

CREATIVE COMMONS



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leren in een online of blended vak – 25-03-2022**



Versnellingsplan
Onderwijsinnovatie
met ICT

Samenwerkend leren

Ferdi Engels & Karin Rebel

Faculty of Science, Dept. of Pharmaceutical Sciences
Faculty of Geosciences, Copernicus of Sustainable Development

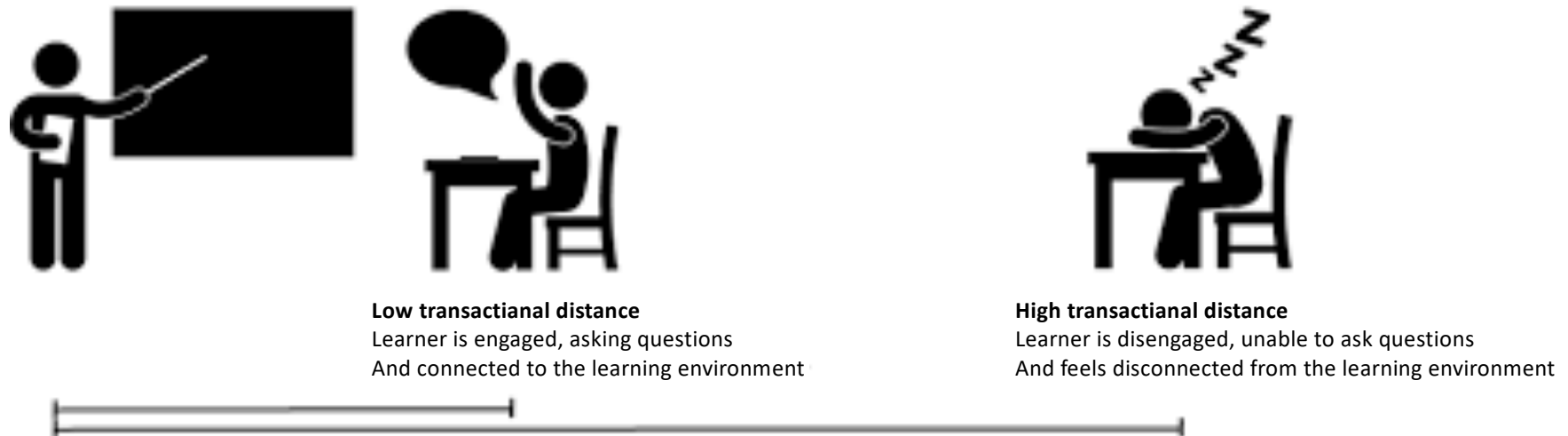
Online collaborative learning, 2 key concepts:

Transactional Distance (Moore, 2013)

Community of Inquiry (Garrison et al., 1999; Arbaugh et al., 2008)

Transactional Distance (Moore, 2013):

