

# Competencies in developmental assessment in young children



Design of an educational program  
based on whole-task learning

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Project received a **KU Leuven educational grant**, and performed in close collaboration with:

- Centre Environment and Health - Youth Health Care
- Centre for Developmental Disorders
- Academic Centre for General Practice
- Educational Support Office, Faculty of Medicine



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# Early identification of developmental disorders

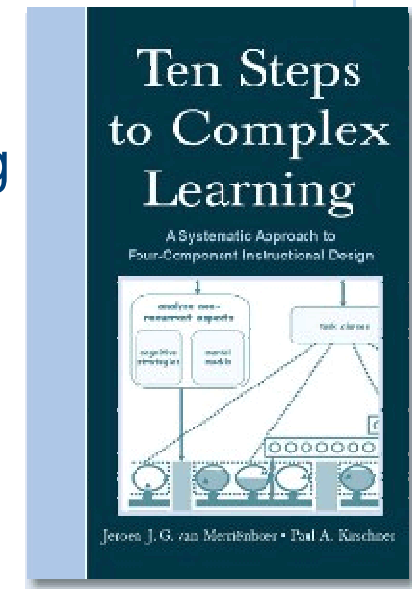
- Critical to the well-being of children and their families
- **Developmental surveillance** = part of every well-child preventive visit
  - **Assessment** of motor, sensory, mental and emotional maturation
  - **Detection, investigation and management** of children with abnormal development of these functions
- Development of a **specific learning environment** to develop these **competencies**



# The Four Component Instructional Design (4C/ID)-model

Guides the design of whole-task based learning environments:

- **Learning tasks**
  - Real-life, whole-task practice,
  - Organized in task classes with simple-to-complex sequencing
  - High variability of practice within each task class
  - Decrease of support and guidance per task within task class
- **Supportive information** (the theory)
  - Domain models, systematic approaches to problem solving
- **Procedural information** (the how to's)
  - Just-in-time information, step-by-step directions...
- **Part-task practice** (focused repetitive practice)

