

Assessing learning in MOOCs through interactions between learners

Francis Brouns & Olga Firssova

Technology Enhanced Assessment Conference 2018

Amsterdam, December 10, 2018

Welten Institute

Research Centre for Learning, Teaching and Technology

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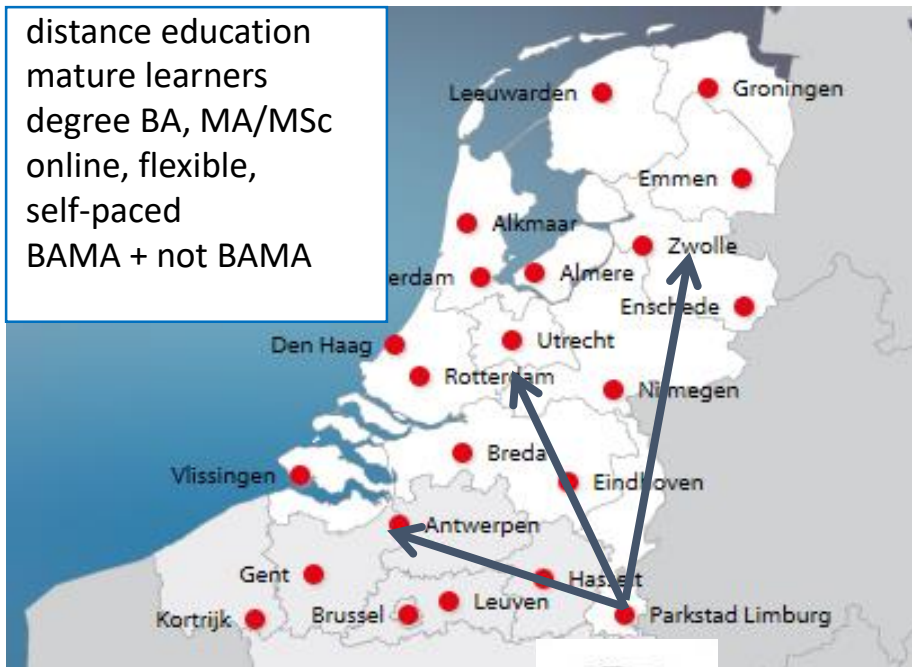
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olga.firssova@ou.nl [@firssova](https://twitter.com/firssova)

Context

distance education
mature learners
degree BA, MA/MSc
online, flexible,
self-paced
BAMA + not BAMA

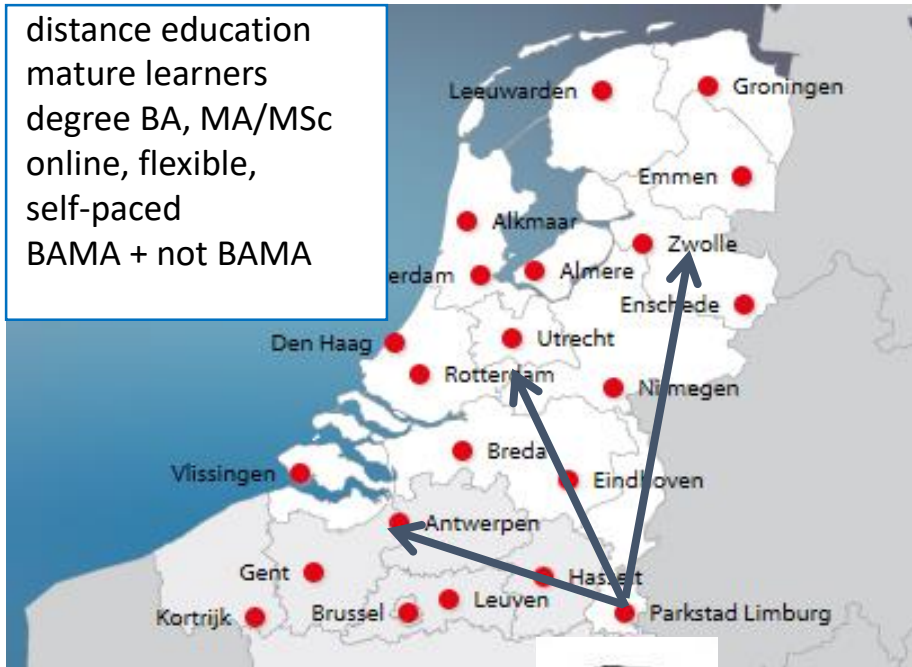


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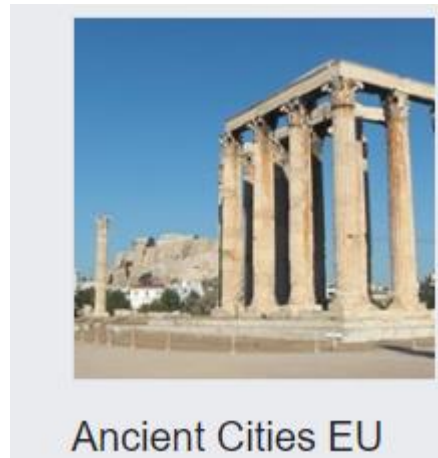
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THE STRUCTURATION OF OPEN ONLINE EDUCATION IN THE NETHERLANDS



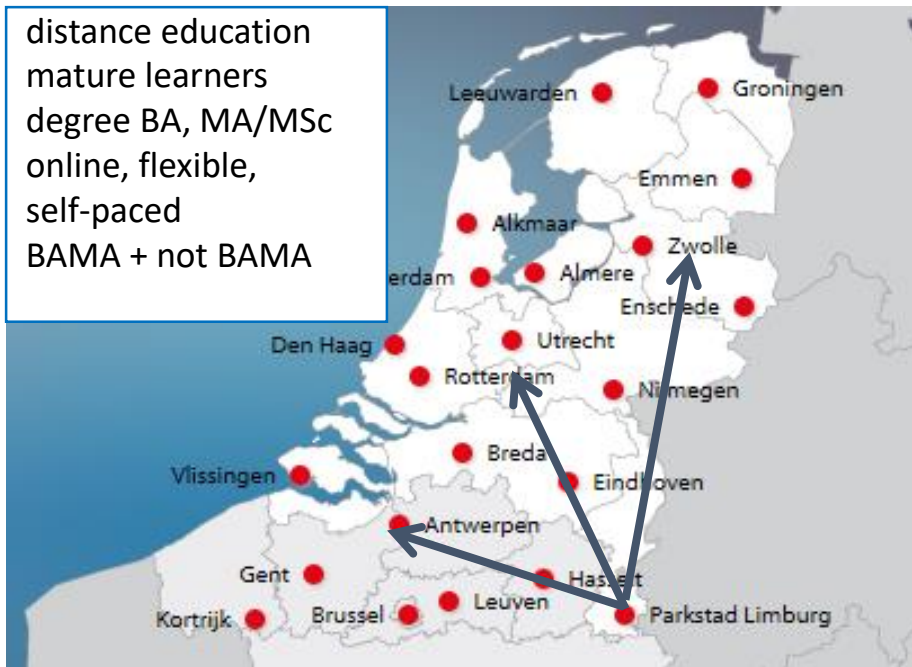
EUROPEAN
MULTIPLE
MOOC
AGGREGATOR



Ancient Cities EU

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LEREN LEREN: Waarom is het zo moeilijk om beslissingen over je toekomst te nemen?

Universiteit van Nederland • 32K views • 1 year ago

Weet jij nog wat je vroeger wilde worden? En nu dan? Beslissingen nemen over je toekomst is verschrikkelijk lastig. Prof. dr. Marinka Kuijpers (OU) vertelt je in dit college hoe dat komt, maar geef...



LEREN LEREN: Wat moet je de dag voor je tentamen doen behalve leren?

Universiteit van Nederland • 49K views • 1 year ago

Neuropsycholoog Jérôme Gijselaers (OU) neemt in dit college je agenda over en vertelt je tot op het u nauwkeurig wat je het beste kunt doen op de dag vóór je tentamen. En nee, dat is niet alleen ...



LEREN LEREN: Waarom kun jij je gele markeerstift beter weggooien als je écht iets wil leren?

Universiteit van Nederland • 96K views • 1 year ago

Ken je ze? Die samenvattingen die met roze, gele én oranje markers zijn bewerkt en waarin je in een oogopslag ziet wat nou écht belangrijk is? Nou, zo effectief is dat dus niet. Volgens psycholoog ...



LEREN LEREN: Kun je nou beter wel of niet multitasken?

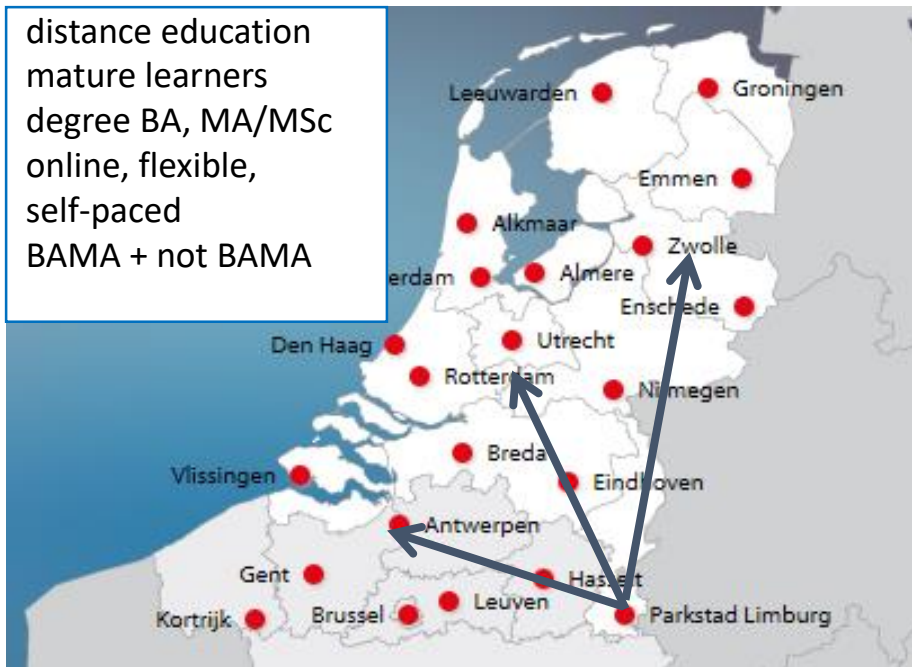
Universiteit van Nederland • 15K views • 1 year ago

Vrouwen kunnen goed multitasken en mannen moeten zich vooral op één taak tegelijkertijd richten. Prof. dr. Paul A. Kirschner (OU) maakt voor eens en voor altijd korte metten met dit cliché en toont...