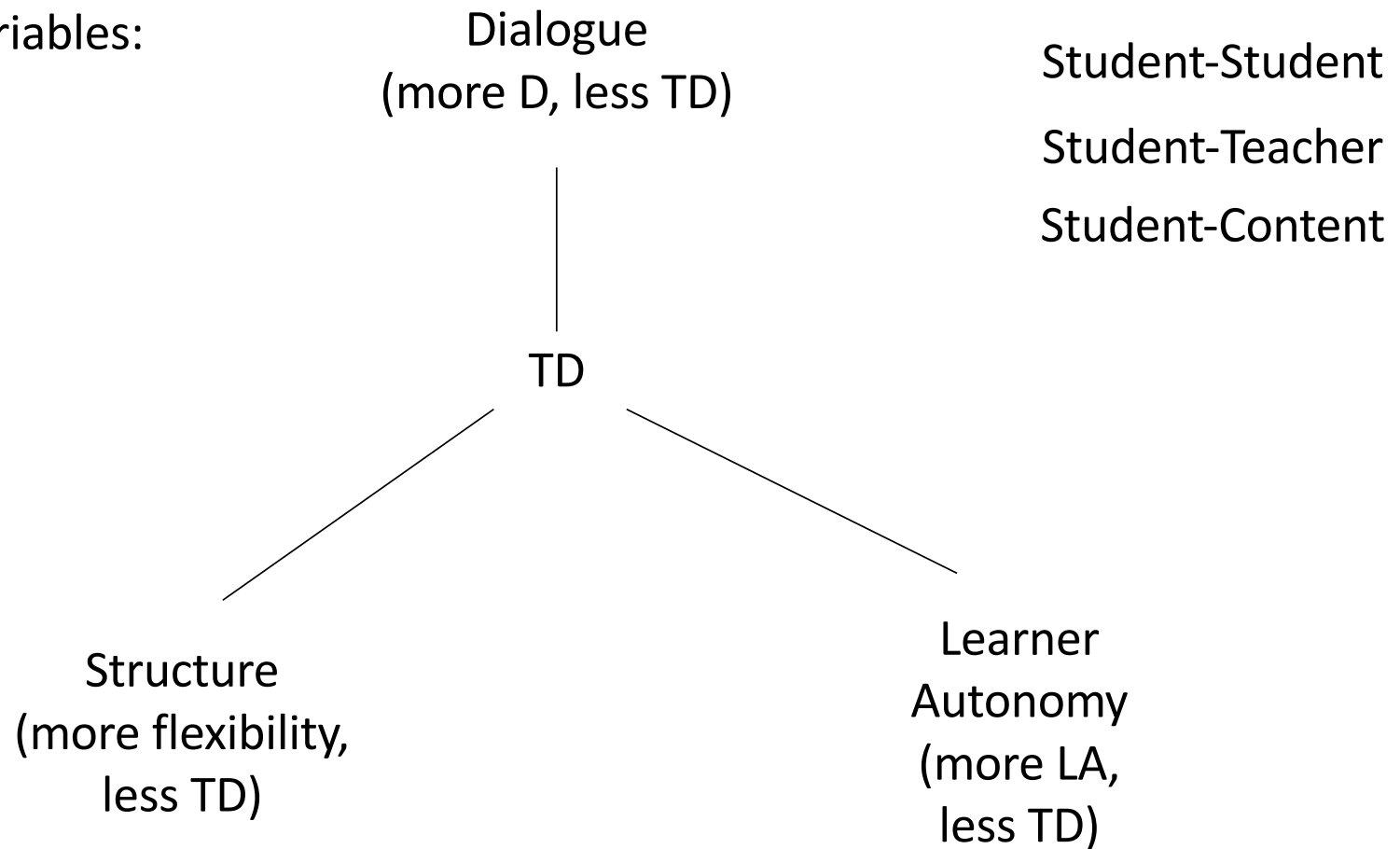
Psychological and communication distance between teachers and learners



Transactional Distance (Moore, 2013):

Relates three variables:

(Nwankwo, 2013)

