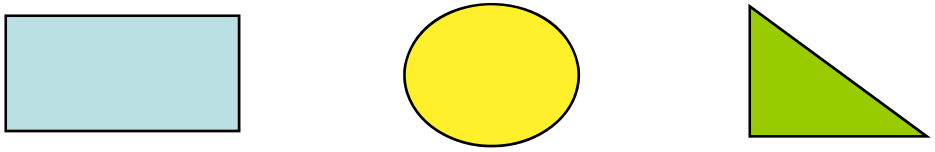
The CTM
Phase 2: Selective discrimination

- **An example from the first part of this phase**



T: Point at the figure which has <u>a round shape</u>.

The child points to the right shape.

T: That's correct pointed out. It has a <u>round shape</u>.

- **In the end of this phase the children are asked to look for <u>round shapes</u> in the <u>surroundings</u> and are invited to tell about something experienced elsewhere having a round shape.**

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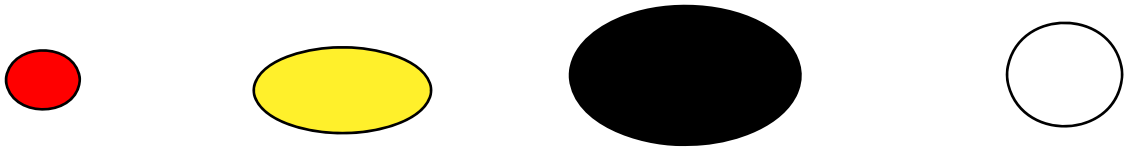
The CTM
Phase 3: Selective generalization

- An **example from the <u>first</u> part of this phase**



T: Are all these figures <u>completely similar</u>?

C: No, they are not completely similar.

T: That is quite right, but they are <u>similar in</u> something, so in what way are these figures <u>similar</u>?

C: They are <u>similar in</u> having <u>a round shape</u>.

T: You said that brilliantly, very well done.

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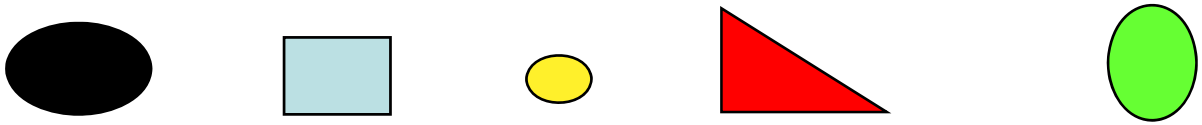
The CTM
Phase 3: Selective generalization + discrimination

- **An example from the <u>second</u> part of this phase**



T: Point at the figures that are <u>similar in</u> having <u>a round shape</u>

C points at the right figures.

T: That is is correctly pointed out - or alternatively or as a continuation: Why did you point at those figures?

C: (I pointed…) because they are <u>similar in</u> having a <u>round shape</u>

T's positive and guiding feedback.

