Maastricht University Leading in Learning!

Instructional Design and Study Success in Higher Education

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CEL Innovation Room, 13 February 2015, Delft

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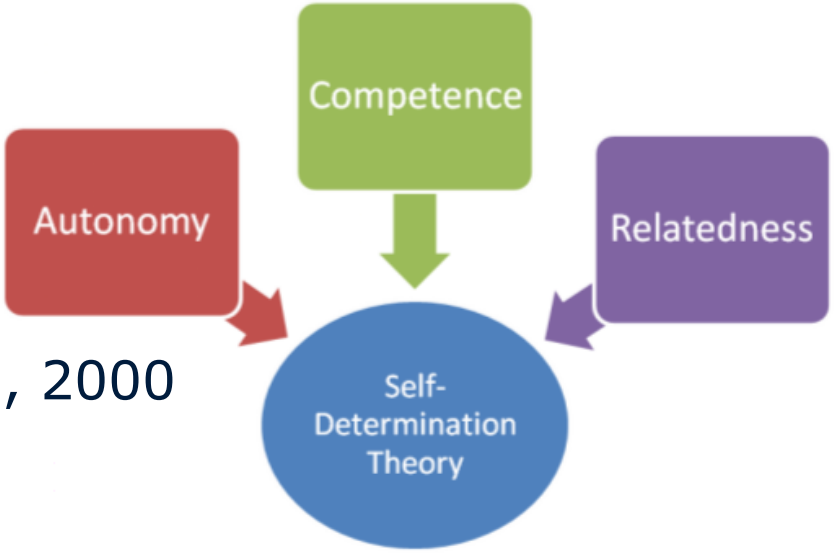


Ryan & Deci, 2000

- Motivation and drop-out
- *Competence*; designing learning tasks
- *Relatedness*; designing groups
- *Autonomy*; designing learner control
- Discussion & questions

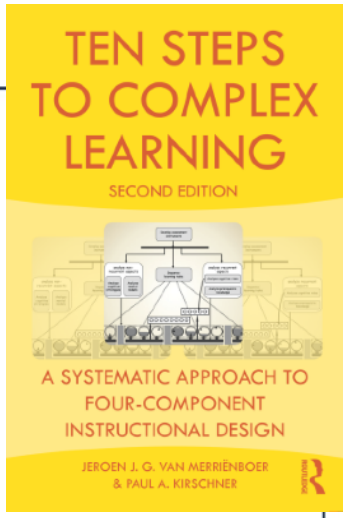
Motivation and Drop-Out

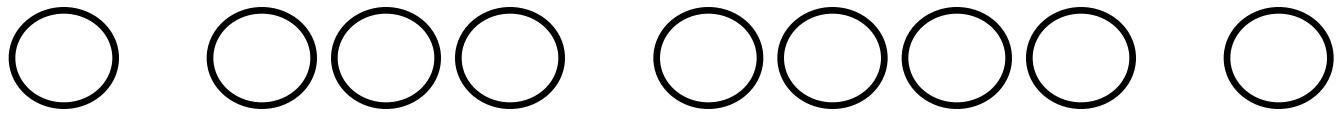
- Research based on SDT shows a relationship between low *intrinsic* motivation and high drop-out (e.g., Vallerand et al., 1997)
- Fortunately, instructional design may affect intrinsic motivation (Martens & Kirschner, 2006).

SDT - Competence

- "Students seek to control the outcomes of their learning process and experience mastery…"
- Learning tasks should be designed in such a way that they help students feel competent (also called "confidence"; Keller, 1983)

Learning Tasks (4C/ID)

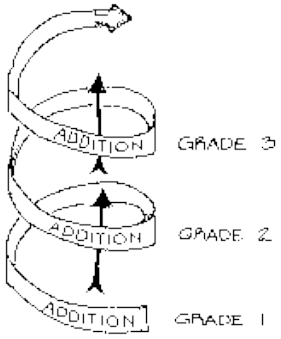


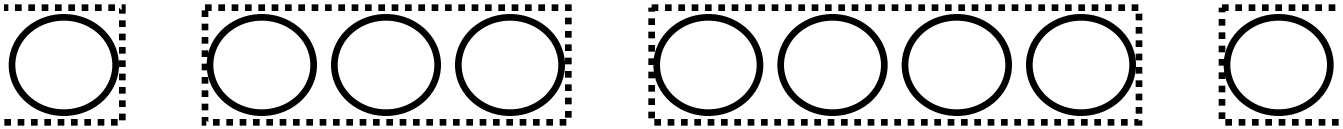


Problems, projects, tasks, assignments, cases etc.