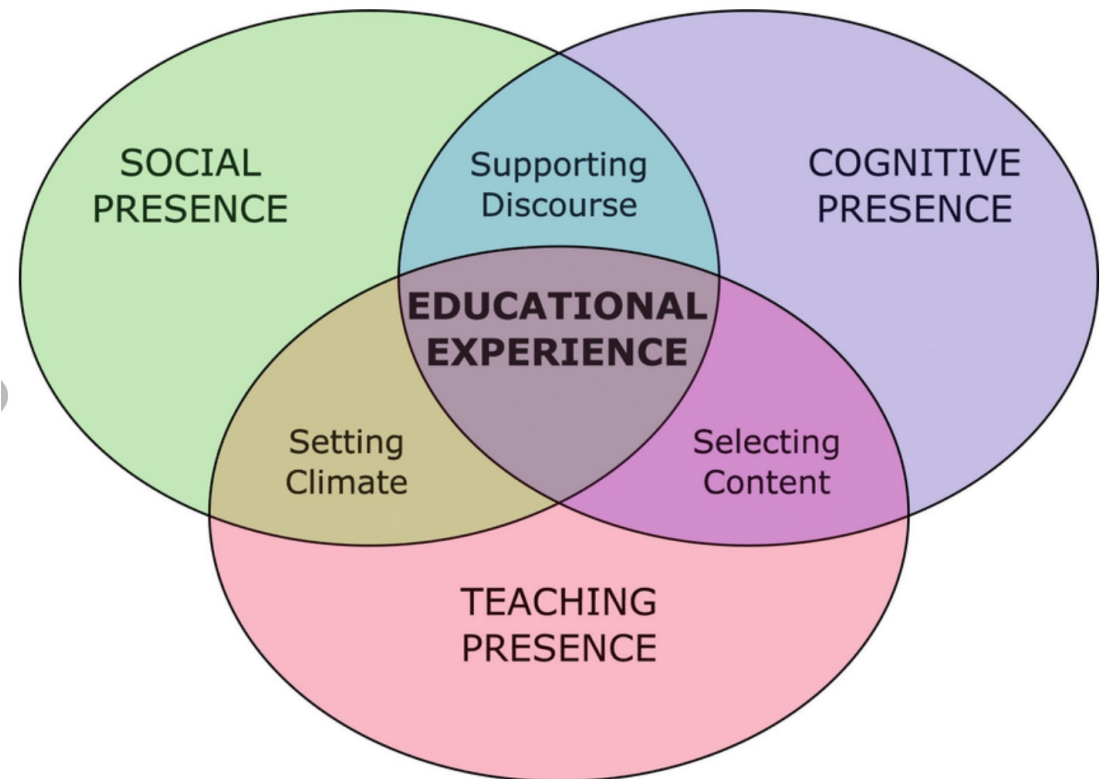


Community of Inquiry (Garrison et al., 2000):

Teaching presence directly influences perceptions of social and cognitive presence

Social presence mediating between cognitive and teaching presence

(Garrison et al., 2010)



Exploring Pathways towards Interdisciplinary, Inter-University Teaching and Learning

J. Kasch, F.W. Van Dam, M.C. Bootsma, A.F. Kirkels, M.K. Van der Molen, F.J.
Prins, A. Rimac, V.A.J.M. Schutjens and K.T. Rebel

Inter-University Sustainability Challenge (Geo2-2006)

