



Examining the effects of social media in co-located classrooms

A case study based on SpeakUp

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Motivation

Social media



Social media

Pros	Cons
<ul style="list-style-type: none"> ● Increase participation ● Increase interaction 	<ul style="list-style-type: none"> ● Distraction ● Multitasking

How to use social media effectively in the classroom?

SpeakUp

SpeakUp

Temporary chat rooms

Anonymous users

Posting & voting

Without registration

> 12000 web users

> 12000 app users



speakup.info

join room: **35637**

room name: **SpeakUp @ ECTEL**

Research methodology

Research question

Does SpeakUp favor situations that lead to learning?

▶ **Topics:**

- ▶ Active participation (i.e., engagement)
- ▶ Attention (i.e., remaining on-task)
- ▶ Social interaction (on relevant content)
- ▶ Teaching style

▶ **Case study:**

- ▶ Authentic scenario (university)

Informants & data sources



- TEACHER COMMENTS
T_COM
- TEACHER QUESTIONNAIRE
T_QUE



- STUDENT COMMENTS
S_COM
- STUDENT QUESTIONNAIRE
S_QUE



- RESEARCHER'S OBSERVATIONS
R_OBS
- SESSION VIDEO RECORDING
R_VID



- SPEAKUP LOGS
SP_LOG

Data analyses

▶ Mixed methods & triangulation

▶ Quantitative:

- ▶ descriptive statistics

- ▶ exploratory computational analyses

▶ Qualitative:

- ▶ manual message coding (e.g., relevant/not relevant for learning)

- ▶ manual video coding (e.g., actor, action & target)

Case Study

Authentic scenario



- ▶ 90 minutes
- ▶ 3 teachers
- ▶ 145 students
- ▶ SpeakUp

Lecture of a Communication course at the École Polytechnique Fédérale de Lausanne (Switzerland)

Topic I: Engagement



SpeakUp was **engaging for the students!**

($\mu = 5$ in a 1-5 Likert scale)

- ▶ High proportion of students joined the room (147 users out of 145 students!)

