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Inquiry-based Learning & MOOCs: *Challenges & Opportunities*

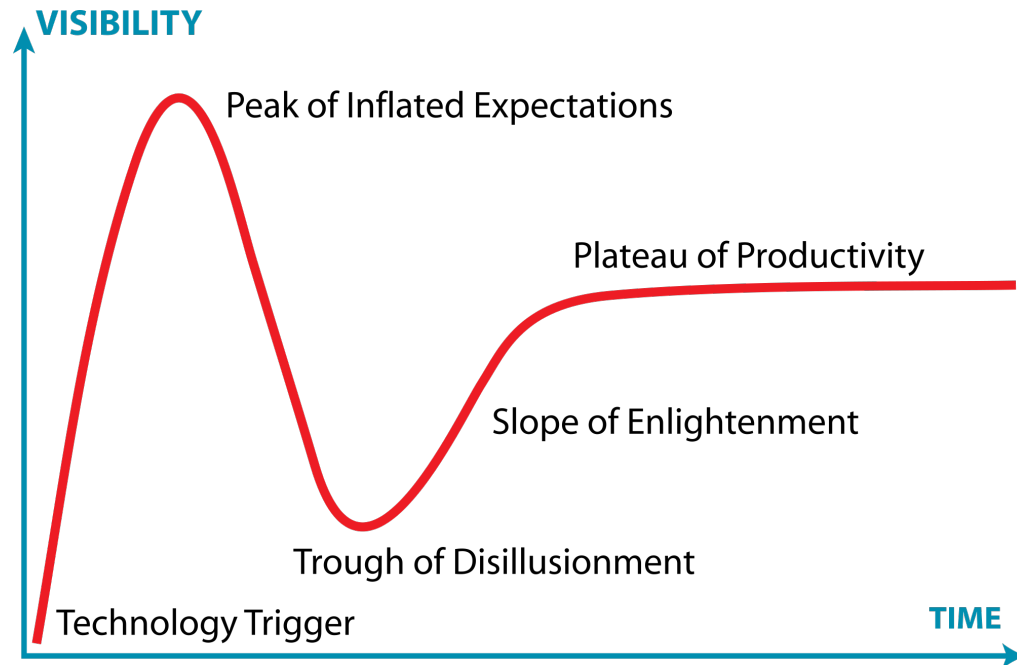


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MOOCs: Revolution or evolution?

“Disruptive Change”
“Tsunami is coming”
“Year of the MOOCs”



MOOC Hype is passing

Media coverage is decreasing and is getting more productive
(Kovanovic et al., 2015b)

MOOCs: Current progress of DE

- MOOCs were envisioned as “social-constructivism 2.0”

Anderson & Dron (2010):

Cognitive-Behaviorism

xMOOCs



Social Constructivism

Modern DE/OL



Connectivism

cMOOCs

Learners do not acquire knowledge, they ***construct*** knowledge

MOOCs: Current progress of DE

- In some aspects, xMOOCs are even a *step back* in online learning
 - Step back to cognitive-behaviorist learning models
 - Step back because of ***practical reasons***
- We need to look what we already know from distance/online learning (Kovanović et al., 2015c)

Goal: More social MOOCs

- Goal to enable for an environment in which students are able to learn together at scale
 - Online discussions should be better
 - Currently work mostly as Q/A
 - More knowledge building in discussions
 - Currently, students are having solitary experiences in MOOCs at scale
- Look at the existing models of DE/OL in MOOC context

Community of Inquiry (CoI) model
(Garrison, Anderson, & Archer, 1999)

Community of Inquiry (CoI) model

1. **Affectivity**
2. **Interactivity**
3. **Group cohesion**

Social presence

Cognitive presence

Educational experience

1. **Triggering event:**
Problem identification, sense of puzzlement
2. **Exploration:**
Brainstorming, Idea exploration, divergence
3. **Integration:**
Synthesis of relevant information
4. **Resolution:**
Problem resolution, testing application

1. **Design & Organization**
2. **Direct instruction**
3. **Facilitation**

Teaching presence

Col instruments

Quantitative coding schemes for each of the presences:

- Labour-intensive manual coding
- Requires experienced coders

34 likert items survey instrument

- 13 Teaching presence
- 9 Social presence
- 12 Cognitive presence

MOOCs: Challenges

Col (and other social-constructivist) models require a strong teacher's presence

-> up to 30-40 student cohorts (Anderson & Dron, 2010)

MOOCs?