- Often based on real-life tasks
- Integrative (skills, knowledge, attitudes)

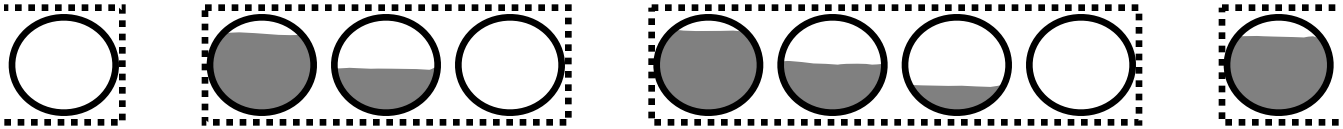
Levels of Complexity





- Sequence from easy to difficult
- Meaningful right from the start

Support and Guidance



- Zone of 'proximal development'
- Sawtooth pattern of support

Designing for Competence

- Ensure high intrinsic motivation of students by setting them tasks that
  - are relevant to their future profession or field of work
  - are challenging, i.e. not too simple but a little beyond their reach
  - provide just enough support and guidance to help them complete the tasks

SDT - Relatedness

- "the universal desire to interact, be connected to, and experience caring for others…"
- Groups in which students perform the learning tasks should be designed in such a way that they help students feel related and part of a 'community'

Small Group Work

- Problem-based learning
- Team-based learning
- Project-based learning
- *And so forth*

Impact of problem-based, active learning on graduation rates for 10 generations of Dutch medical students

Henk G Schmidt,[1] Janke Cohen-Schotanus[2] & Lidia R Arends[1,

Medical Education 2009: 43: 211–218
doi:10.1111/j.1365-2923.2008.03287.x

Year Groups

- At the UM, the composition of PBL groups changes each 10-week period
- As a result, students were seldomly in the same group with peers they already knew
- Year groups
  - With one "own" mentor
  - PBL groups composed from the year group

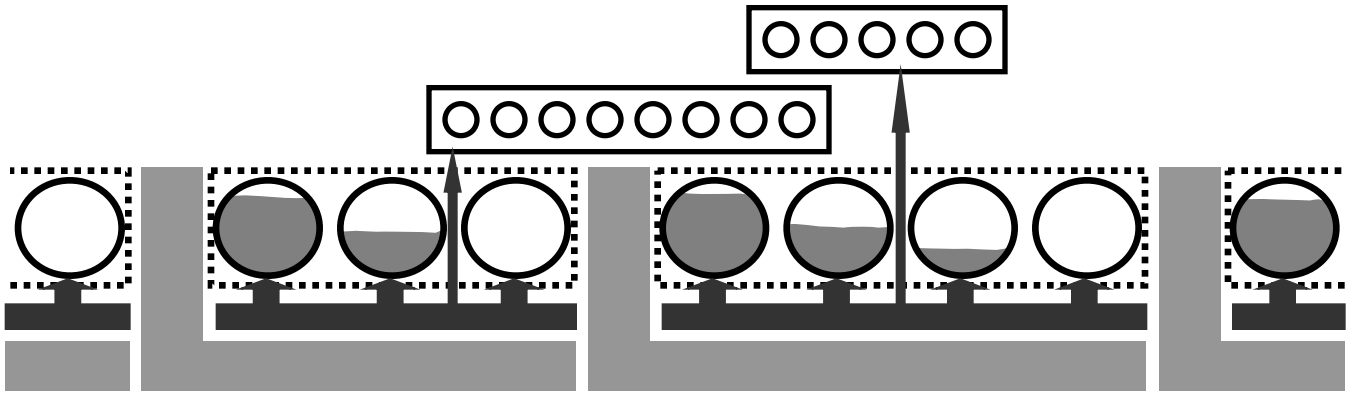
Designing for Relatedness

- Ensure high intrinsic motivation of students by organizing group work
  - That allows them to become and stay connected with fellow students and staff
  - That requires complementary contributions from all group members

