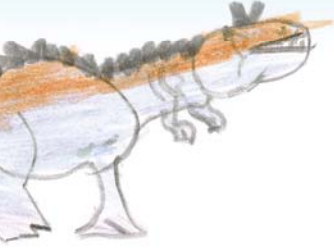



Curious Minds:


in search of scientific reasoning skills
in pre-school children



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Talenterkracht wordt uitgevoerd vanuit het programmabureau VTB



OBSERVATION

Between the age of 3 and 5, children are bright
and sparkling.
As they get older, their curiosity fades away.

(symposium *Curious Minds* 2006)




THE CURIOUS MINDS OF YOUNG CHILDREN

Albert Einstein: "Ich habe keine besondere Begabung, sonder bin nur leidenschaftlich neugierig."

National Research Council, USA (2005): "Early childhood education, in both formal and informal settings, may not be helping all children maximize their cognitive capacities."

Pierre Léna (2005): "There is evidence that children, from the youngest age, are capable of building upon their natural and insatiable curiosity to develop logic and rational thought."



MISSION OF CURIOUS MINDS

To chart the talents of young children and to investigate how they can be kept alive, especially in the area of scientific reasoning and problem solving.

A WORKING DEFINITION...



- “Talent” is a process that promises high development in a specific domain

HOW?



- Children
- Researchers
- Parents
- Different methods
- Theory and Practice



WHO?



- Developmental Psychology – **University of Amsterdam:**
- Developmental Psychology – **Groningen University:**
- Neuropedagogy – **Leiden University:**
- Brain & Neurosciences – **Maastricht University:**
- Mathematics Education – **Utrecht University:**
- Behavioural Science – **Nijmegen University:**



RELATED PROJECTS / COOPERATIONS



- Causal and logical reasoning (Amsterdam)
- Dutch public broadcasting: Teleac/NOT
- Children's Museum Amsterdam
- Nemo Science Center and other science centers
- Mathematics and Neurosciences (Utrecht)
- Professionalisation Materials for Primary Teachers
- Leuven University

RESEARCH QUESTIONS

Utrecht-Groningen



- How do the talents differ among tasks and children?
- How do they develop in individual children?
- Are the 'talents' observable in the actions and evaluations of children in talent-eliciting tasks?



RESEARCH QUESTIONS (cont.)

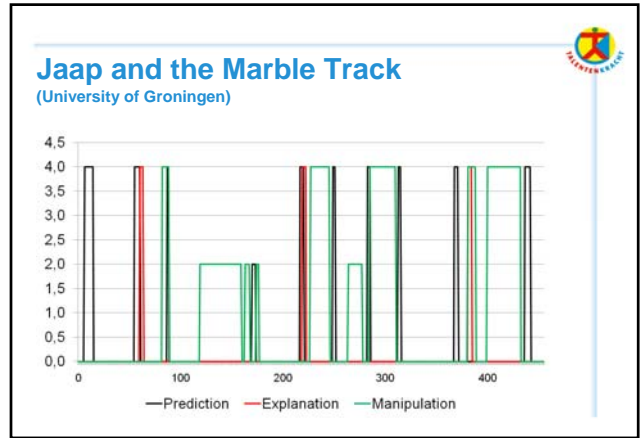
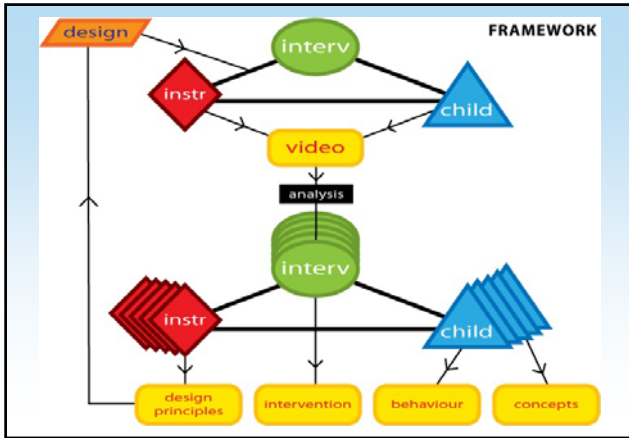
Nijmegen, Maastricht, Leiden, Amsterdam



- What is the role and development of language?
- What role play contextual factors?
- What is the predictive value of talent at a young age?
- How do young kids reason?