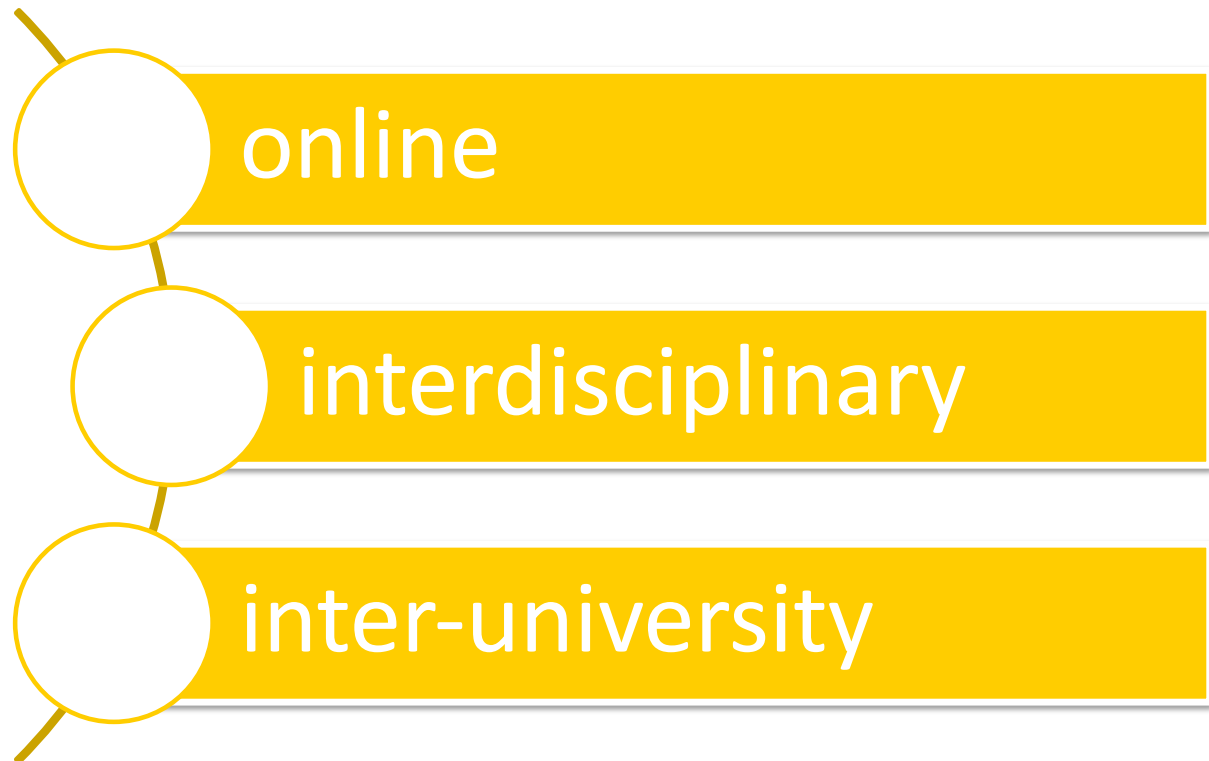


UU: Karin Rebel, Julia Kasch, Frans van Dam, Margien Bootsma (Veronique Schutjens & Frans Prins)