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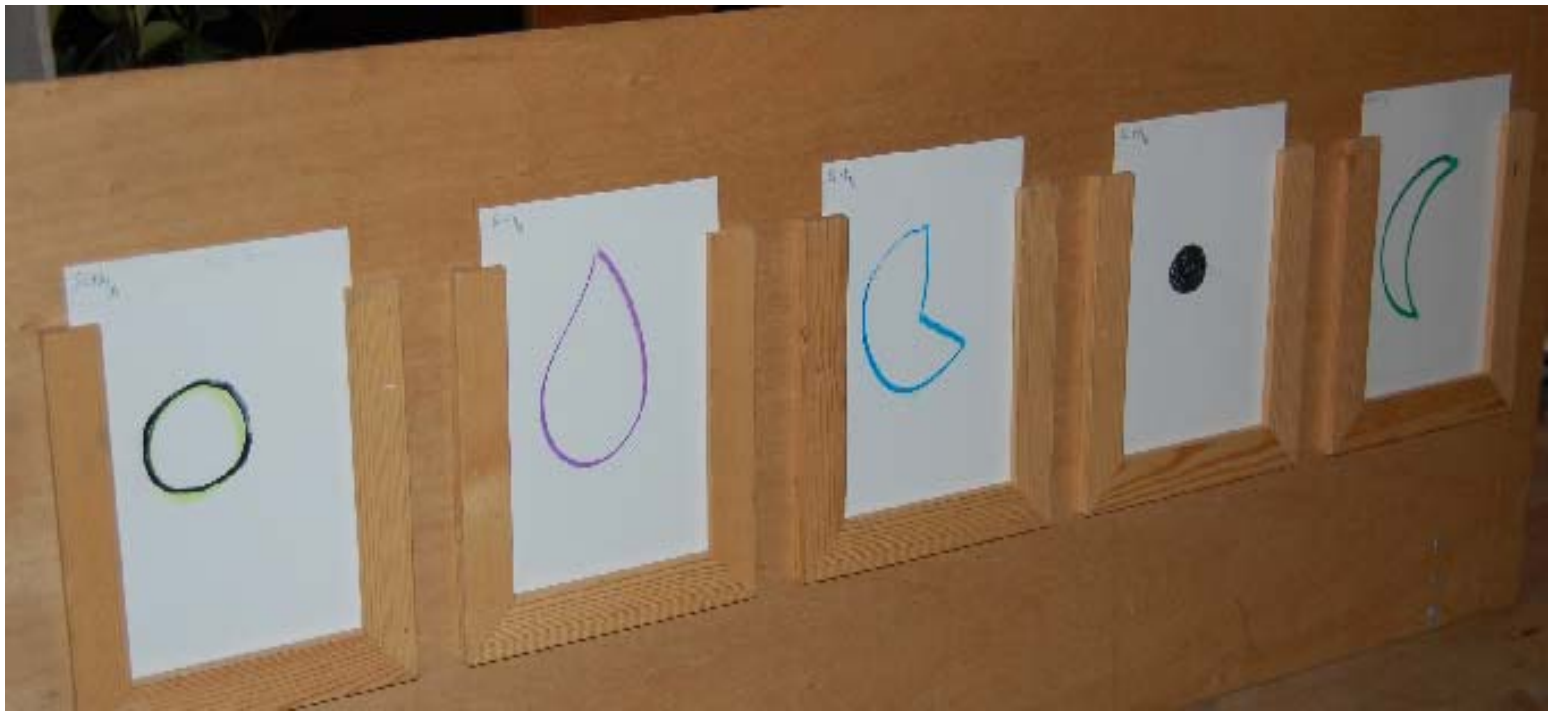
A teaching panel



Point at the figures that are similar in having a round shape

(A situation in the third phase, the SG-phase)

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The Concept Teaching Model

A Curriculum for the teaching of Basic Conceptual Systems (BCS) and related Basic Concepts in kindergarten and primary school

by Andreas Hansen

This curriculum is available for all and can be downloaded from the pages of National Support System for Special Education in North Norway

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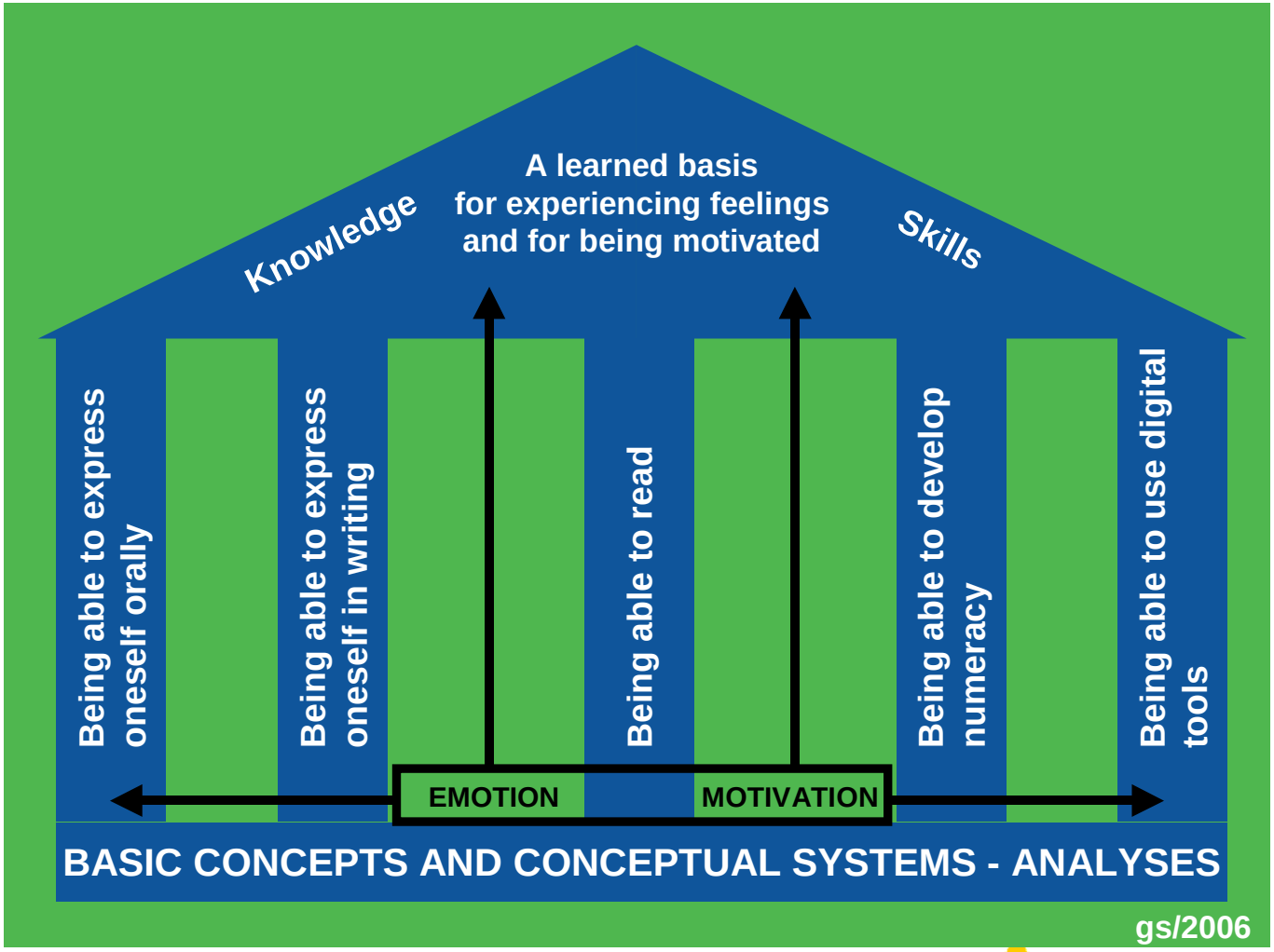
Exemplified by a project implemented in the municipality of Balsfjord, Norway, obligatory from 1.1.2008