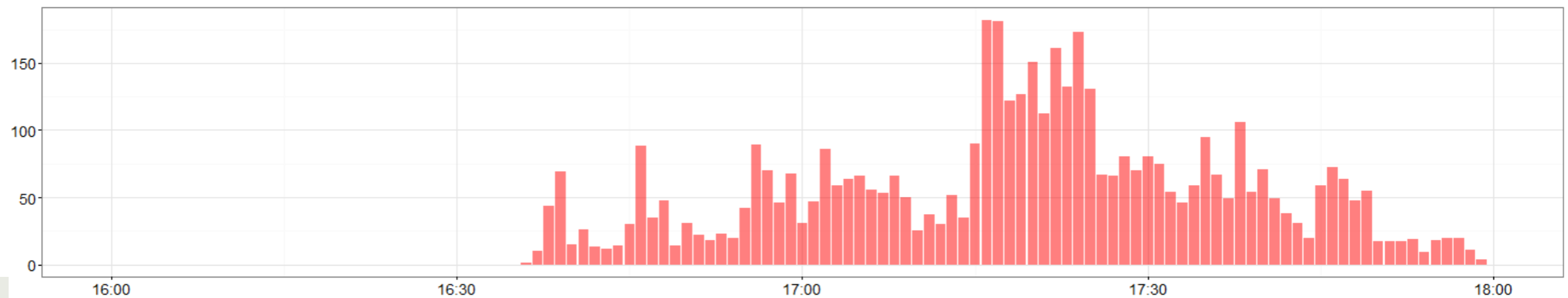
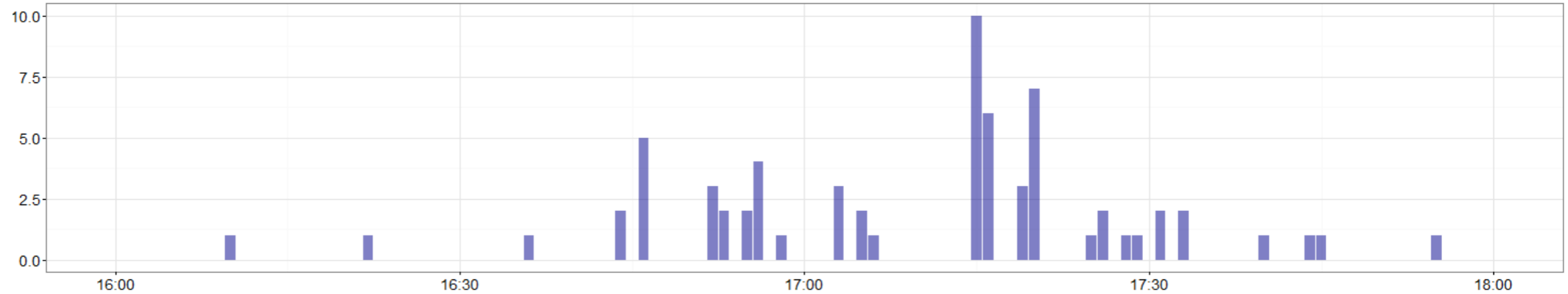
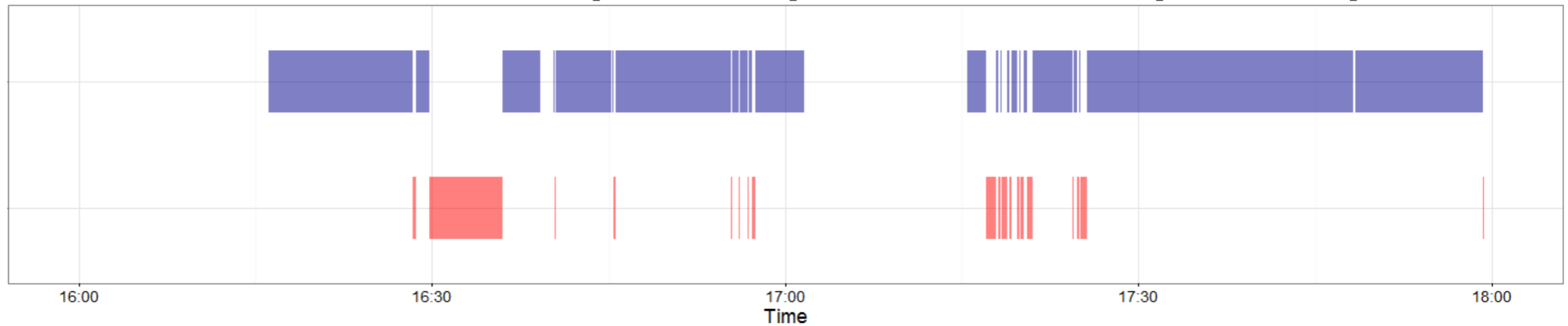


Topic I: Engagement

► Face-to-face vs SpeakUp-mediated participation

Teachers
(77 min)

Students
(11 min)



Teachers
(51 actions)

Students
(3481 actions)

Topic I: Engagement

► Participation profiles (K-means clustering)

Clusters	# Students	# Actions	# Answers to polls	# Posted messages	# Replies to messages	# Likes	# Dislikes	# Spam reports	
77%	"Passive"	77	7	0	0	0	4	2	0
	"Semi-passive"	36	14	1	1	0	8	5	0
19%	"Pro-active/reactive"	6	38	1	7	2	17	10	1
	"Mildly pro-active"	22	63	1	5	0	32	25	0
4%	"Very pro-active"	3	143	1	19	1	78	44	0
	"Super-active voters"	4	190	1	0	0	58	130	0