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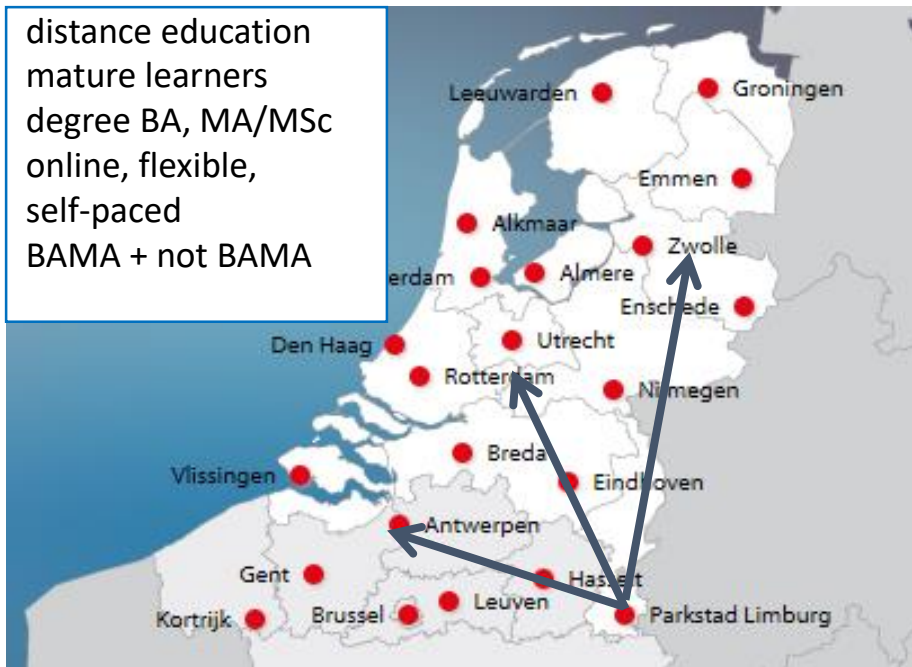
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OUNL
CT2018
Computational Thinking for Teachers

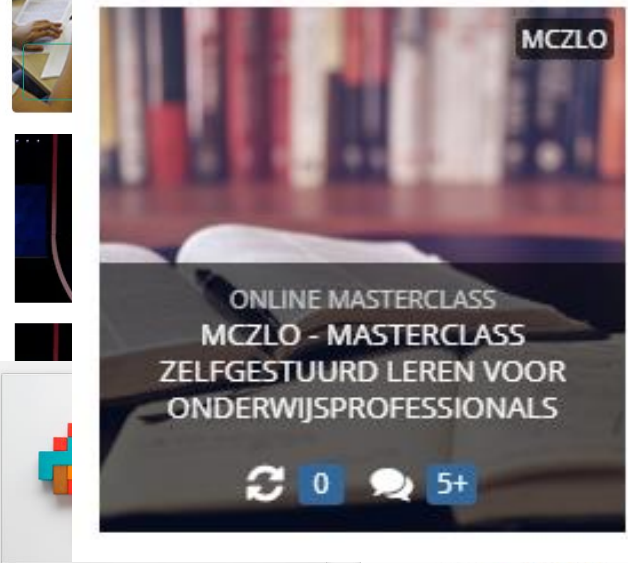
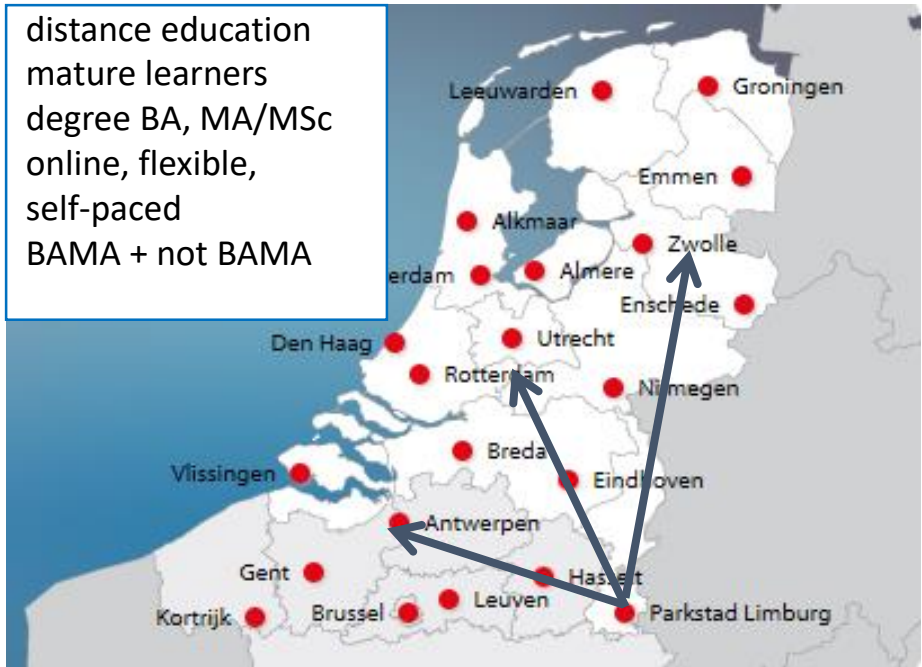
OUNL
PBLA18
Problem-Based Learning and Learning Analytics: How to combine?

OUNL
SLC1
Seamless Learning

OUNL
Viewbrics
Leren en toetsen met Viewbrics

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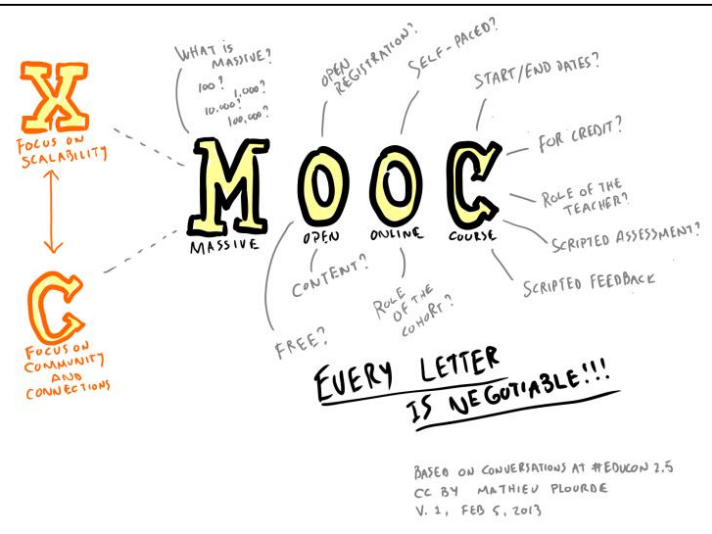
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Context



ewbrics



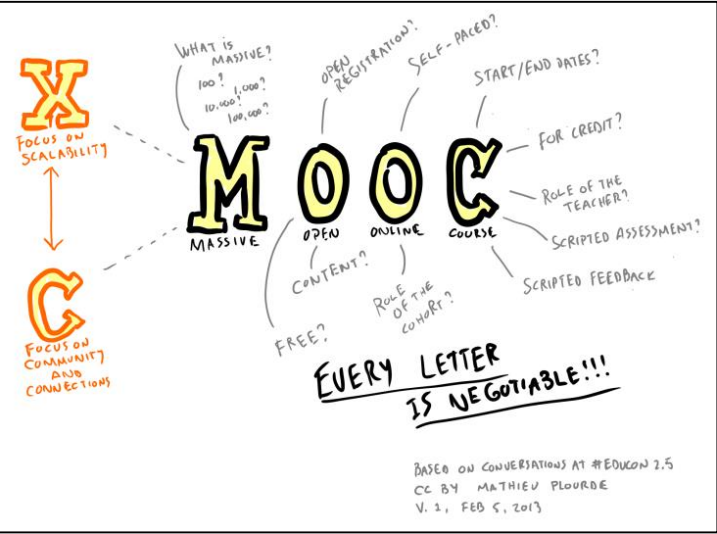
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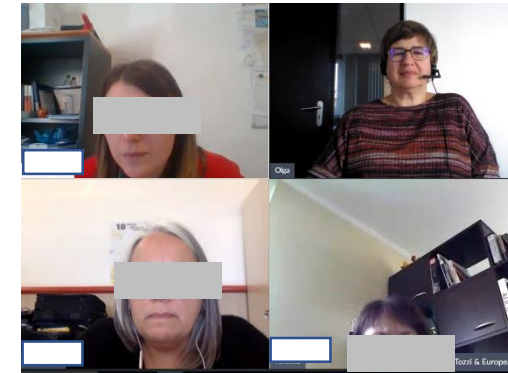
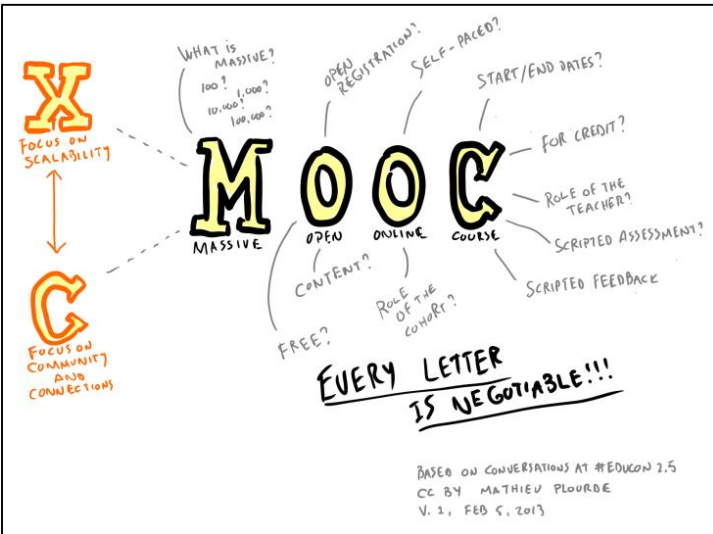
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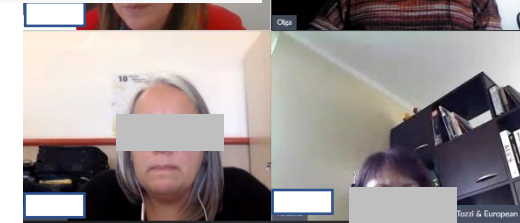
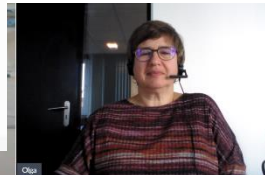
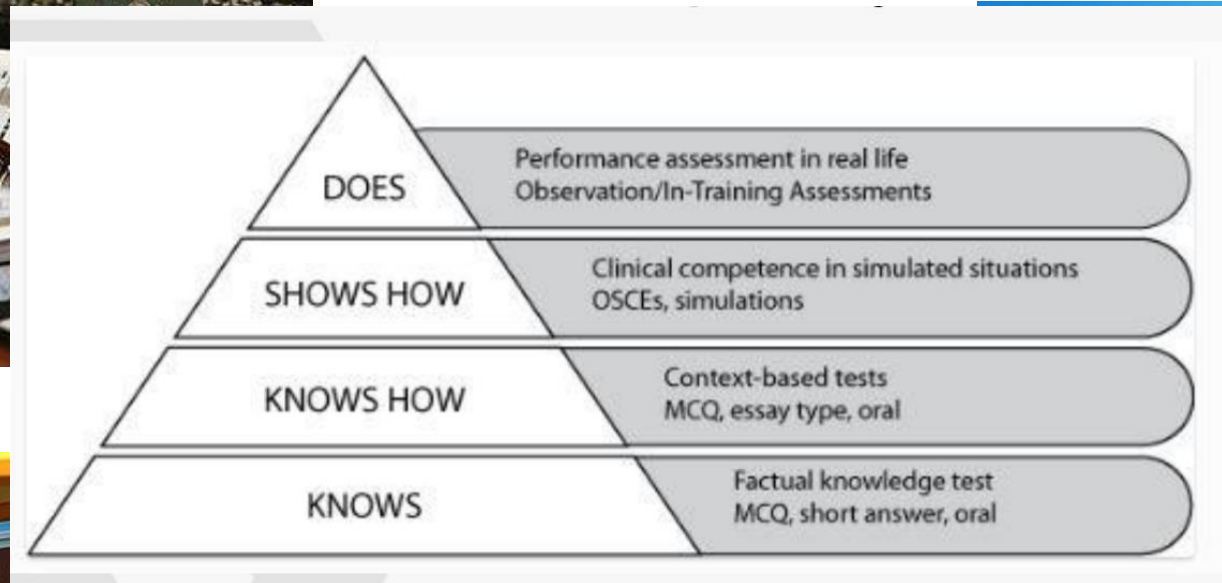
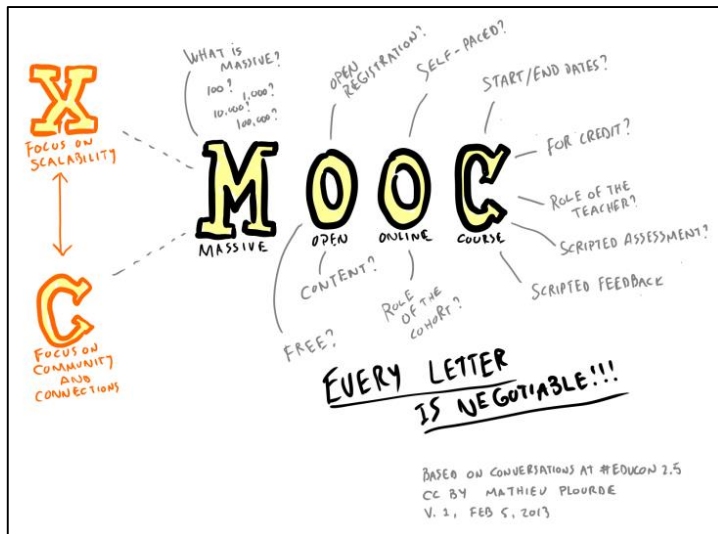
Context