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CT supplementary training courses in Balsfjord and Karlsøy municipalities 2005-2008

- A suppl. training course over 6 days in 2005/2006. Target group: Teachers grade 1- 4.
- Another suppl. course over 5 days in 2006-2007. Target groups: Teachers grade 1.-6. and pre-school teachers.
- 2-days CT-course for assistants in kindergarten and school. Spring 2007.
- A suppl. course over 5 days for teachers, pre-school teacher and assistants. Spring 2008.

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The contents of the expanded Curriculum for teaching Basic Conceptual Systems

Part 1:

- A description of the Concept Teaching Model
- The important proposal for a teaching order of Basic Conceptual Systems and related concepts in kindergarten and primary school
- Kindergarten (age 4/5) - grade 1 and 2 (+ grade 3 and 4 when necessary)

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The contents of the expanded Curriculum for teaching Basic Conceptual Systems

Part 2: 14 appendices, among these on:

- Central aspects of Nyborg's theory of teaching/learning
- Shortened programs for teaching BCS
- Note: An important inventory of BCS
- Proposal for exercises inn analytic coding.
- A table with summary of BCS intended as prerequisites for teaching/learning school subjects
- A description of a model for Teaching Skills
- Examples of BCS suitable for the description of letters, numerals etc.

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A table with the proposal for a teaching order of BCS and related basic concepts

2. Shape	**Kindergarten**	**Straight line, round, Curved/ bowed, triangular, four-sided, cubic, spherical**	
	1.- 2. grade Primary school	**Teaching of circular, oval, conical, cylindrical shape etc. Also repetition of …**	
	3.- (4.) grade Primary school	**Possible rep.and further elaboration of Shape –BCS, cf. the two inventories in appendix 3**	

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CT as a preventive measure divided between kindergarten and primary school

- The formal teaching of Basic Conceptual Systems starts in kindergarten with 4-5 year olds
- In groups of no more than 3-5 children
- 2-3 lessons a week
- Each lesson 25± minutes
- In addition training in analytic coding etc
- More CT for children with language- and learning difficulties

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CT as a preventive measure…

- CT is followed up in grade 1 and grade 2
- In grade 1: 2-4 lessons a week, each lesson 25± minutes
- in grade 2: 2-3 lessons a week, each 25± minutes
- 4-5 up to 7-8 children, under special circumstances 10-12 children
- In addition training in analytic coding and BCS applied in the teaching of school subjects

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CT as a preventive measure…

- The curriculum also has an option for following up with CT in grade 3. and grade 4
- BCS applied in the teaching of school subjects
- More CT for children with language- and learning problems

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Evaluation of the CT-project

- **From a questionnaire for teachers in June 2008:**

The answers were positive. Most teachers reported that more children than before in kindergarten and grade 1 had developed a better basis for learning school subject in terms of a better developed language, than children in classes that had not received CT.

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Evaluation of the CT-project continues

- **Some teachers report explicitly that CT makes teaching reading, writing and mathematics etc. easier.**

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An informal evaluation – a short article on CT in the main journal for Compulsory school teachers in Norway, on the 5th of December 2008.