Topic 2: Student attention

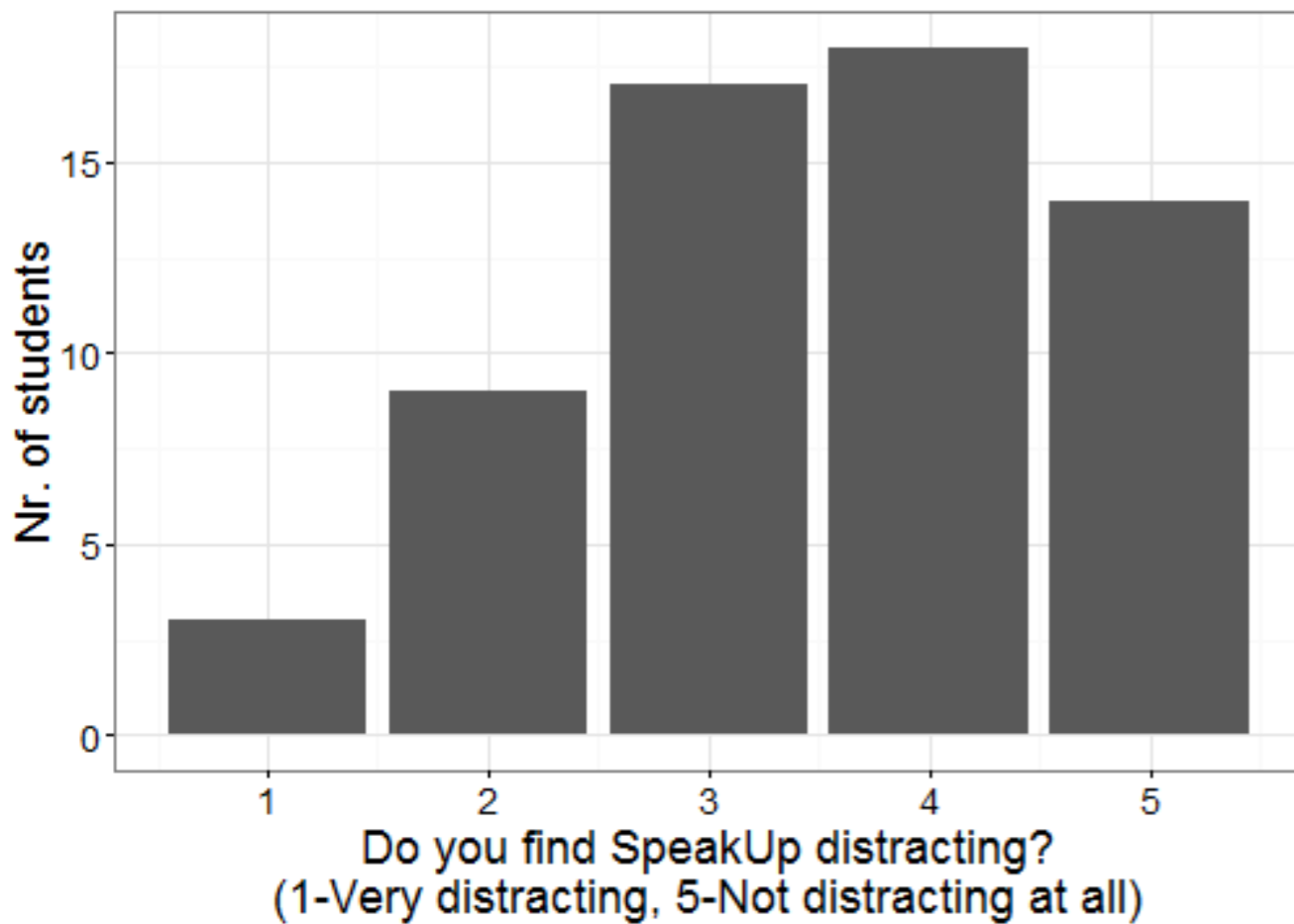


SpeakUp had no clear impact