

# Designing optimal peer support for knowledge sharing in Learning Networks

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# Designing optimal peer support for knowledge sharing in Learning Networks

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# Problems when self-organizing knowledge sharing in Learning Networks (LNs)

- Learners rely on **peers** to share knowledge with.
- Stage 1: Finding a suitable peer tutor
- There is **no social structure** of a class or group in LNs.
- Learners do not know each other.
- Learners do not share a common history.
- Stage 2: Maintaining interaction to reach mutual/shared understanding
- LNs are **online** social networks for learning purposes.
- Knowledge sharing requires additional skills of communication and coordination.

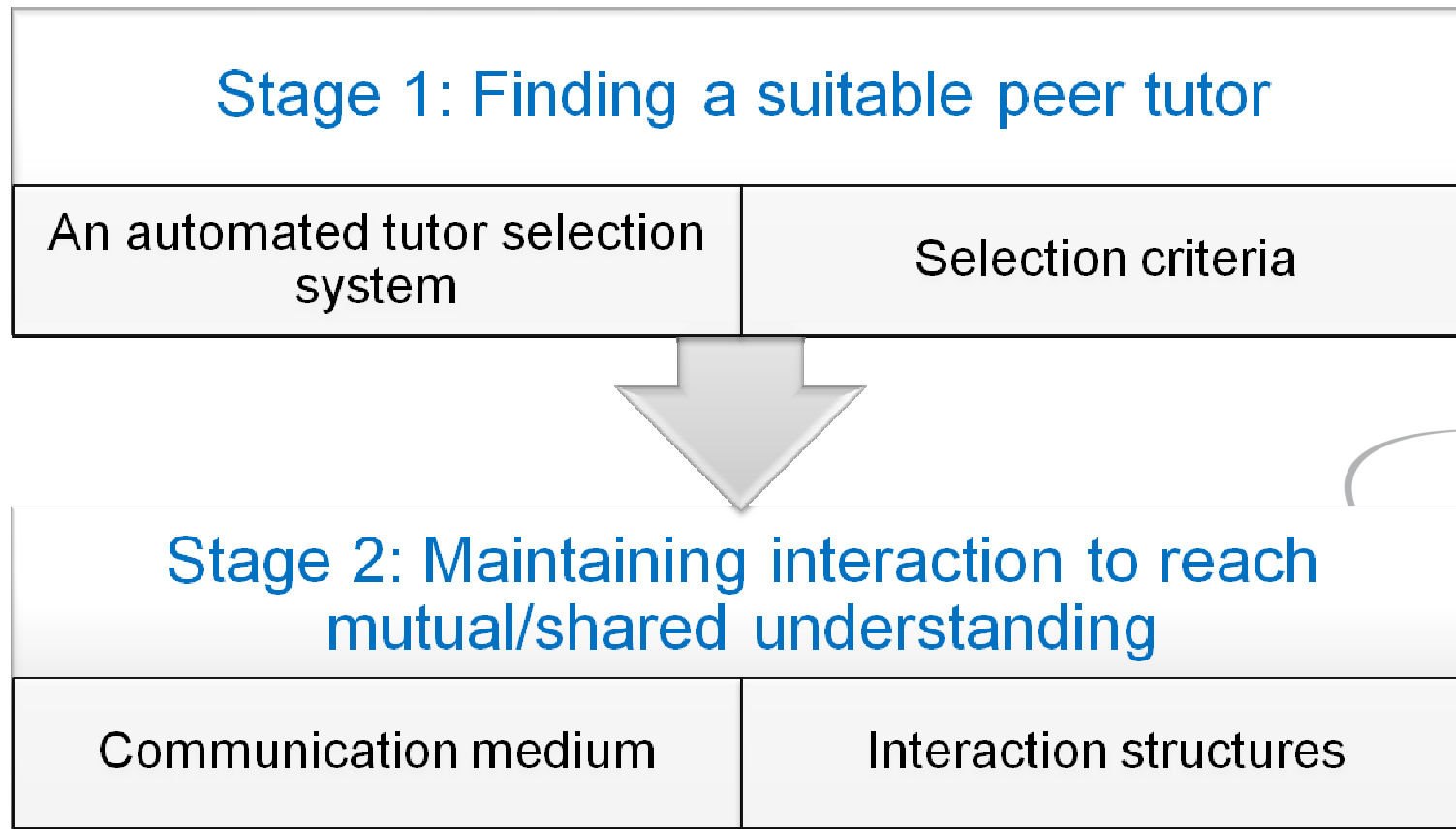


# Cognitive load and an optimal peer support for knowledge sharing

- Without support, self-organizing knowledge sharing imposes learners extra **cognitive load**.
- When working on complex tasks, this easily **overload** learners' limited cognitive capacity and this in turn is **detrimental** to learning.
- We propose to design an **optimal peer support** for knowledge sharing to ...
  1. Alleviate learner cognitive load
  2. Contribute to deeper learning and better learning performance
  3. Contribute to better learner satisfaction with the knowledge sharing process



# Two stages of knowledge sharing in Learning Networks

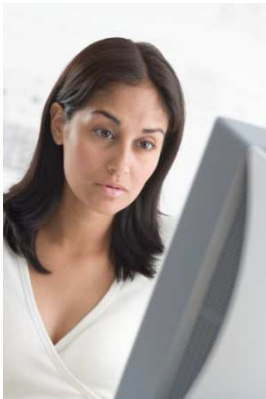


# What kind of peer tutors are more likely to optimize knowledge sharing process?



Peer tutors with tutoring skills (TS)?

Peer tutors with content knowledge (CK)?



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Current experiment:  
The effects of intervening tutors with tutoring skills (TS) vs.  
content knowledge (CK) on tutees and tutors

- We assign each student to act as either tutor or tutee.
- Tutors and tutees work in pairs to first **chat** about an **essay** question.
- With help from tutors, tutees have to **summarize chats** to answer the essay question.
- For tutors, we give them **instructions** of either **tutoring skills** or **content knowledge**.
  - ❖ **Tutoring skills** consist of
    - general skills of asking and answers questions
    - Task-related skills of dealing with an essay question
  - ❖ **Content knowledge** consists of
    - Supplement texts related to the essay question



## Preliminary results

### Tutoring skills (TS) vs. Content knowledge (CK)

Measures	Data tutees	Data tutors
Cognitive load (CL)	TS-tutees experienced lower CL than CK-tutees	TS and CK tutors experienced CL differently
Learning performance on 5 MCQs	CK-tutees perform better than TS-tutees	TS-tutors perform <i>significantly</i> better than CK-tutors
Satisfaction with the knowledge sharing (KS) process	CK-tutees are more satisfied with the KS process than TS-tutees	TS-tutors are more satisfied with the KS process than CK-tutors