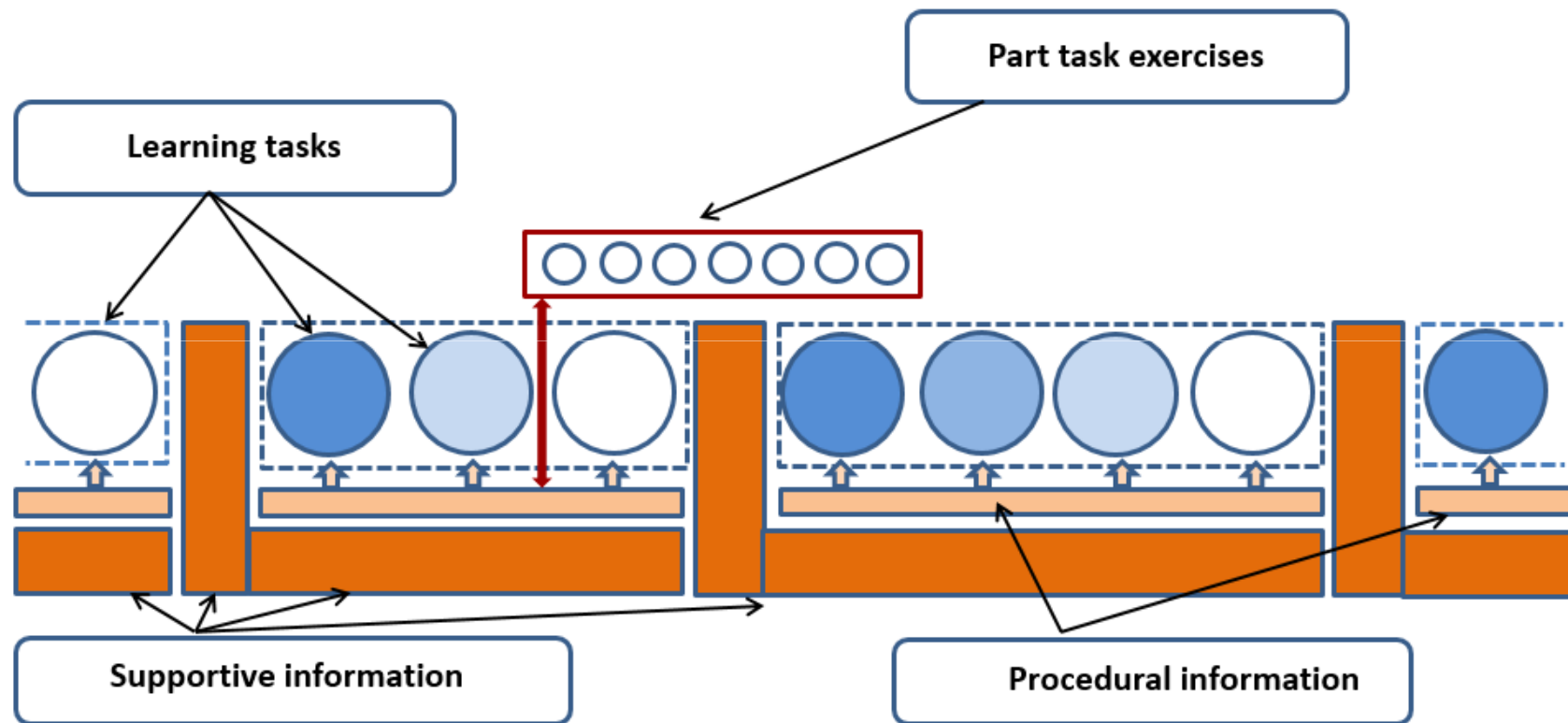


# Literature

- Van Merriënboer JJG, Clark RE, de Croock MBM. Blueprints for complex learning: the 4C/ID-model. Educational Technology, Research and Development 2002; 50(2): 39-64.



# The Four Component Instructional Design (4C/ID)-model

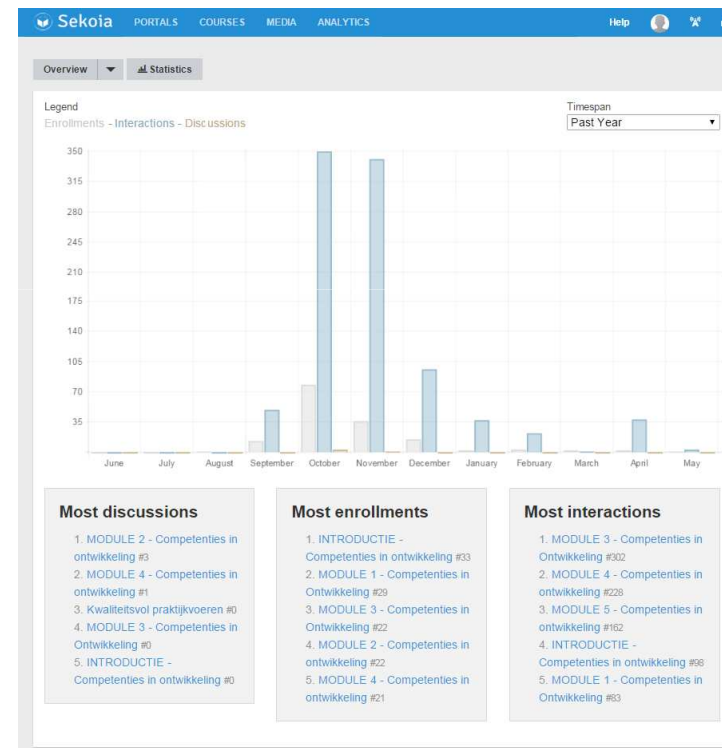
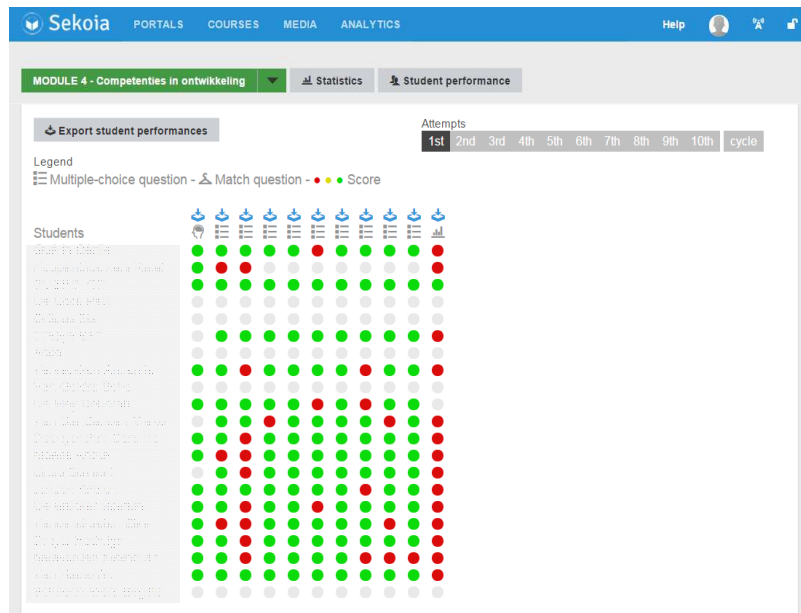