Context



Context



Miller's pyramid of Assessment (based on Kasch, van Rosmalen en Kalz, 2016)

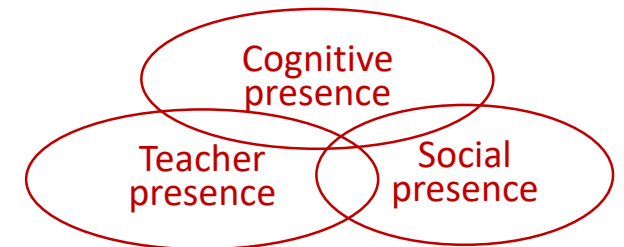
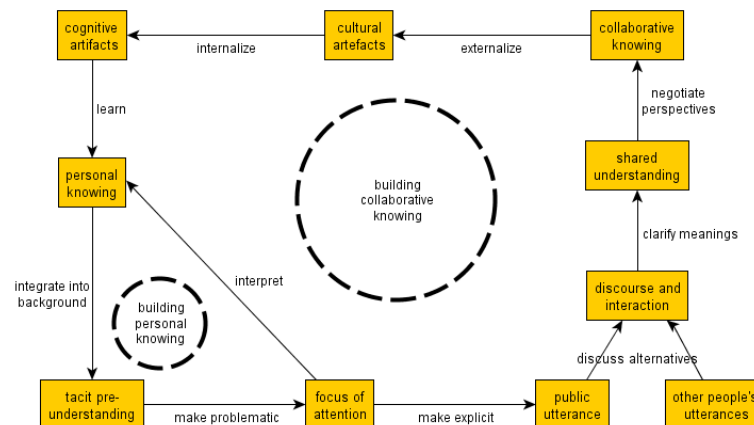
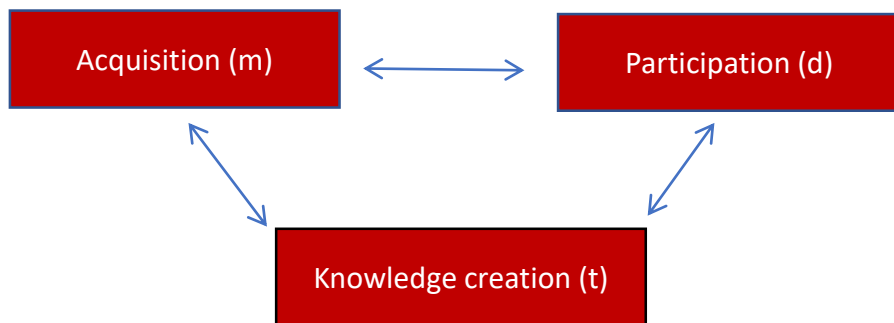


MOOC learning and assessment

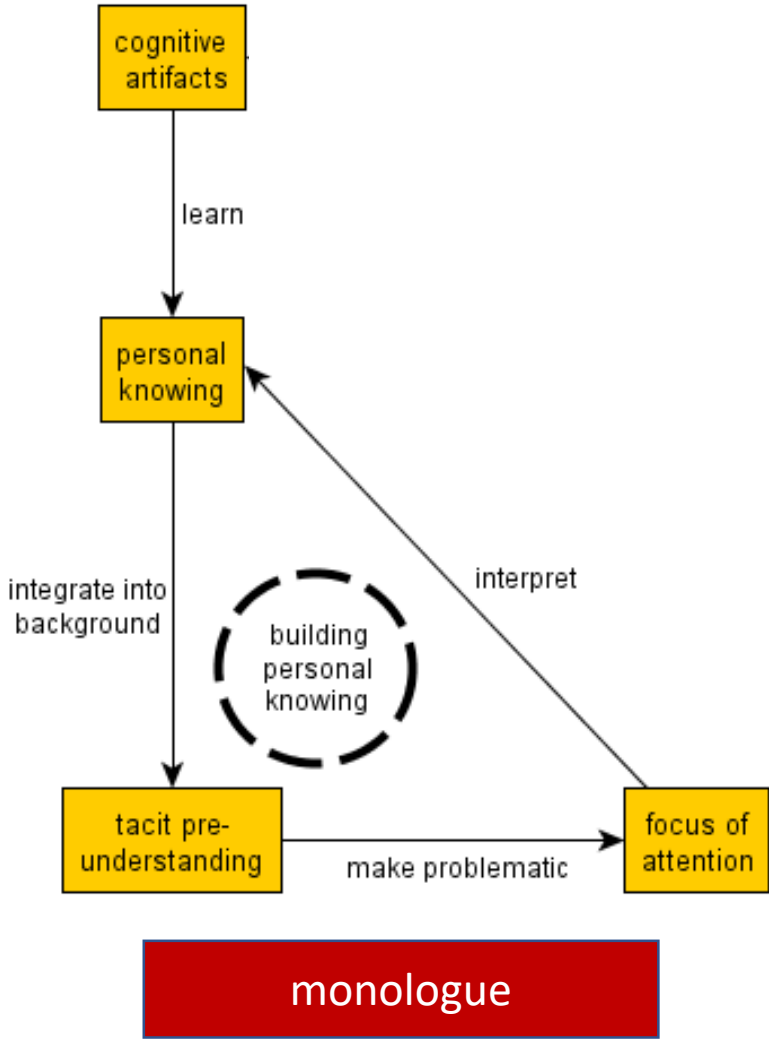
- A better understanding of the concept of MOOC learning
- Indicators of MOOC learning through exchange and co-construction of knowledge in interaction
- Input for (semi-) automated assessment of MOOC learning

Theoretical framework

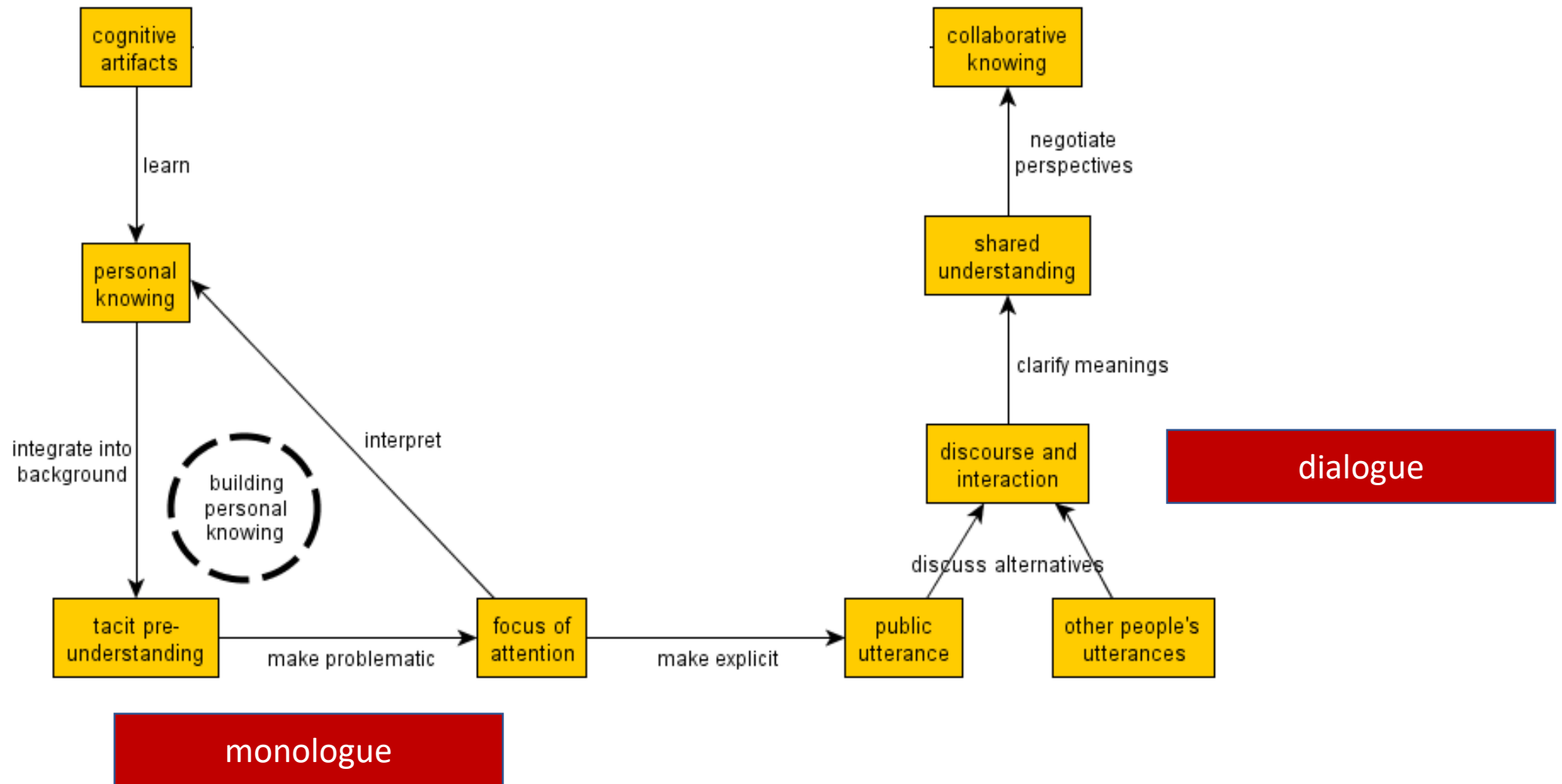
- Knowledge creation metaphors: monologue, dialogue, triologue (Paavola and Hakkarainen, 2005)
- Personal vs collaborative knowledge construction (Stahl, 2006)
- Community of inquiry model (Garrison, Anderson and Archer, 2001)