on the student attention

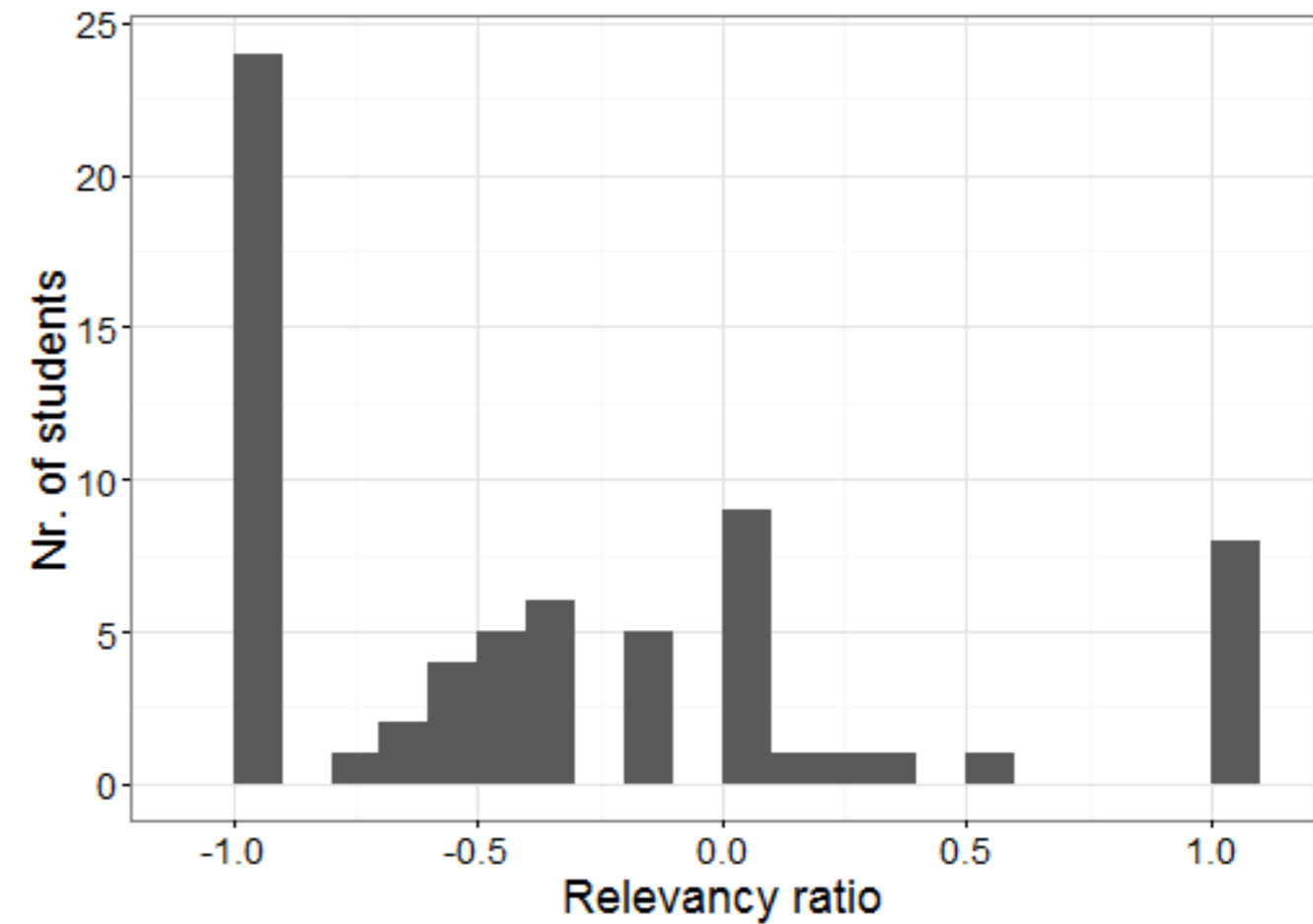
($\mu = 3$ in a 1-5 Likert scale)