WUR: Michiel van der Molen, Antonija Rimac

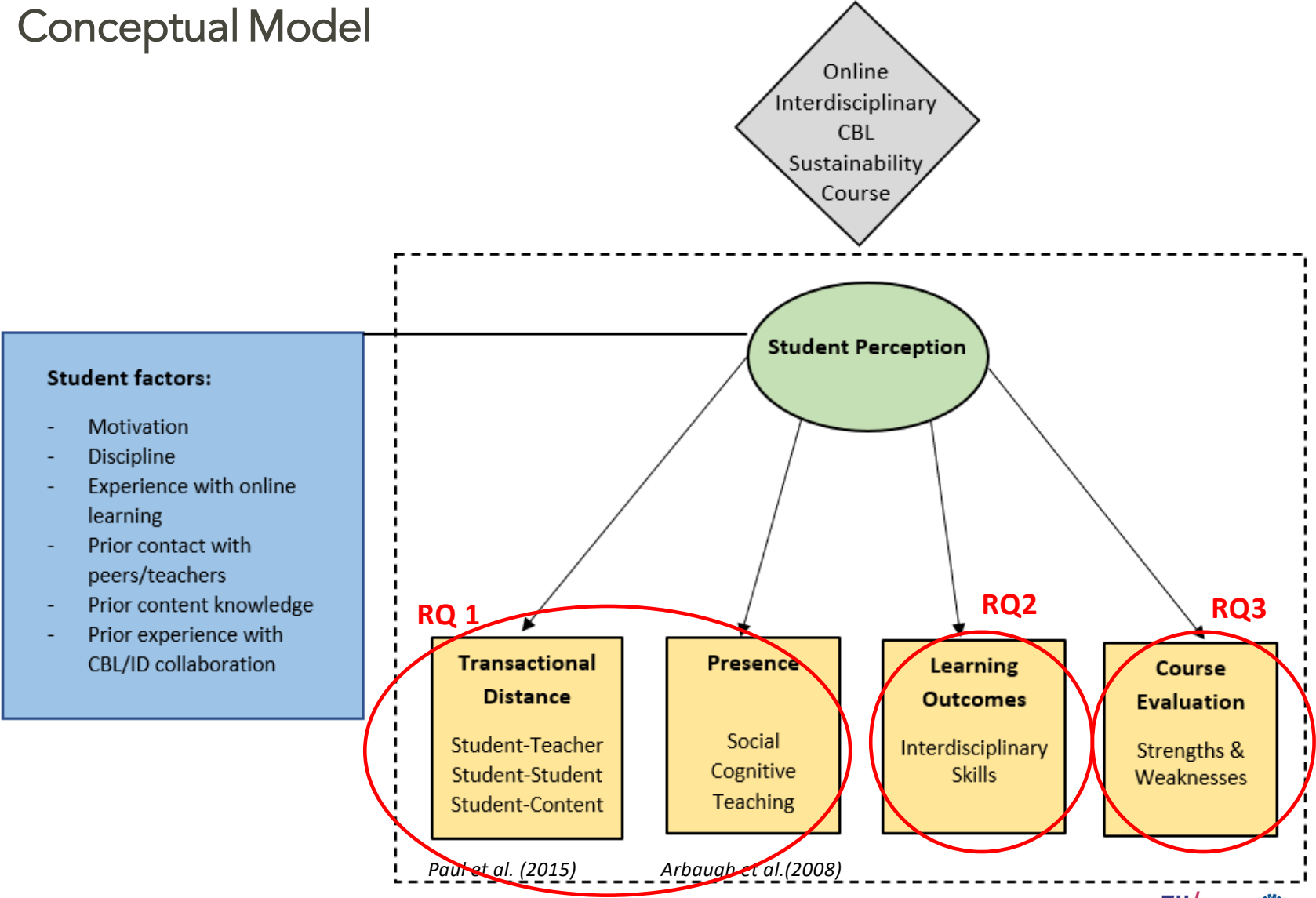
TU/e: Floor Alkemade, Arjan Kirkels

Innovative Study Context



UU: Karin Rebel, Julia Kasch, Frans van Dam, Margien Bootsma (Veronique Schutjens & Frans Prins)
WUR: Michiel van der Molen, Antonija Rimac
TU/e: Floor Alkemade, Arjan Kirkels

Conceptual Model



3 Research Questions

- 1)** How do students enrolled in an online interdisciplinary, challenge-based course perceive transactional distance and presence?
- 2)** Which interdisciplinary skills do students perceive to have developed in an online, interdisciplinary CBL course on sustainable cities?
- 3)** Which strengths and weaknesses do students perceive of an online interdisciplinary CBL course on sustainable cities?

The course: Inter-University Sustainability Challenge

Runtime of the course: 10 weeks (started February 8th 2021)

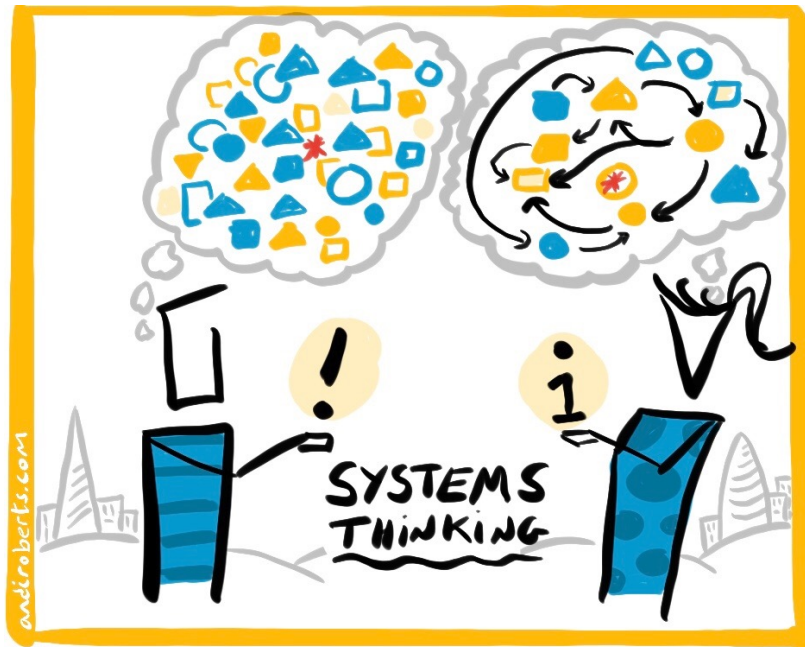
UU:	7	} 23 students
TU/e:	14	
WUR:	2	

Course topic: Sustainable City of the Future (focus Amsterdam):