Theoretical framework

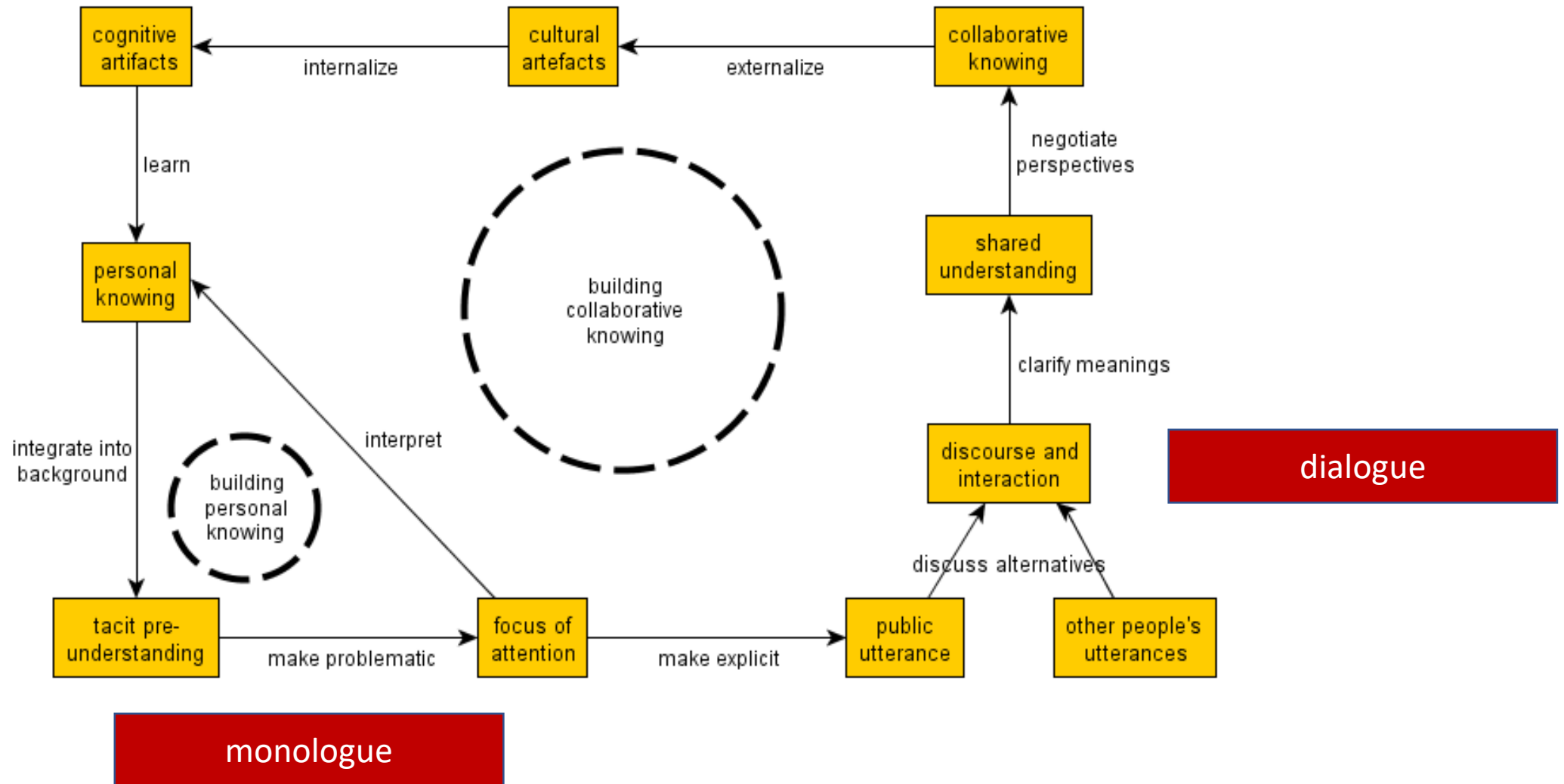


Theoretical framework



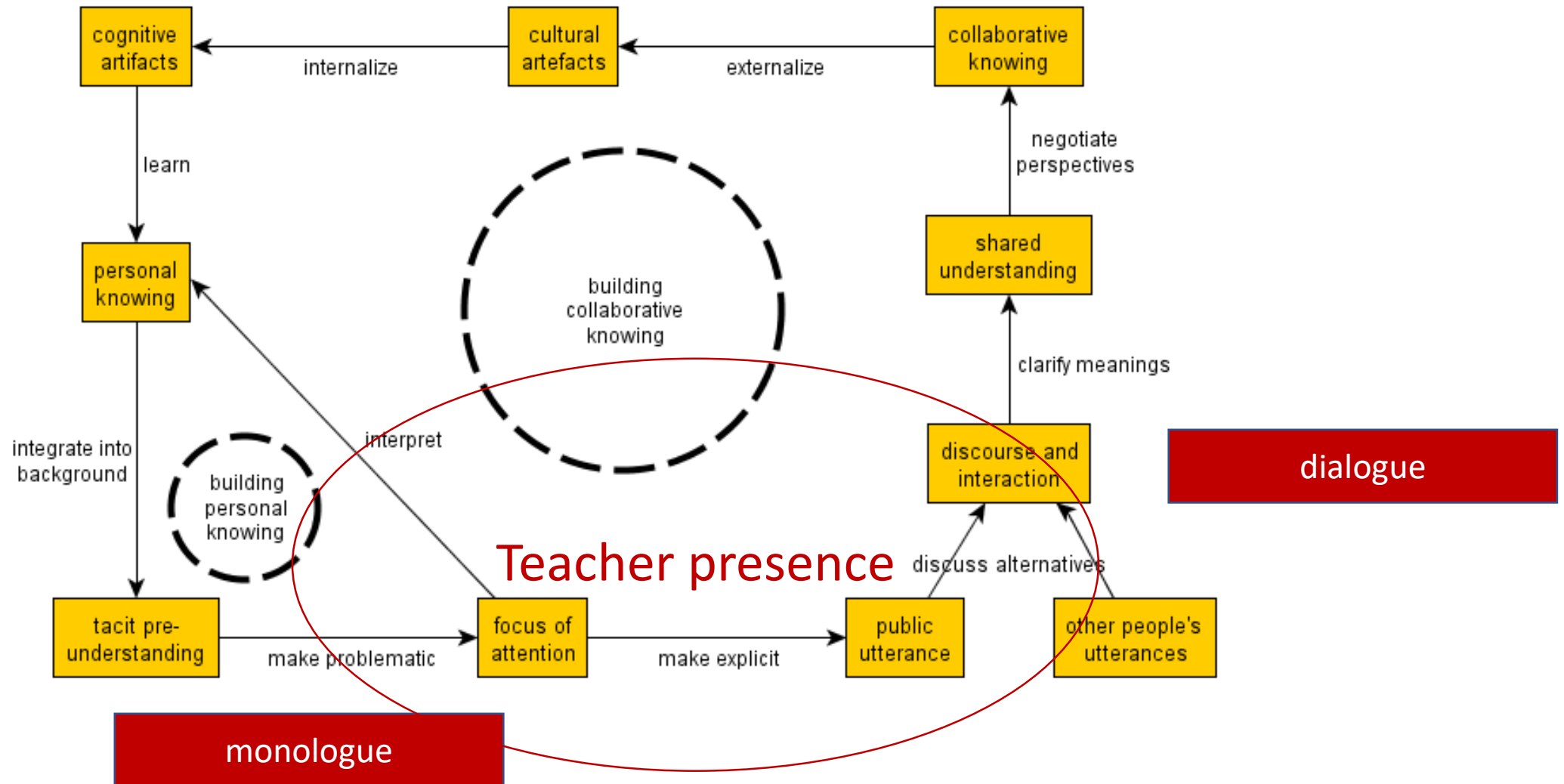
trialogue

Theoretical framework



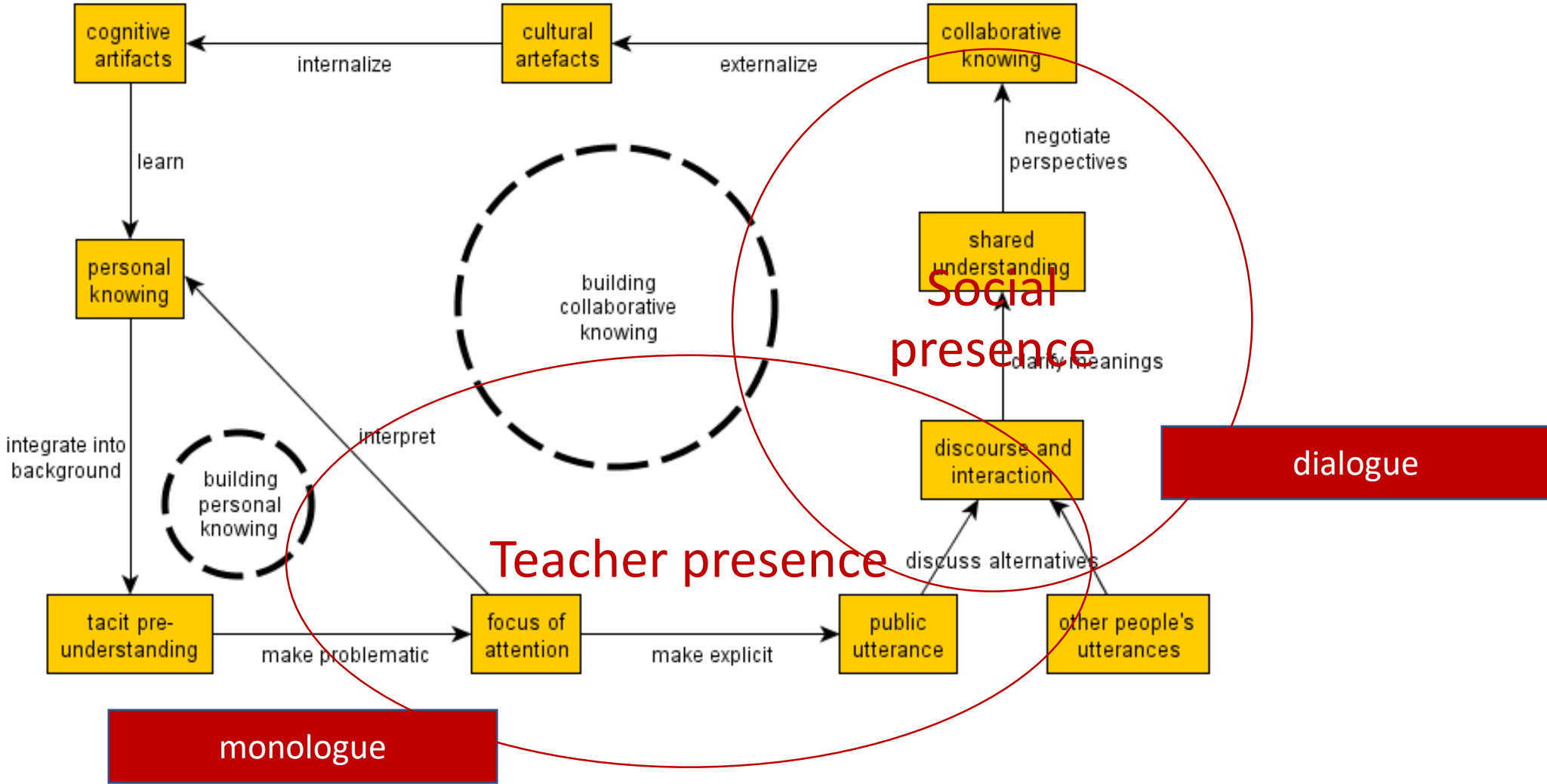
trialogue

Theoretical framework



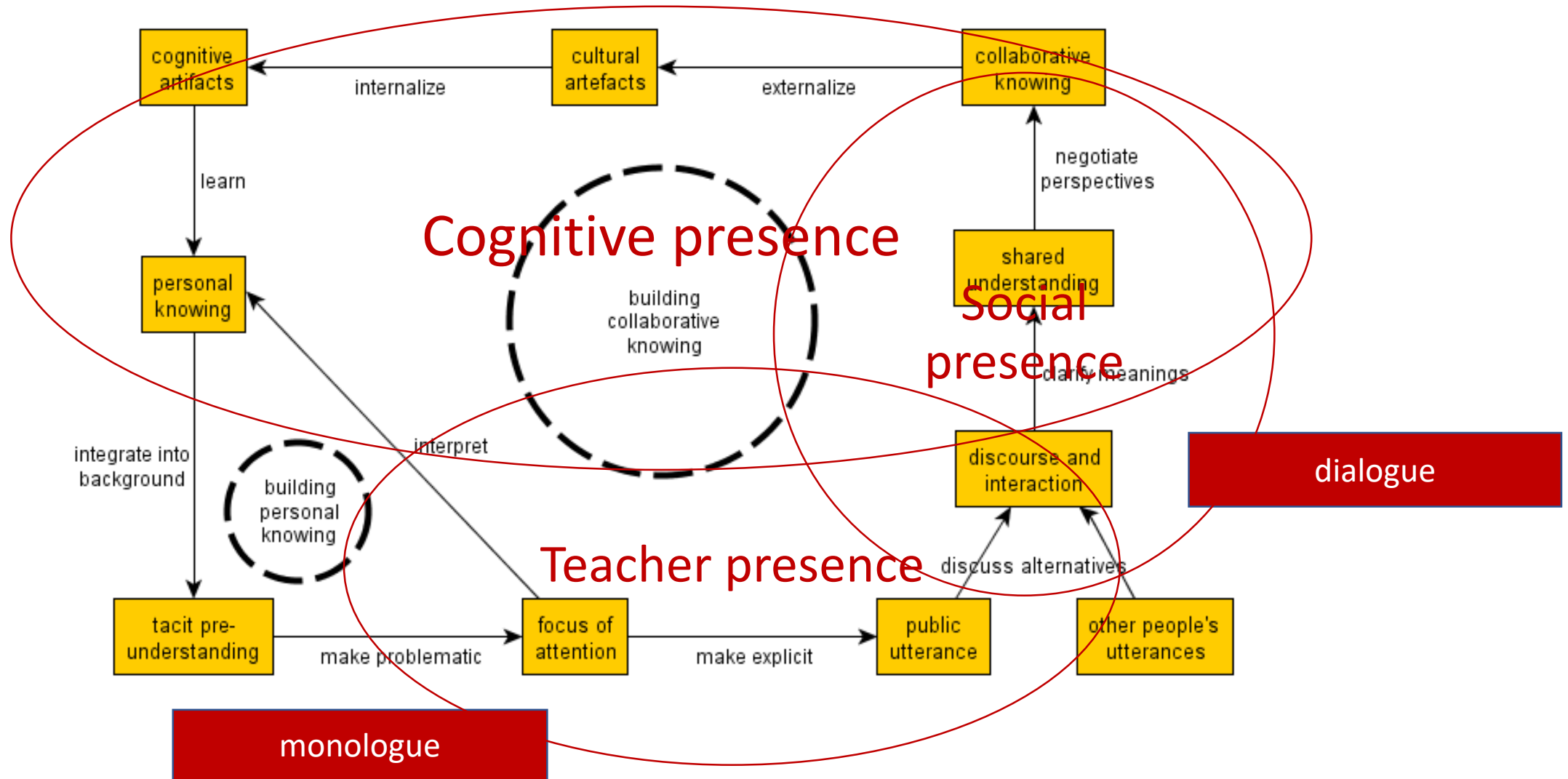
triologue

Theoretical framework



trialogue

Theoretical framework



Research questions

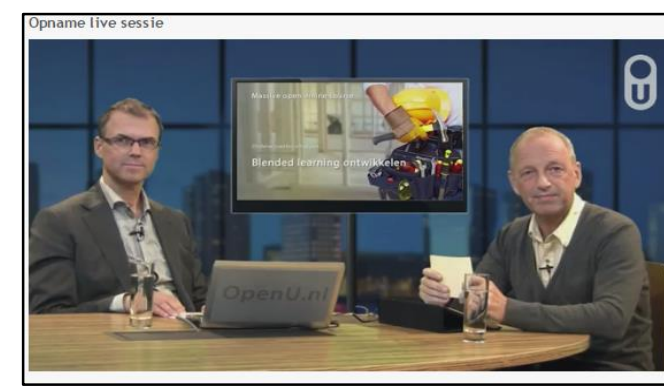
- How can the quality of MOOC* learning in and through interaction be demonstrated [and assessed]?
 - How do MOOC* participants interact? What interaction patterns are visible /can be discerned from communication between participants in a MOOC?
 - How does evaluating the quantity and quality of interaction between MOOC* participants relate to (assessing) learning?
- How and to what extent such assessment be automated?