Topic 2: Student attention

► Students perception vs usage



► What students said :)



► What students did :(

Topic 3: Social interaction

**SpeakUp
promoted
interaction
among students**



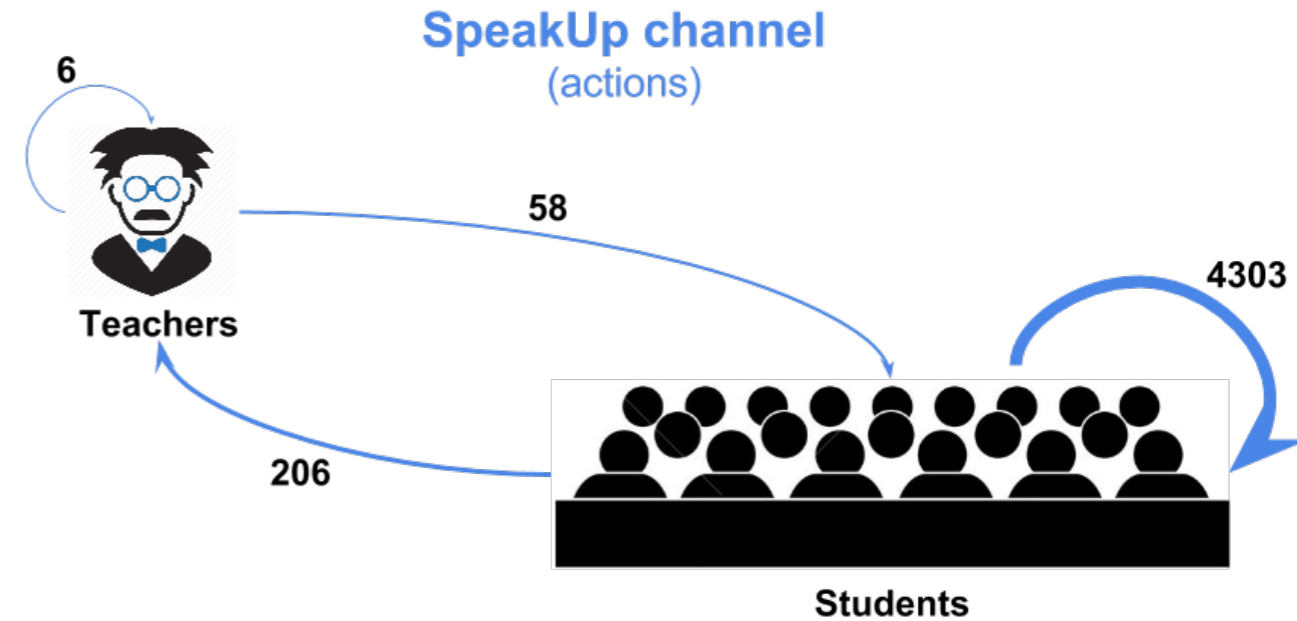
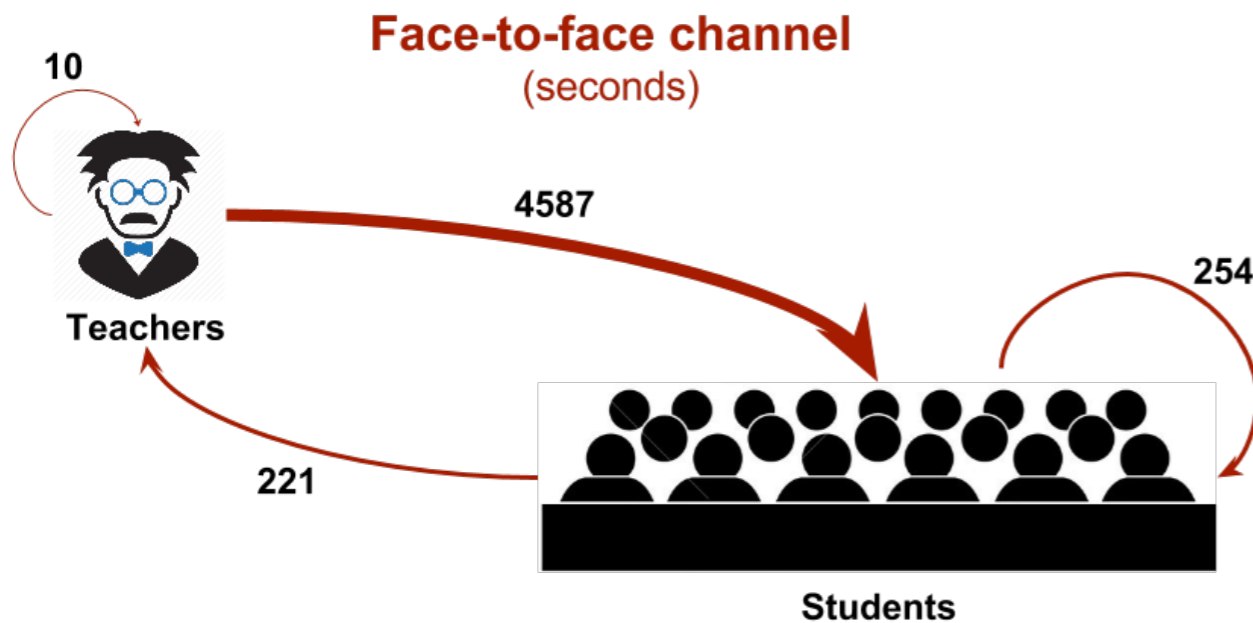
**SpeakUp
promoted
interaction
between teachers
& students**

