



Design & implementation of Blended Learning Simulation & Serious games

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The logo for Erasmus MC, featuring the text "Erasmus MC" in a bold, sans-serif font, with "Universiteit Medisch Centrum Rotterdam" in a smaller font below it. A stylized, handwritten-style "Erasmus" script is overlaid on the text.

Erasmus MC

Universiteit Medisch Centrum Rotterdam

Erasmus

Program

1: Designing process and examples

Mary Dankbaar

2: Implementation: simulation programs

Evelien de Schepper

3: Implementation: serious games

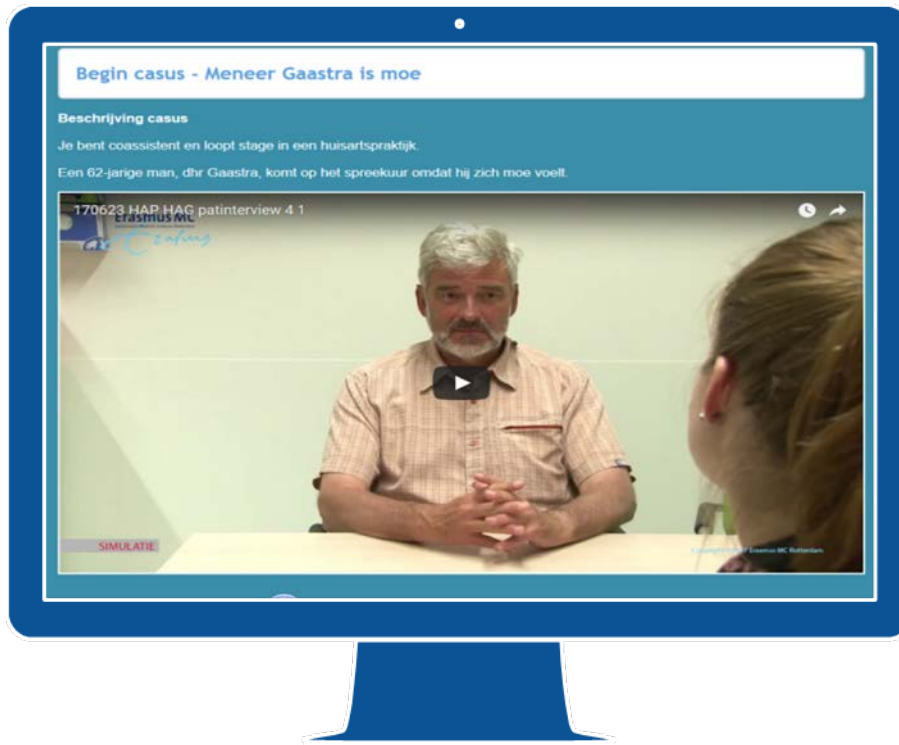
Gerrie Prins

4: Exchange of experiences

Simulation programs

Virtual
patients
to train

clinical
decision
making



- ▶ Computer program that simulates a realistic clinical scenario (Cook, 2009)



- ▶ Student is ‘a doctor’ and can follow steps: history – physical investigation – diagnosis – therapy

- ▶ Student’s choice affect the course of the scenario (branched structure)

- ▶ Basic knowledge needed - not too early in training (e-modules)

What is a virtual patient?

Why?

- ▶ More authentic, motivating
- ▶ Safer than working with real patients
- ▶ Cheaper than working with simulation patients, just as effective (Cook, 2010)
- ▶ More personalised learning
- ▶ Better variety in cases (illnesses & diversity in patients)



"OMG I killed the patient"

Team Digital Learning & Innovation

- ▶ Didactic advice on concept
(learning goals, guidelines from literature)
- ▶ Support in pilots, evaluation
- ▶ Support in authoring tool
(tool management, improvement interface, grading)
- ▶ Development of assignment system for students



Clinical reasoning:

Interaction with patient, collecting information, and determining optimal diagnosis and treatment.

Old
times



- ▶ Written case review
- ▶ Linear & steering
- ▶ Little emphasis on clinical reasoning
- ▶ Did not look like daily practice

Virtual patients

- ▶ Online patient case
- ▶ Realistic, non-controlled case
- ▶ Student can ask or investigate everything...
- ▶ But there is a time limit



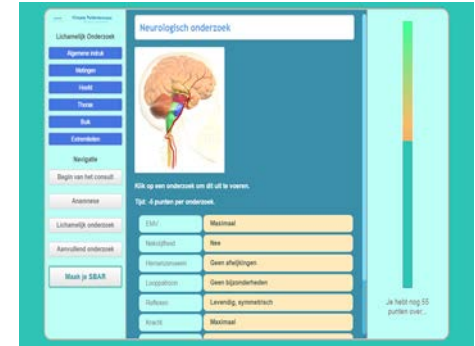
What do students learn?