Explorative study of “MOOC talking”



- Quantitative and qualitative analysis of interaction, communication and products
- Systematic text analysis of contributions (on group discussion boards)
- Object of study: MOOC “Developing blended learning”
- 1181 enrolments, 80% logged in, ca 50% active
- 65% women 60% > 45
- 60% in education, 51% in HE




OU MOOC* “Blended Learning”

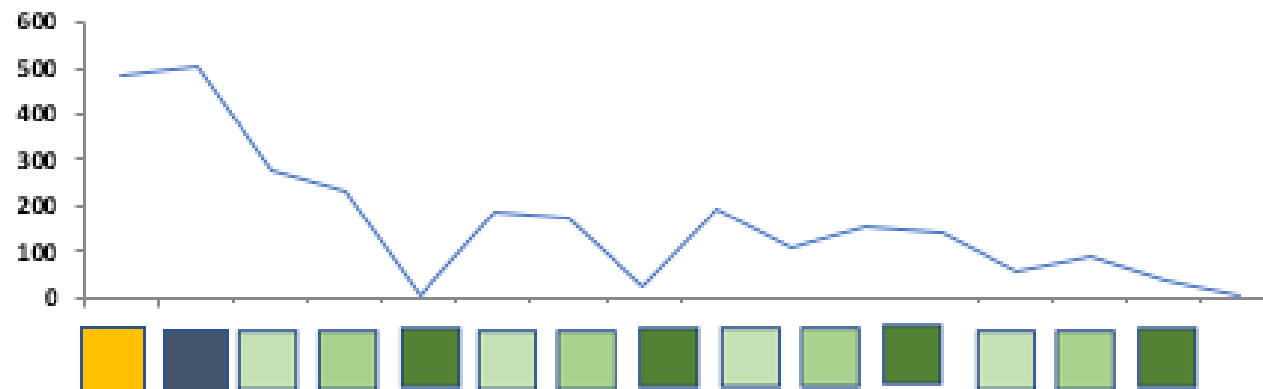


- Meaningful, reflective and practice-driven learning and direct application of knowledge and skills
- Learning from experts, sources AND interaction with other learners (in groups)
- Course structure: Introduction + 5 themes + final assignment (design task)
- Task structure: orientation ()+ basic level task () + advanced level task ()

OU MOOC* “Blended Learning”