Authors: Two teachers, a headmaster and Andreas Hansen

- **<u>The ingress says</u>:**

  Systematic Concept Teaching can positively change children's prerequisites for learning in terms of an improved language. All children will benefit from this approach, even though children in the middle group and children who are functioning at lower levels,will probably gain the most.

- **Some quotations from the text…..**

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Evaluation in a report delivered to the County Governor in Troms in August 2008

- **Title in English: An end report. Concepts to understand with – an inter-municipality project for the implementation of Systematic Concept Teaching in Balsfjord and Karlsøy.**

Written by the chief municipality education officer in Karlsøy on behalf of both municipalities.

- **Some quotations from the text…..**

- **The report ends with inviting other municipalities to implement CT as an educational approach in Kindergarten and in school**

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Main objectives for the curriculum

- The curriculum shall be a tool utilized for the application of Concept Teaching with the objective of helping children develop prerequisites for learning in terms of oral language skills
- The curriculum shall help prevent learning disabilities due to inadequately developed language skills
- The curriculum shall increase children's mastery of basic skills

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Main objectives for the curriculum

- The curriculum shall promote cooperation between schools and kindergartens, and promote continuation with regard to language development from kindergarten to primary school
- The curriculum shall prevent and reduce differences among children related to language development, learning, and promote the development of social skills

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Selected literature on CT

- Hansen, A. (2003). On mediation from Magne Nyborg's perspective. *Journal of Cognitive Education and Psychology* [online], 3(1), 54–70. www.iacep.coged.org
- Hansen, A. (2006). Nyborg's Concept Teaching Model Applied in Order to Positively Change Prerequisites for learning and Facilitate Inclusion. *Transylvanian Journal of Psychology. Special Issue N^0 2 Supplement December 2006.* Proceedings of the international conference of the INCLUE Network Prague, 30th October-1st November 2005. Part two – Specific papers on Behaviour, Implementation, Assessment & Activation, Mathematics, Parents.
- Hansen, A. (2009). The Concept Teaching Model. A curriculum for the teaching of Basic Conceptual Systems (BCS) and related Basic Concepts in kindergarten and in school. Exemplified by a project implemented in the municipality of Balsfjord Norway. An expanded version presented at the IACESA conference 11-13 February 2009, Cape Town, South Africa
- Hansen, A., Hem, M. & Sønnesyn, G. (2002). *A strategy of Concept Teaching and a Concept Teaching Model. Booklet 3.* A publication by Project INSIDE 2002. Portsmouth: The Down Syndrome Educational Trust.
- Nyborg, M. (1993). *Pedagogy. The study of how to provide optimum conditions of learning for persons who may differ widely in pre-requisites for learning.* Nordisk Undervisningsforlag, Haugesund, Norway. (Nyborg's main book in English: ISBN: 82-9 07 12-11-1)
- Nyborg, M. (1995, December). *How intelligence – defined as ability to learn – can be positively changed by intelligent teaching.* Paper presented at "the EAMC (The European Association of Mediated learning and Cognitive modifiability)" Conference in Madrid.

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Selected literature on CT continues

- Nyborg, M., Nyborg, R. H. & Hansen, A. (1997). Concept teaching as a strategy to prevent or reduce learning disorders. I Martinez-Beltran, J. M., Lebeer, J. & Garbo, R. (Red.). *Is Intelligence Modifiable?* Madrid: Editorial Bruño.
- Nyborg, R. H. (1995, December). *Case studies of four students who significantly changed 1) their "ability"to learn in school and 2) their IQ*. Paper presented at "the EAMC (The European Association of Mediated learning and Cognitive modifiability)" Conference in Madrid.
- Sønnesyn, G. (1999). *Anna Games.*. BE-MA Forlag Pedverket, Voss, Norway.
- Sønnesyn, G. og Hem, M. (1999). *Grunnlaget.* Learning Progammes for Concept Teaching. BE-MA Pedverket, Voss, Norway
- Sønnesyn, G. (2006). Cognitive Processes and their influence on Attention, Behaviour and learning in general. *Transylvanian Journal of Psychology. Special Issue N^0 2. Supplement December 2006.* Proceedings of the international conference of the INCLUE Network Prague, 30th October-1st November 2005.Part two - Specific papers on Behaviour, Implementation, Assessment & Activation, Mathematics, Parents.

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Intelligent teaching and corresponding learning

- Teaching that produces **good understanding** during learning.

- And what is clearly **understood** (intelligare – understand), is usually **remembered very well** too. It also denotes teaching **conceptual knowledge** which may be integrated in many and different ways to **conceptual systems, principles, etc.,** all of which lend themselves to **transfer of learning**; i.e., a process that may accelerate further learning for all persons.

(Nyborg, 1993,p. 488)

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