- (1) Energy Transition
- (2) Air Quality
- (3) Urban Agriculture



Inter-University Sustainability Challenge



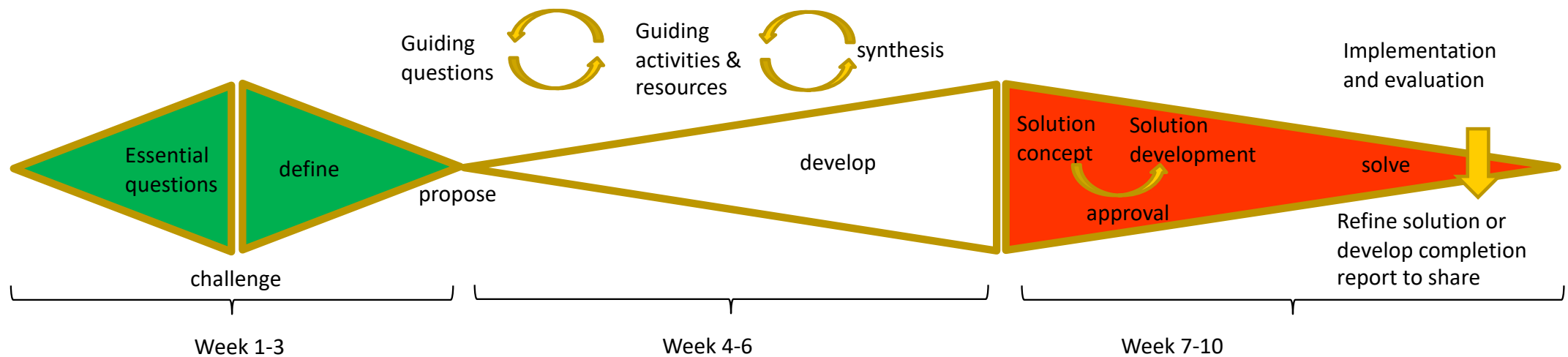
Online artifact building (Tygron & Minecraft)

Pedagogical Approach in the Course: Challenge-Based Learning (CBL)



- Driven by real-life, open ended, complex challenges (e.g. wicked problems)
- Student driven
- Student-teacher co-learning
- Interdisciplinary & Transdisciplinary learning

<https://www.challengebasedlearning.org/>



Engage - explore			Investigate – analyze			Act and developing on solutions			
week 1-3			Week 4-6			Week 7-10			
Challenge presented by client	Futuring	Research and design tools, systems thinking	Diversity and inclusion lecture	SDGs and role of cities	Worldview journey	Further develop solution	Work on peer feedback	Revise, work on paper	
Literature research, defining the problem	Role visualization & start proposal	Research and methods practical	Feedback proposal, start guiding questions	Game Utrecht2040	Group session, where do you stand	develop solution	Draft paper (peer) feedback	Deadline paper & visualisation	Presentations including stakeholder
Concept map	Work on proposal	Finalizing proposal	Start executing proposal	Discuss first results	Synthesize first results	Draft paper	Discuss and incorporate feedback		Personal evaluation report

Challenge-Based Learning in the Virtual Classroom



Synchronous Online Teaching

- Virtual Classroom
 - Interactive online teaching and learning
 - Functionalities: screen sharing, whiteboard, polls, quizzes, hand raising, break-out rooms

Asynchronous Online Teaching

- MS Teams -> coaching & workshops
- Brightspace -> course platform

1) How do students enrolled in an online interdisciplinary, challenge-based course perceive transactional distance and presence?

Our expectations:

- Low perceptions of transactional distance
- High perceptions of presence
- Significant differences in perception between pre- and post for both transactional distance and presence

Research Methods



N = 16

Questionnaires

- Pre- and post
- Transactional Distance
- Presence



Observations

- VC lectures



N = 15

Reflection papers

- Assignment at the end of the course
- max. 2000 words



N = 3

Interviews

- At the end of the course

1) How do students enrolled in an online interdisciplinary, challenge-based course perceive transactional distance and presence?

Expectations	Reality / Data
1. Low perceptions of transactional distance	Yes
2. High perceptions of presence	Yes
3. Significant difference between pre- and post-test perceptions	Partly true. -> (small) Significant increase in perceived student-student transactional distance

Positive Student Perceptions of the Virtual Classroom

Closest to real life classroom

More engaging and interactive than MTeams

More active

Teacher is enjoying teaching reads less from the power-point

You see the whole lecturer

I was able to see my fellow students even though it was online

I can concentrate better

Conclusions

- 1) How do students enrolled in an online interdisciplinary, challenge-based course perceive transactional distance and presence?**

On average they have positive perceptions. Low distance and high presence.



**Utrecht
University**

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shaping tomorrow