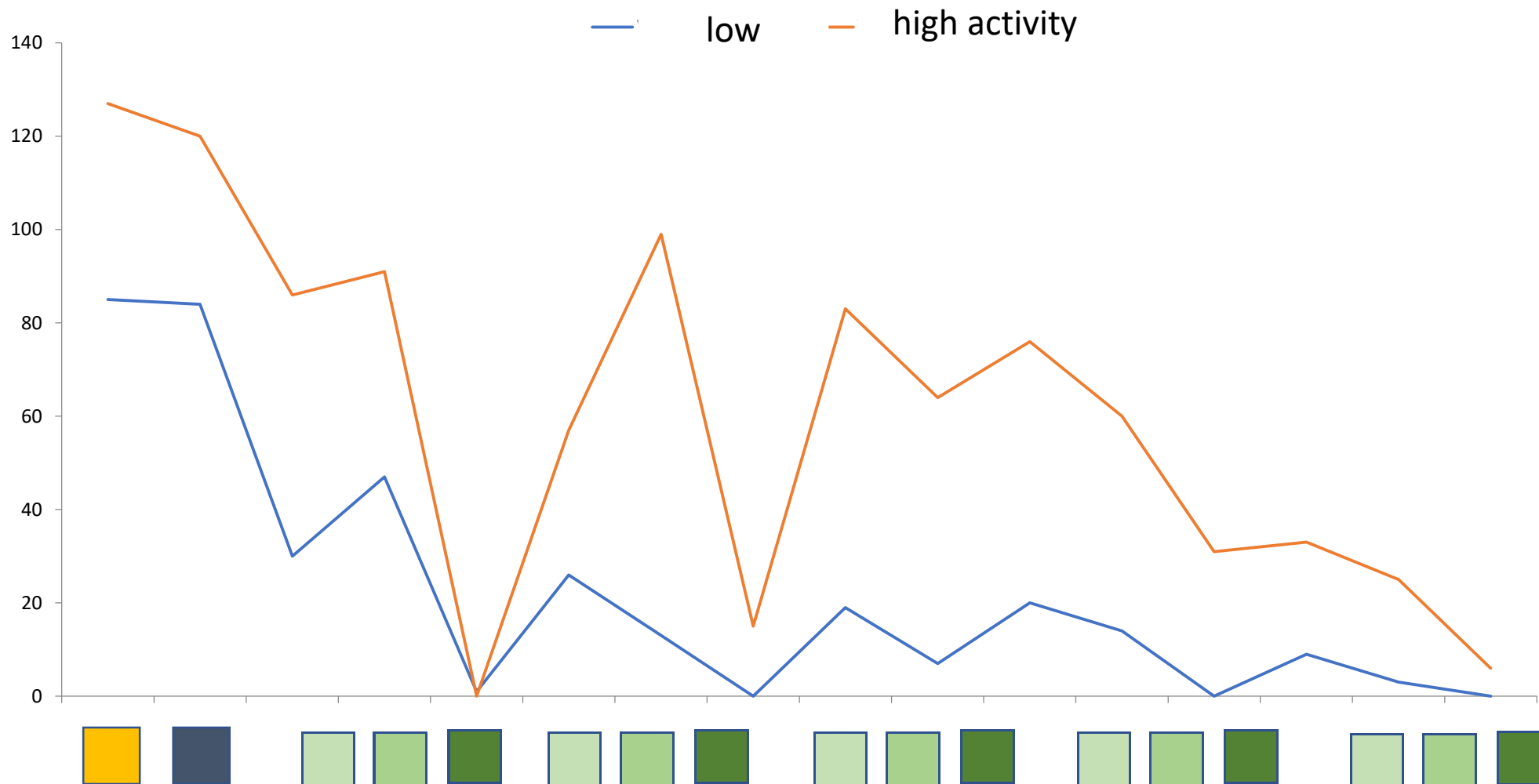


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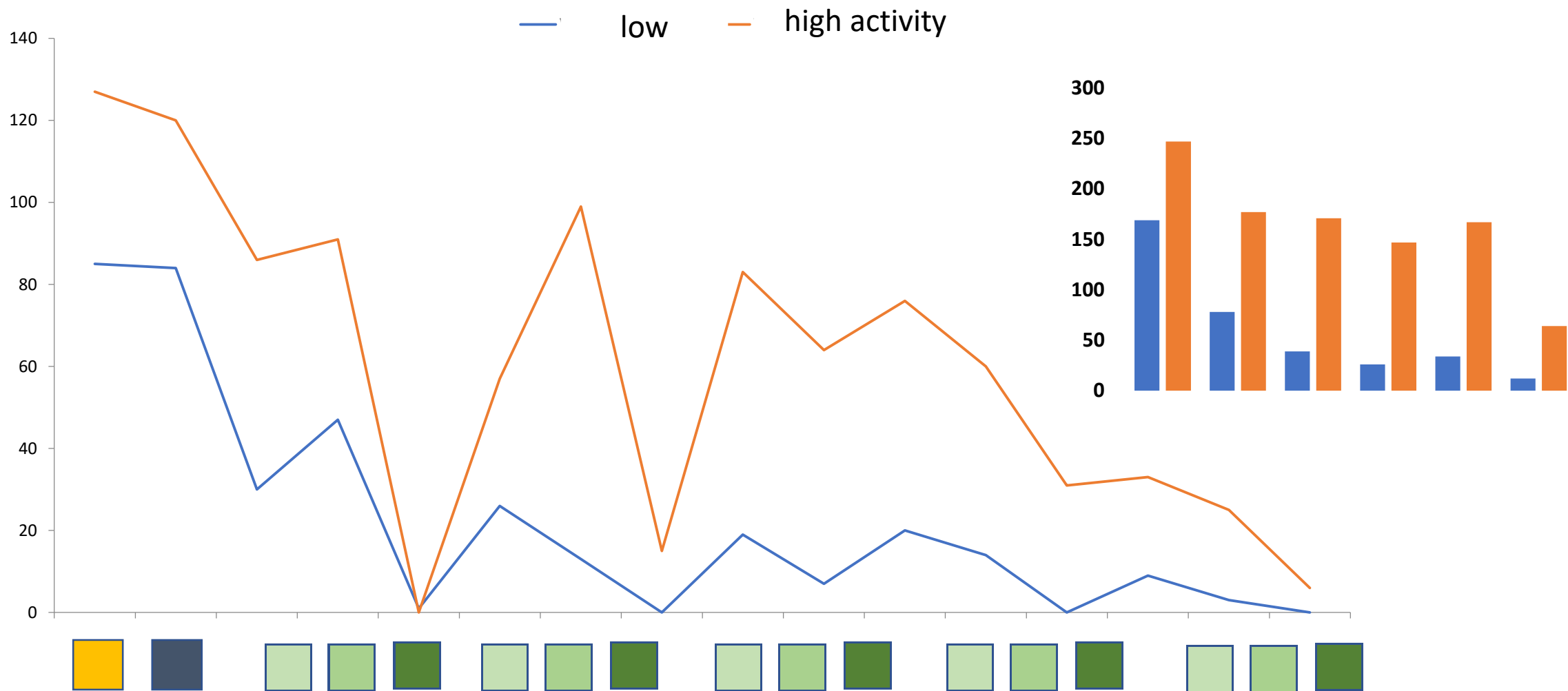


2924 posts
1787 threads
1.6 post per thread
Average: 5 posts in 3 threads

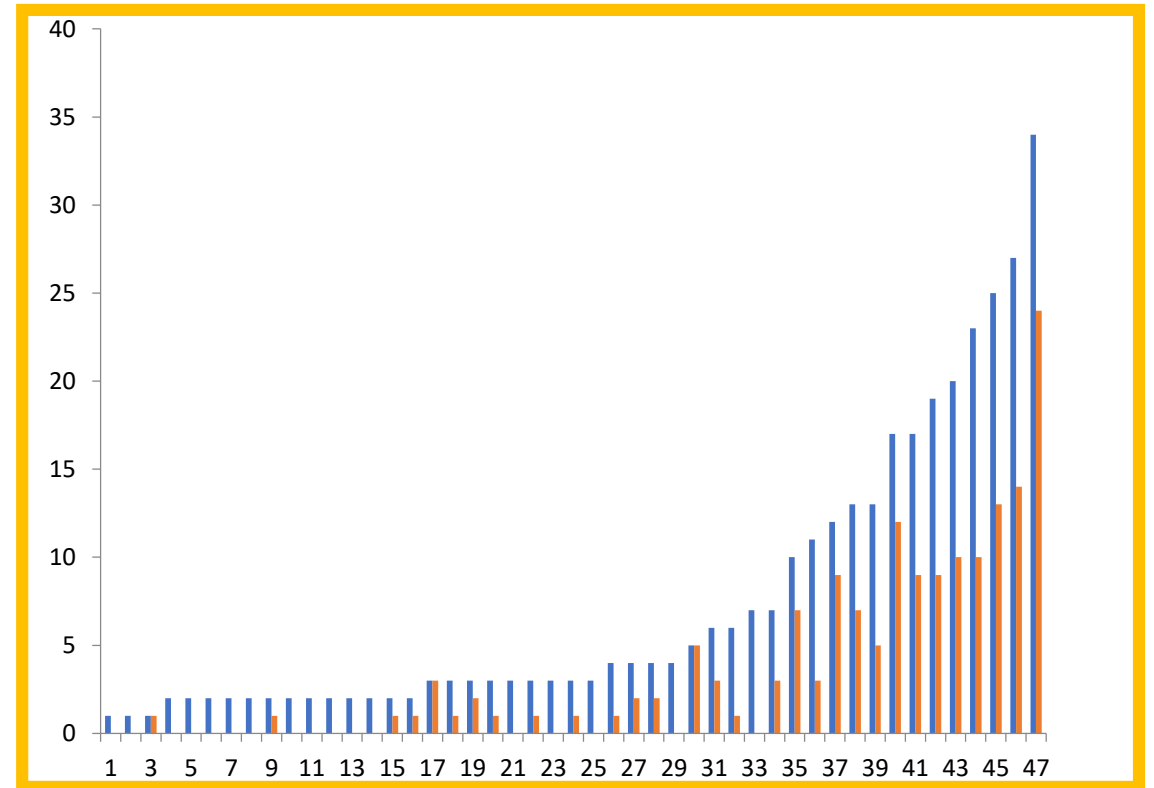
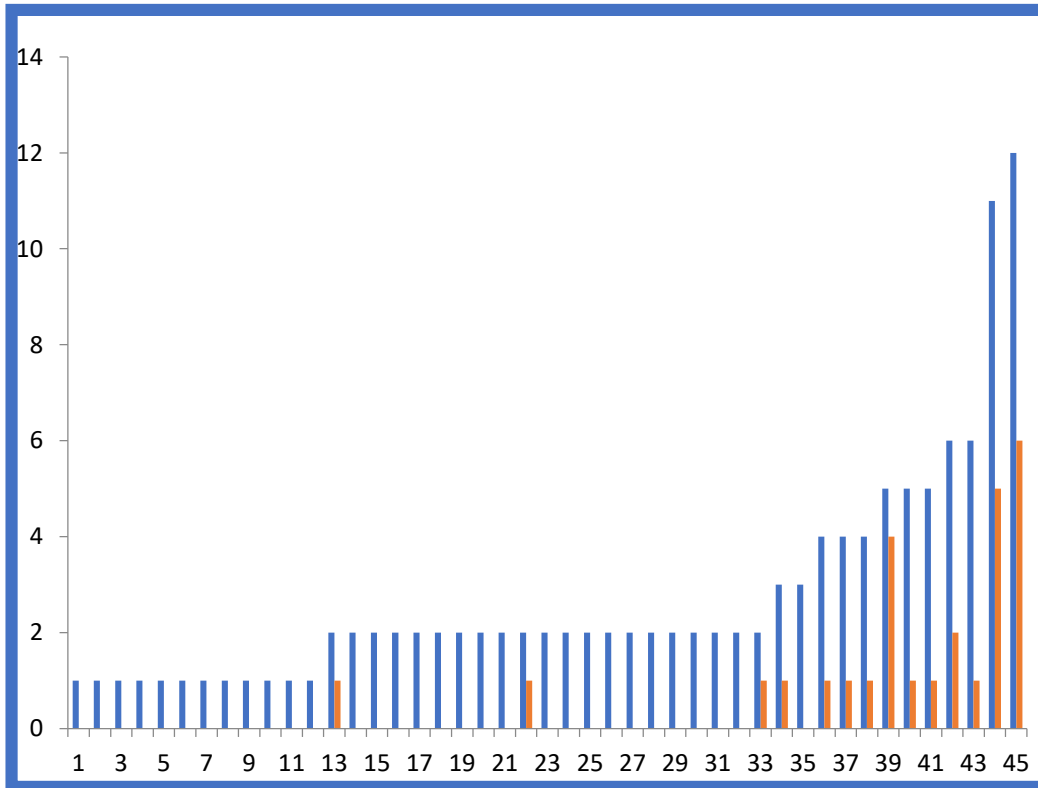
MOOC talking: variation in activity levels



MOOC talking: variation in activity levels



MOOC talking: variation in interaction levels



MOOC talking categories

- **Knowledge telling** Cognitive presence (Teacher presence as trigger)

... Within our faculty we use Blackboard, by many this ELE is only used to post slides and articles, but there is a small number of teachers who also use other available tools in education...