($\mu = 4.5$ in a 1-5 Likert scale)

($\mu = 5$ in a 1-5 Likert scale)

Topic 3: Social interaction

► Face-to-face vs SpeakUp-mediated interaction



Topic 3: Social interaction



- ▶ SpeakUp-mediated interaction
 - ▶ 15 isolated students
 - ▶ interaction degree: $\mu = 23.3, \tilde{x} = 14.5, \sigma = 23.6$



Researcher

- ▶ Face-to-face interaction:
 - interaction degree: 8

Peer 1	Peer 2	Peer 3
Peer 4	Student	Peer 5
Peer 6	Peer 7	Peer 8

Topic 4: Teaching style



- ▶ High levels of relevant activity correspond to activities guided by the teachers
- ▶ Further and long term analysis are needed

Topic 4: Teaching style

SpeakUp provided us with **awareness** of a students back channel



Managing two simultaneous channels is **demanding** and specially difficult if teaching alone

Conclusions

Discussion - Results

Did SpeakUp favor situations that lead to learning?

- ▶ T1: Students were **engaged** with SpeakUp but quite **unevenly**
- ▶ T2: Students were **not always on task** on SpeakUp and **inconsistent** with their subjective **perception** of distraction
- ▶ T3: SpeakUp **facilitated social interaction**, especially between peers (larger social network)
- ▶ T4: **Positive effect of teacher prompts** on message relevance but SpeakUp usage can be too **demanding** for just one teacher
- ▶ **Anonymity** as a double-edged sword: engagement vs distraction

Discussion - Limitation

- ▶ This is only one session in a longer (course-long) analysis: novelty effects?
- ▶ Link to learning still indirect (situations that are known to lead to learning)
- ▶ Rich analysis approach... but time consuming! (how can we scale this up?)

Future work

- ▶ Finish the whole course analysis, incl. link between relevancy and scores
- ▶ Scaffold teachers in guiding SpeakUp usage
 - ▶ Best patterns of usage for relevant engagement
 - ▶ Automated support: SpeakUp bots?

Questions?



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SpeakUp: www.speakup.info