SDT - Autonomy

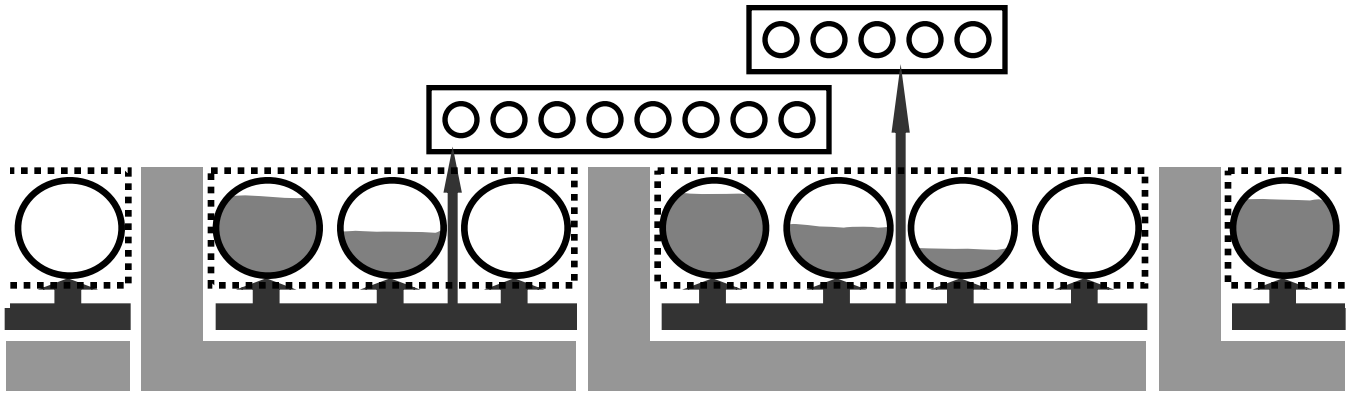
- "the universal urge to be causal agents of one's own life and act in harmony with one's integrated self…"
- Educational programs in which students operate should be designed in such a way that they give students (some) control over their own learning

Educational Programs Based on 4C/ID



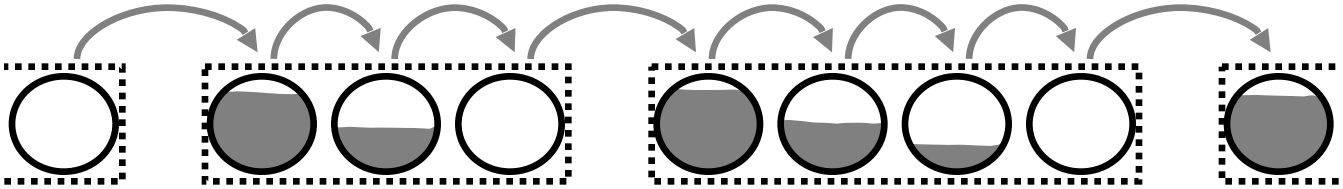
- Supportive information
- Procedural information
- Part-task practice

Resource-Based Learning



	Question posed by the student	Useful resources
Supportive information	**What should I study in order to be able to perform this task?**	**Textbooks, experts, Internet, multimedia, animations, microworlds etc.**
Procedural information	**How should I perform this -routine- aspect of the task?**	**Colleagues, manuals, quick reference guides, on-line help, EPSS, mobile devices etc.**
Part-task practice	**Which additional practice could improve my overall task performance?**	**Skillslab, drill & practice Computer Based Training (CBT), part-task trainers etc.**

Self-Directed Learning



- Students select own learning tasks
  - Right level of difficulty (task class)
  - Right level of help & support

Designing for Autonomy

- Ensure high intrinsic motivation of students by organizing learner control so that
  - students can select their own learning resources
  - Or even their own learning tasks
  - But they are explicitly *taught* how to do this in a responsible way ("second-order scaffolding")

Discussion

- SDT as a theoretical basis for improving intrinsic motivation and reducing drop-out
- Fits nicely with design guidelines from 4C/ID – also relates to student satisfaction (e.g., Frick et al., 2009)
- *Disclaimer:* Available studies are mostly correlational and do not yet provide strong evidence