- ▶ Efficient (time limit) and goal-oriented
- ▶ Decide on the basis of limited information
- ▶ Learning by means of making mistakes in a safe environment



Group sessions

- ▶ Presentation SBAR
- ▶ Then the whole group goes through the case interactively
- ▶ Analysing errors made (safe environment)
- ▶ Key questions / key examinations (manual teacher)
- ▶ Diagnosis and policy
- ▶ SBAR



Evaluation of implementation

▶ Students

- ▶ Great appreciation: 8.5 out of 10
- ▶ ‘Realistic, enthusiastic, triggers reflection instead of writing over large texts’

▶ Teachers (GPs)

- ▶ More fun, practical cases, sharing experiences
- ▶ Every lesson is different, attention for questions of the group
- ▶ Takes a lot of energy when group is less enthusiastic

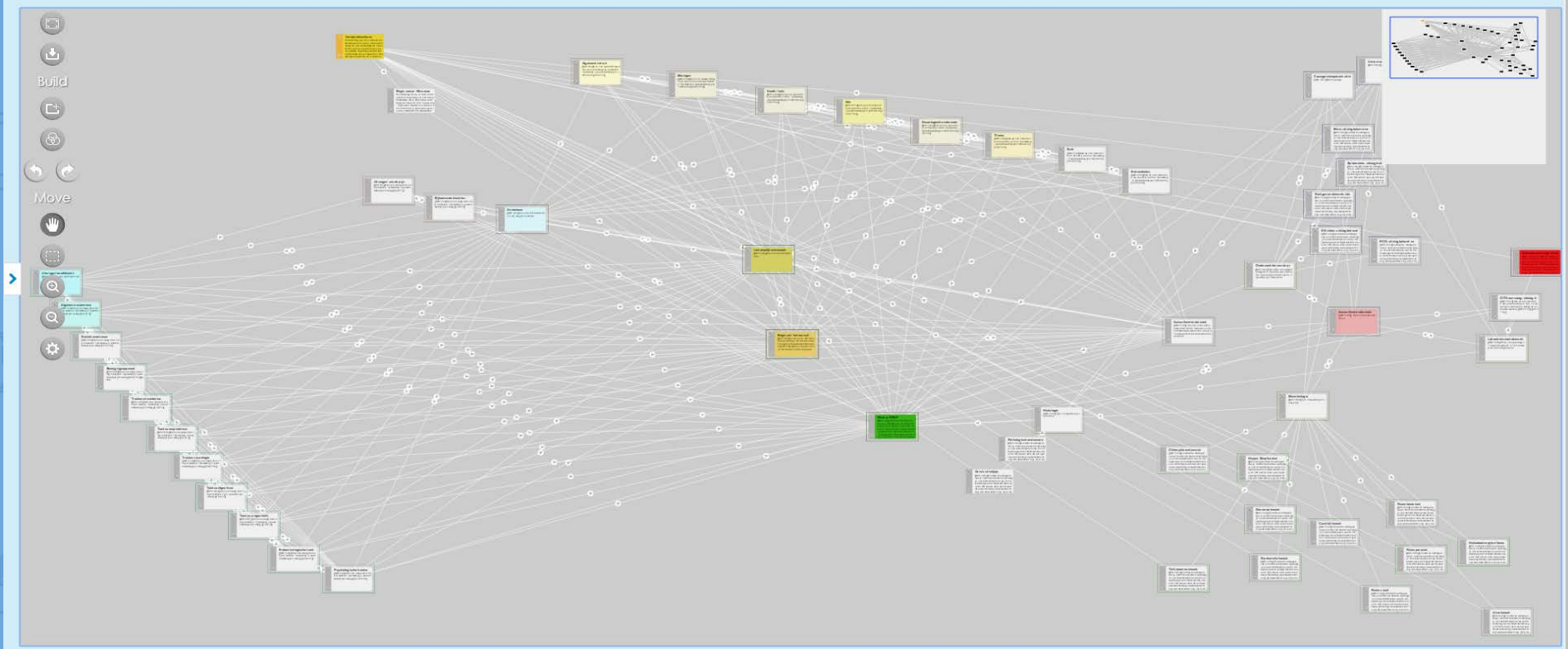
▶ Developers (GPs)

- ▶ Interesting work, more realistic

▶ But...

- ▶ Takes a lot of effort and time
- ▶ Bugs in OpenLabyrinth
- ▶ When something doesn't work... a little bit of panic

▶ Success: support!



At the
moment...

Future...

▶ At the moment

- ▶ Bachelor: 12
- ▶ Master: 17 → 40
- ▶ Internal medicine: 10

▶ Future plans

- ▶ Collaboration with other universities: Nijmegen
- ▶ Feedback fruits: students will give feedback on the SBAR of peers

▶ Questions ?