# Aims & methods (1)

- To **design** a prototype for a **4C/ID-based learning environment** in the training of Youth Health Care (YHC)
  - Derive **learning objectives** from YHC professionals' daily tasks
  - Develop **realistic authentic tasks** to stimulate learners to apply the relevant competencies
  - Define **supportive and procedural information** to solve the tasks:
    - Videos: demonstrate the variability of normal development and subtle signs of possible development disorders
    - Documents (outline, framework, summary, flow chart...)
  - Integrate everything in an **(attractive and user-friendly) electronic learning platform**

# Aims & methods (2)

- To **assess the applicability** of this learning environment (Sekoia<sup>©</sup>)
  - Electronic evaluation survey
  - Analytics of students' activities





# Literature

- Davis FD. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly* 1989; 13(3): 319–340.



# Design of the online learning environment 'Competencies in developmental assessment in young children'

- **Pilot version (2014-2015): 5 modules** including following topics:
  - Risk and protective factors of early childhood development
  - Parental contribution to developmental surveillance
  - Primitive reflexes, postural reactions, tonus and position
  - Fine and gross motor development
  - Evaluation of neuromotor function

- **Online demo**

<https://beta.sekoialearn.com/portal/manama-jgz-studenten>



# Program evaluation

- Pilot phase: **assessment of applicability** of the learning environment
  - Perceived usefulness
  - Perceived ease of use
- **Students online evaluation survey**
  - Use of learning environment (18 items)
  - Design and content (18 items)
  - Perceived learning effect (4 items)
- 14 of 15 registered students filled out online questionnaire



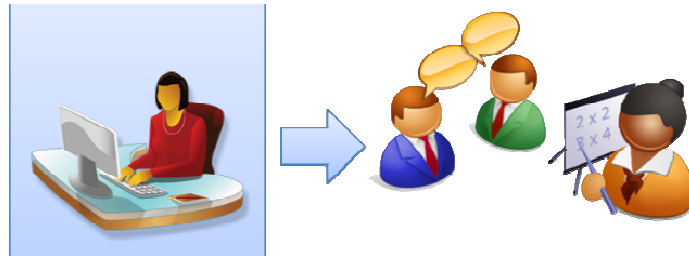
# Applicability assessment of program (1)

- **Most obvious added value** of online learning environment = **for exercises**
  - 69% students prefer online exercises to paper form
  - But 84% prefer reading printed document to on screen reading
- Most students confirm that the program:
  - **stimulates learning**
  - **challenges to solve real-life situations**



## Applicability assessment of program (2)

- All students report:
  - To have **learn a lot** on development of young children by following this program
  - **High satisfaction** about own progress on this theme
- Two third of the students report to be **better prepared when coming to the classes**
- Lower satisfaction about in depth education in the classes (cases discussion in group, opportunity to put questions...) → **Pay extra attention to coordinate well the classes on online learning environment**



# Conclusions

- A learning environment designed according to the **4C/ID model** contributes to the **acquisition of relevant competencies** in YHC
- Preliminary assessment of the learning environment 'Competencies in developmental assessment in young children' (pilot phase) shows its **applicability** in the training of YHC professionals



# Future



- Next phase:
  - **Design of additional modules** (implementation 2015-2016):
    - Speech and language development: multidimensional approach, milestones
    - Child speech and language development delay and disorders
  - **Migration** to new electronic learning platform (Sofia<sup>©</sup>)
  - **Thorough assessment of program learning process**
    - Teachers survey
    - Observation of classes
    - Relation between performances objectives, education program and reached competencies (by assessment of students' performances before and after following the learning program)