- **Elaborating on knowledge** Cognitive presence

... When I consider my first learning experiences with MOOCs, I find this way of learning very powerful. Interesting reflection questions are asked (such as this assignment) and there is mutual feedback on each other's assignments. ...

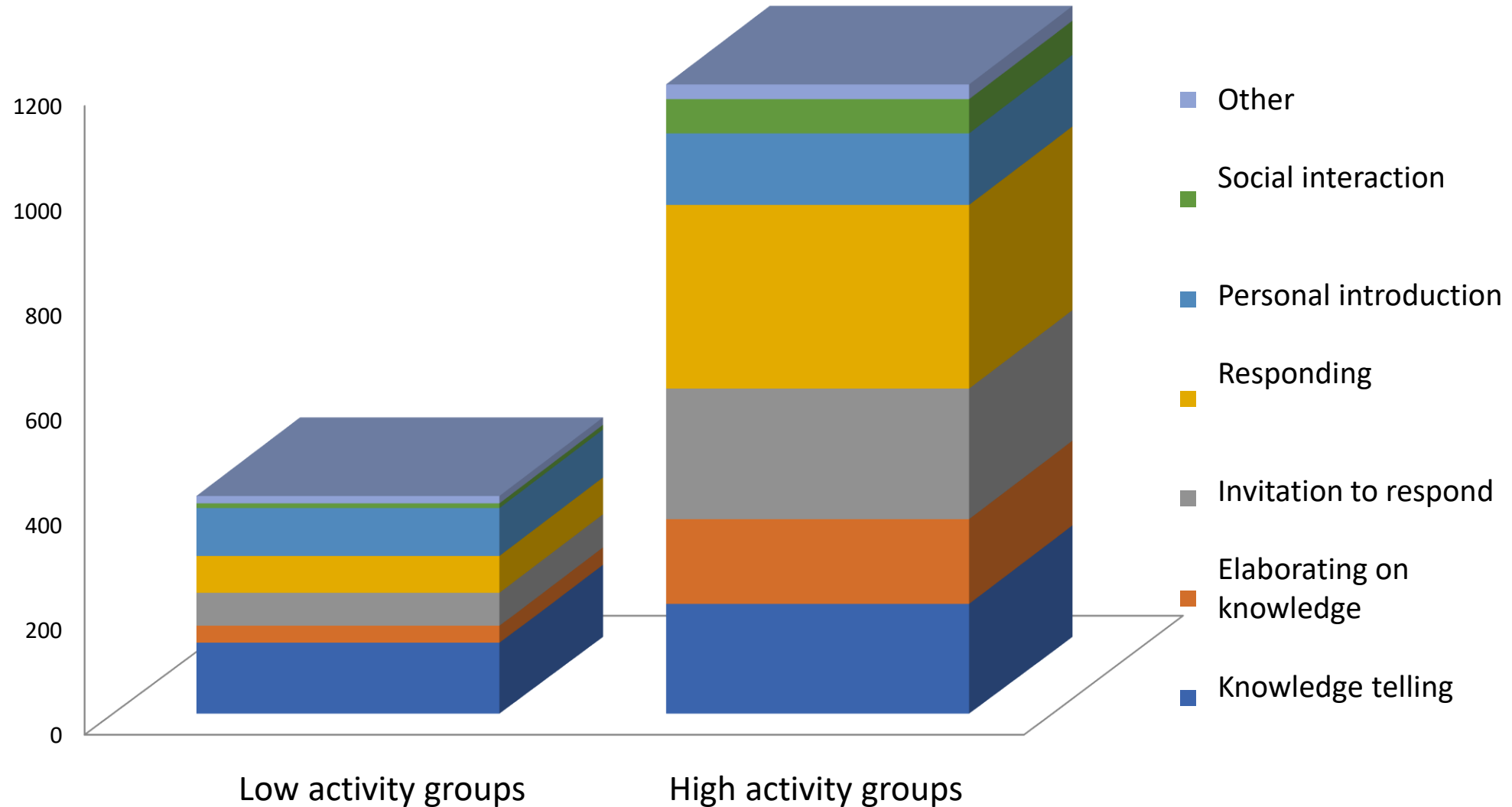
MOOC talking categories

- **Invitation to respond** Cognitive presence
... I would also like to add that online collaboration requires other, new skills from the teacher/tutor. How should I guide 'my' teachers? What do they need and what will change for them if they move from "contiguous" to a blend of contiguous and distributed learning? I wonder what you think of the example ...
- **Responding** Cognitive presence
... In response to W..., I think the rubric gives an answer to what 'insufficient, sufficient and good' means in practice. ... However, it is indeed striking that terms such as 'relevant', 'essential', 'consistent' and 'reasonable' are mentioned, and that it is not yet immediately clear what these terms imply

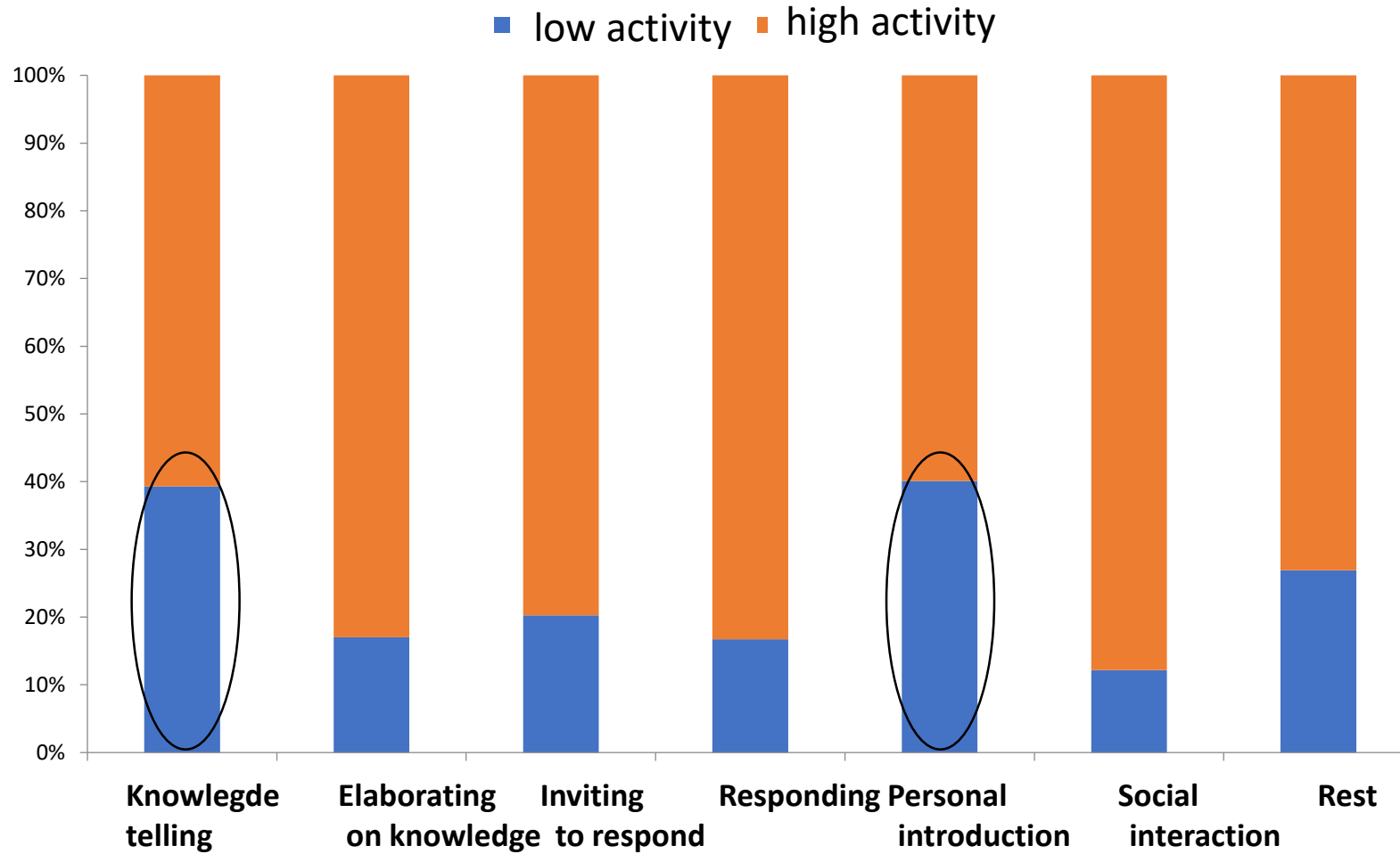
MOOC talking categories

- **Personal introduction** Social presence (Teacher presence as trigger)
... I participate in this MOOC out of curiosity about the possibilities of adapting education to the 21st century
- **Social interaction** Social presence
Nice to read your introduction, I see similarities in our experiences
- **Rest**
Hi C... , thank you for your feedback! May be the sound is not good enough. Unfortunately, I do not have a better headset, it is in the office.