- ▶ e.deschepper@erasmusmc.nl

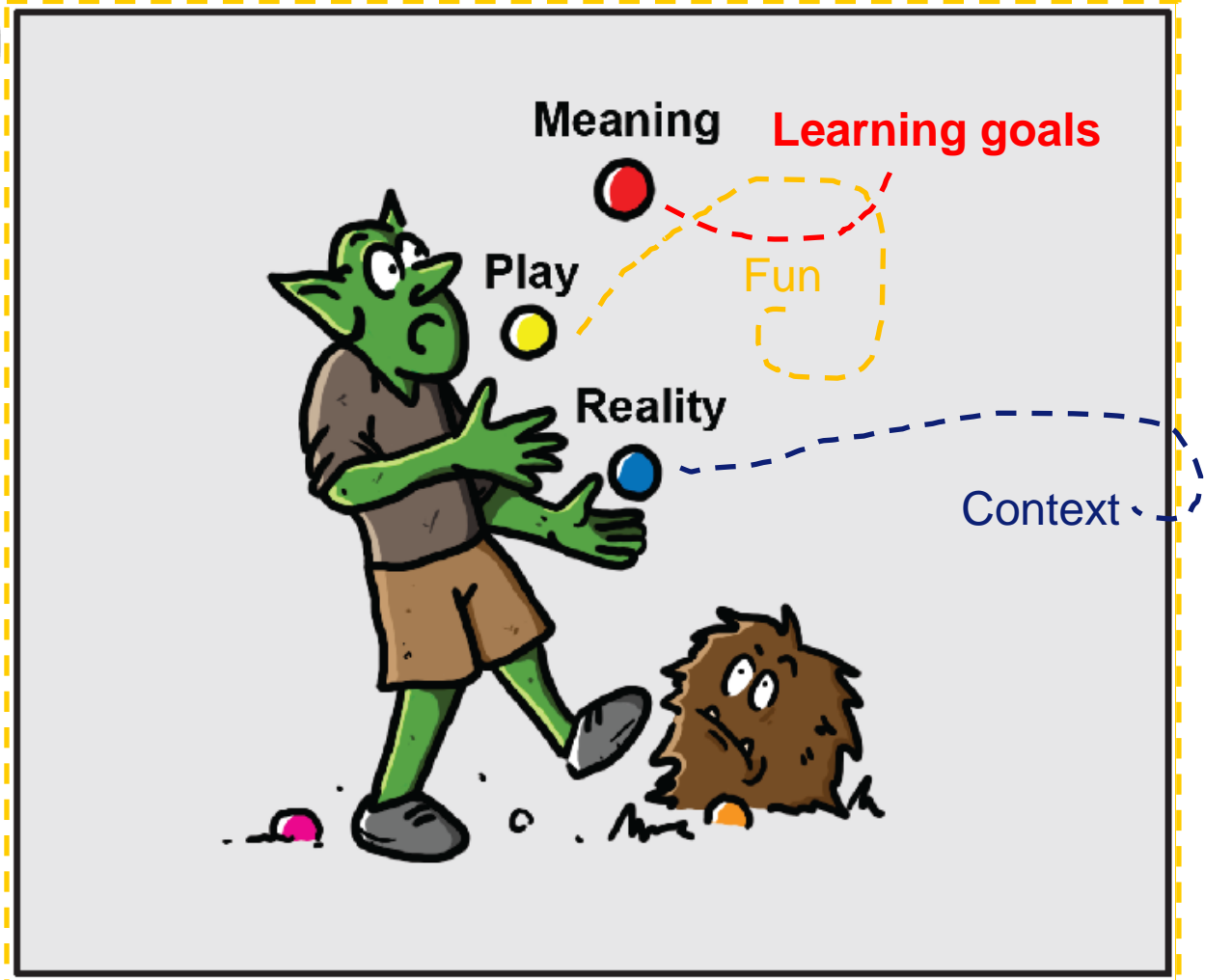
\\Serious games

Why?



- ▶ Serious games offer challenging, engaging and efficient learning
- ▶ Research: authentic tasks and experience learning are important
- ▶ Development of a simulation game to train emergency care skills (preparation f2f) for residents and students
- ▶ CC App: train in interpretation of heart and lung sounds

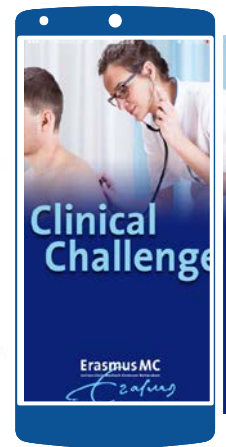
Designing Process





- Virtual ER with all instruments and medication
- Realistic tasks in 6 cases
- High level of interactivity (physiological model)

App Clinical Challenge



- ▶ Recognize heart and lung sounds
- ▶ Interpret sounds in a clinical context
- ▶ Competition



What? ABCDE-principle: treat first what kills first



Target population in Erasmus Medical Centre

- ▶ Residents
- ▶ Masterstudents medicine: preparatory period internship internal medicine week 7

Implementation
ABCDEsim game
in education

Evaluation..
Successes
and
challenges ?

- ▶ **Evaluation & Successes:** *residents excited, better prepared for (in-depth) hands on training, able to train all new residents (less time consuming), motivating*
- ▶ **Challenges:** adjust cases to level of students, develop cases for advanced scenariotaining



Exchange
of Idea's

Questions



Own experiences?