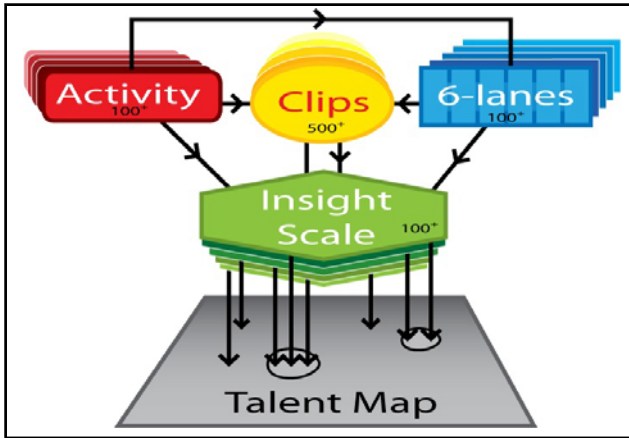
propulsion	measure	speed, steepness
combinations	optical phenomena	sorting, classifying
navigation	series, patterns	scale, proportion
construction	orientation	counting, numbers

n o.	name activity	description of material and activity	questions to the child	prediction of behavior	system code & descr. of content	s e e
4	The book of animals	With the book <i>A Bond and other animals</i> the reader can make combinations with the head of one animal and the body of another.	Researcher asks the child if he or she has seen the book before. Together they turn over the leaves and find out what there is to read and see.	Child becomes conscious of possibility to make different animals with only one upper part. Counting the number of possibilities is a new activity. The child names every possibility and counts further.	5a Counting amounts	
		Thus the head of a pig (P) and the body of a dog (og) results in the animal Pog.	Could you find out which animals you can make, using only the head of the pig? Do you also know how many animals this are?	In the case of young children activity is usually too difficult. Counting systematically (5 + 5 + 5 + 5) often ends in turning over the leaves of upper and bottom part at the same time.	5a Counting amounts	
			Could you find out how many different animals you can make?	A possibility in presenting this to older children (6, 7 years old), is to write the numbers on paper. Marking in fives or per	5a Counting amounts	



- INSIGHT SCALES (under construction)**
- Marble Track 1
- The child:
- Realizes itself that a marble moves from top to bottom;
 - Is able to phrase this;
 - Is able to construct a simple track;
 - Is able to predict the track of the marble;
 - Observes that there three distinct building elements;
 - Show understanding of the properties of each of these elements;
 - Indicates that there is only one possible track;
 - Can construct a more complicated track or change an existing track with correct track prediction;
 - Can construct a reasonable complex structure based on conditions by another party;
 - Is able to explain the properties of the elements;
 - Can construct a complicated track and predict the track;
 - Can construct a complicated track based on conditions by another party;
 - Shows, in words or gestures, analytic/spatial competences by the ability to 'represent mentally' the only partly visible track;
 - Uses the elements properties when visualizing the track mentally.

- Why a 'dynamic' analysis?**
- To understand the child's exploratory activity and insight in a particular task
 - Based on the dynamics of the child-problem-adult triangle



FOCUS 2009 – 2010



- Network of relevant people and parties
- Talent-map and effect of interventions
- Talent development
- Variables that influence talent development
- Talent eliciting tasks and useful materials
- Output for & input from parents and professionals
- Activities for auditive and visually impaired children
- Scientific discussion on research methods
- Long term project 20/20 & 20

IDEAS 2011 onwards



- Experiments with Curious Minds at Daycare Centers, Primary Schools
- Pilot Studies about Parent's role
- Pilot Curious Minds Expertise center
- Professionalization activities
- Developments of new tasks
- Development of Frameworks for Triangle Instrument/Intervention/Child
- Continuation of Selected Research Subjects
- Dissemination through many media: TV, Newspapers, Magazines, Web, etc.
- Consequences of Research Outcomes (Feedback)
- Continuation of Infrastructure Building
- Inclusion of Flanders (for the project only)
- Internationalisation
- Etc.