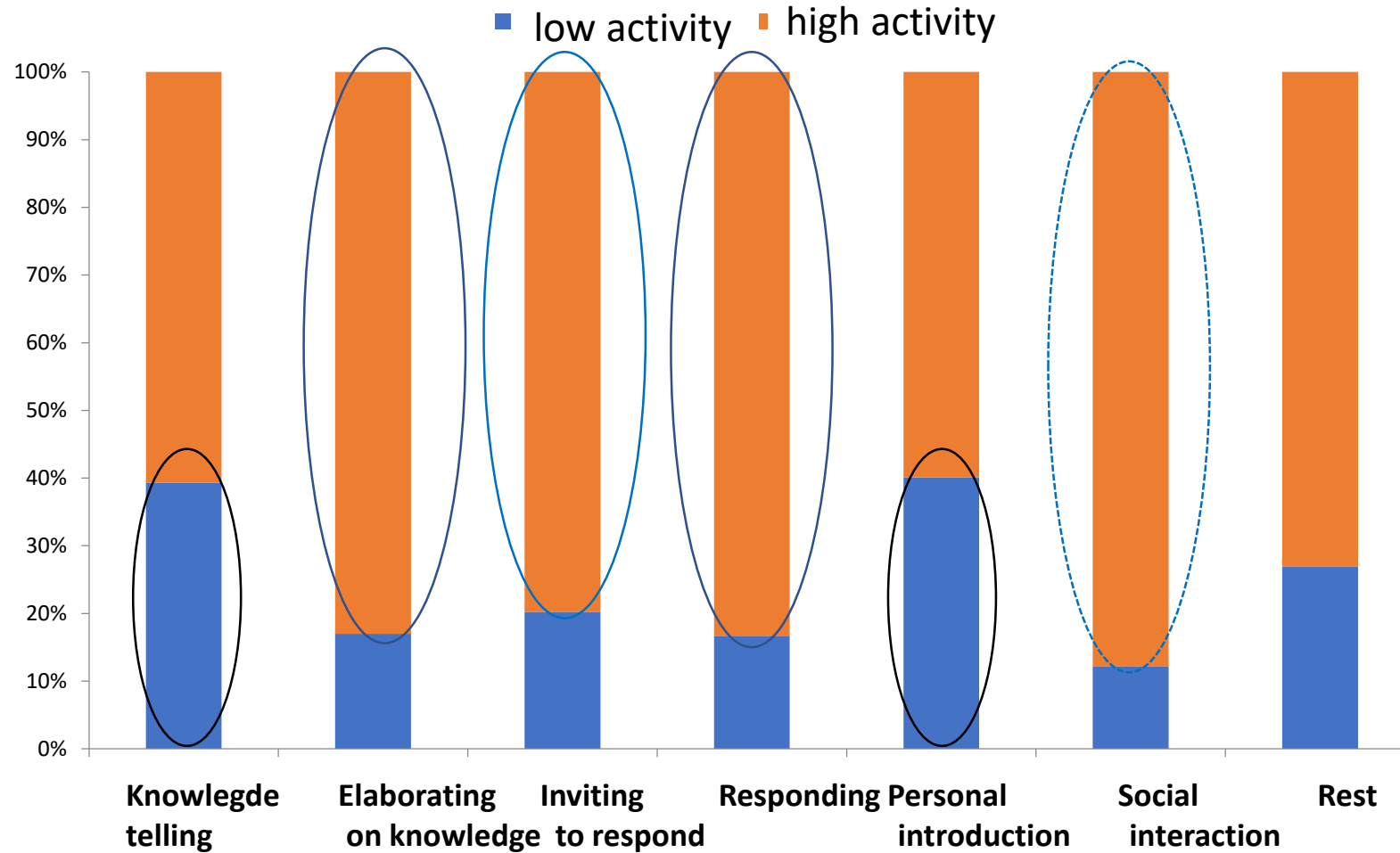
MOOC talking: group differences



MOOC talking: group differences



MOOC talking: group differences



Mapping MOOC talking to learning

- Quantitative analysis of posts gives a first impression
- Qualitative analysis of posts confirms
- Differences between low and high activity groups are substantial

High activity groups

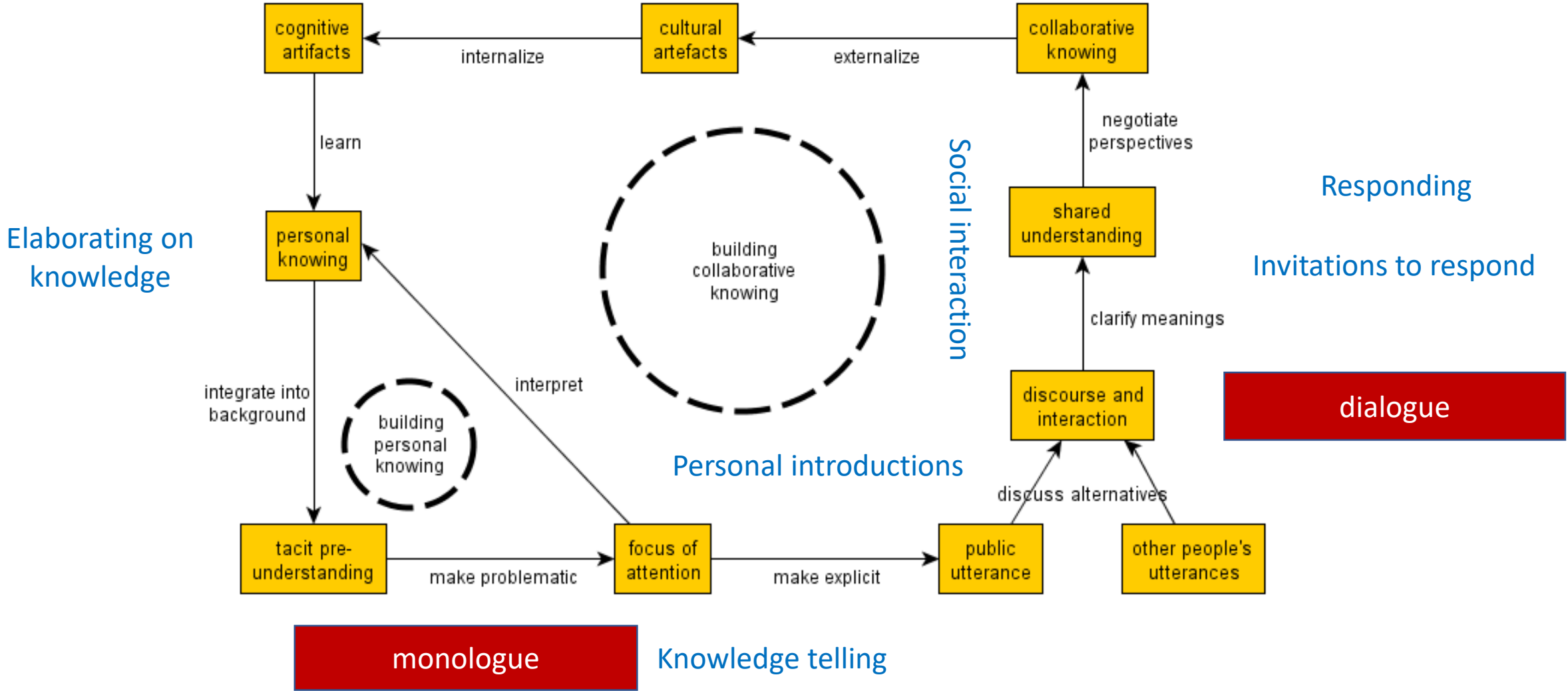
- More & longer “talking” =
- More knowledge shared
- More “conversations”
- More social interaction
- More elaboration and depth

Low activity groups

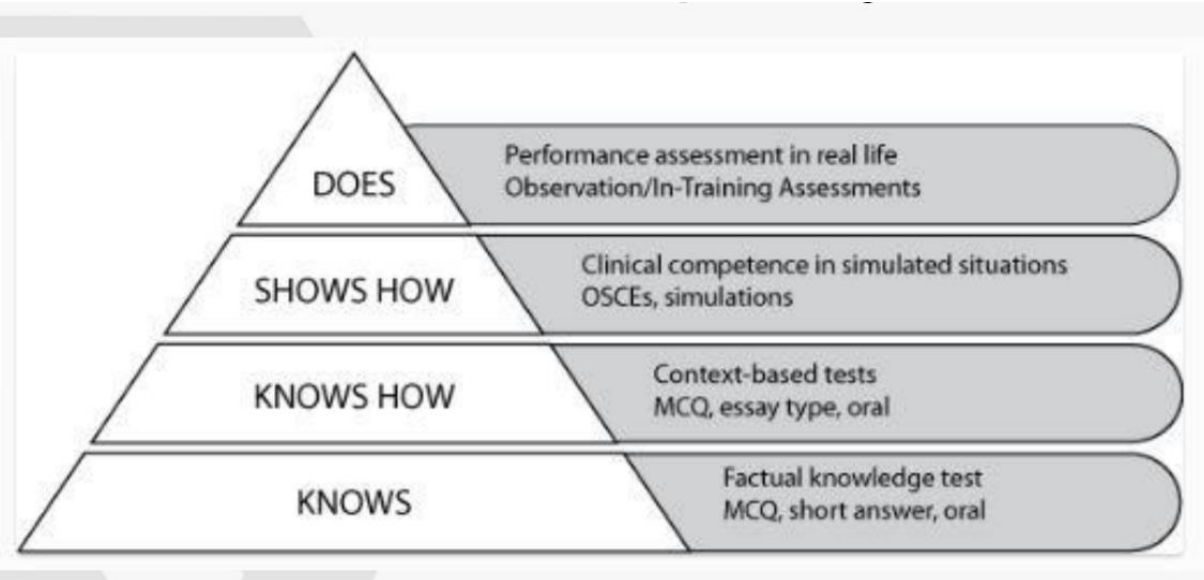
- Little activity after the start (introductions)
- Little interaction between participants

trialogue

Mapping MOOC talking to learning



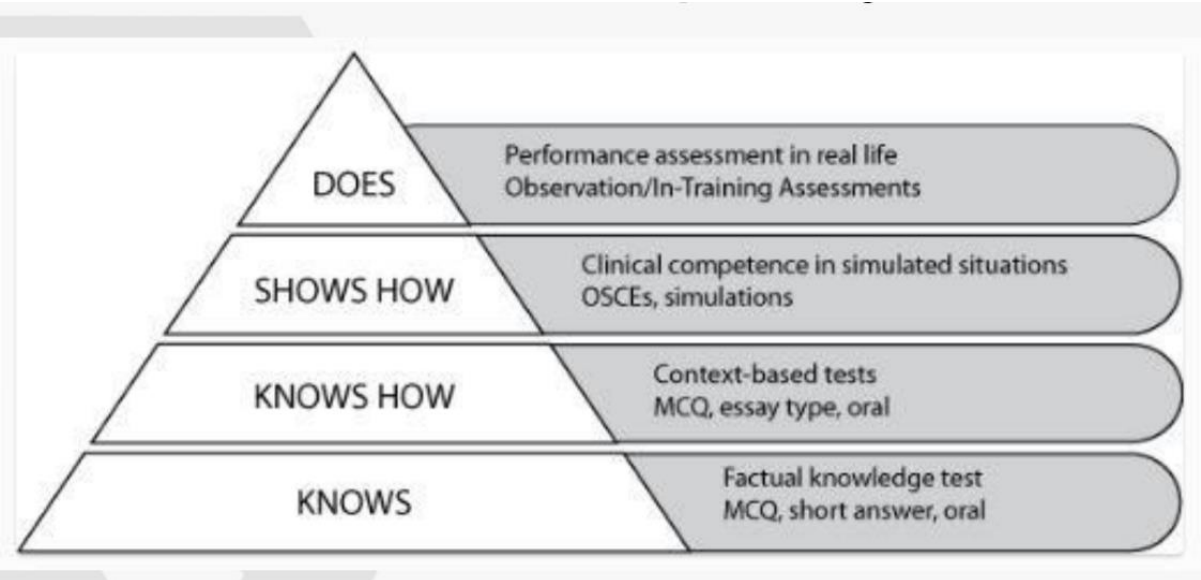
Mapping MOOC talking to learning



Social interaction

- Responding
- Invitations to respond
- Elaborating on knowledge
- Knowledge telling
- Personal introductions

Mapping MOOC talking to learning



Design active learning (incl. talking)
Stimulate active learning (incl. talking)
“Trace & track” talking
LA dashboards: indication of (quality) learning
Narrow the scope of activities worth (further) assessing



Social interaction

Responding
Invitations to respond
Elaborating on
knowledge
Knowledge telling
Personal introductions

Thank you for your attention!

Feedback and questions?

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