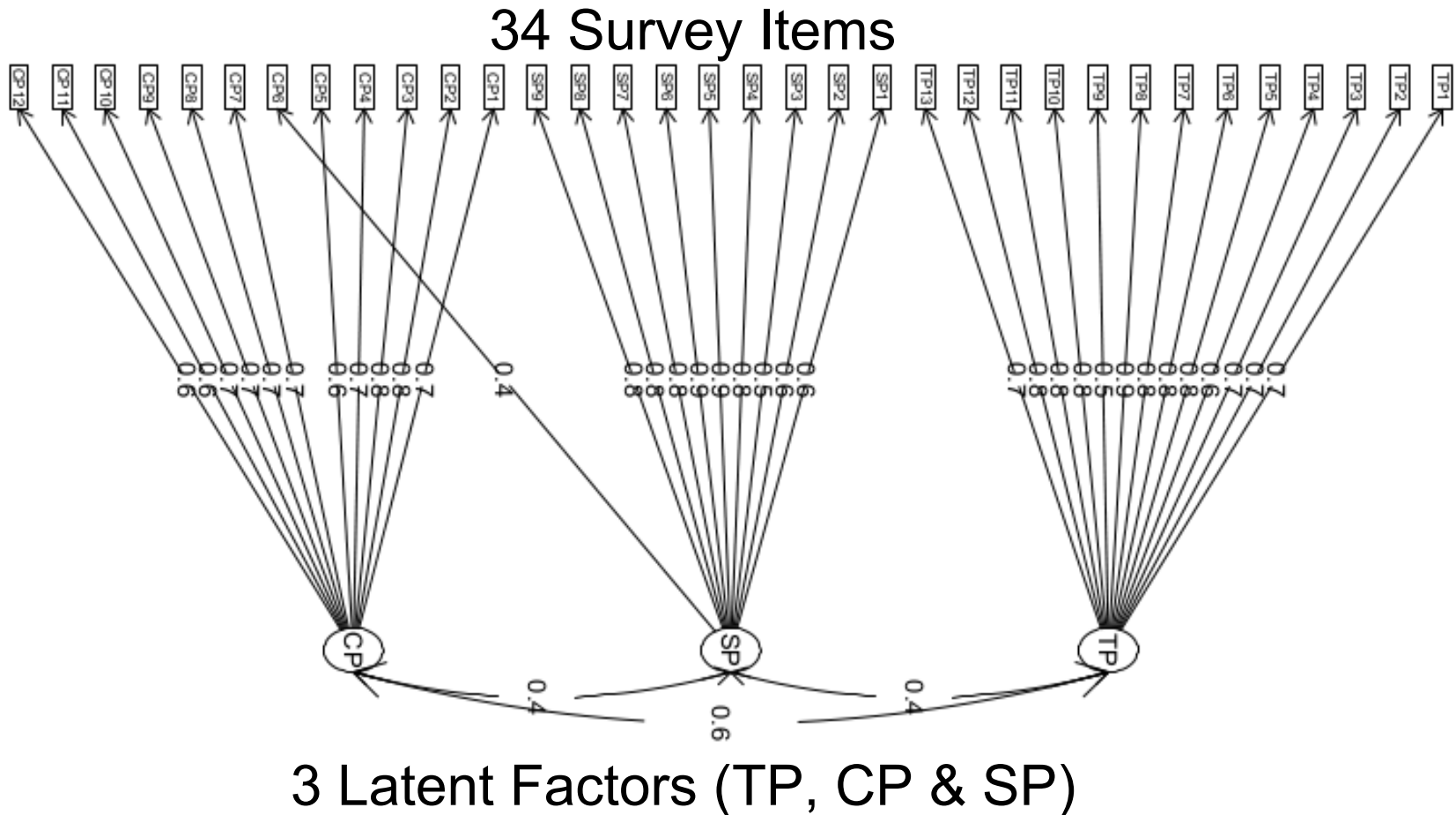
- In short, just too many students for strong teaching presence *during course*

How different is MOOC context?

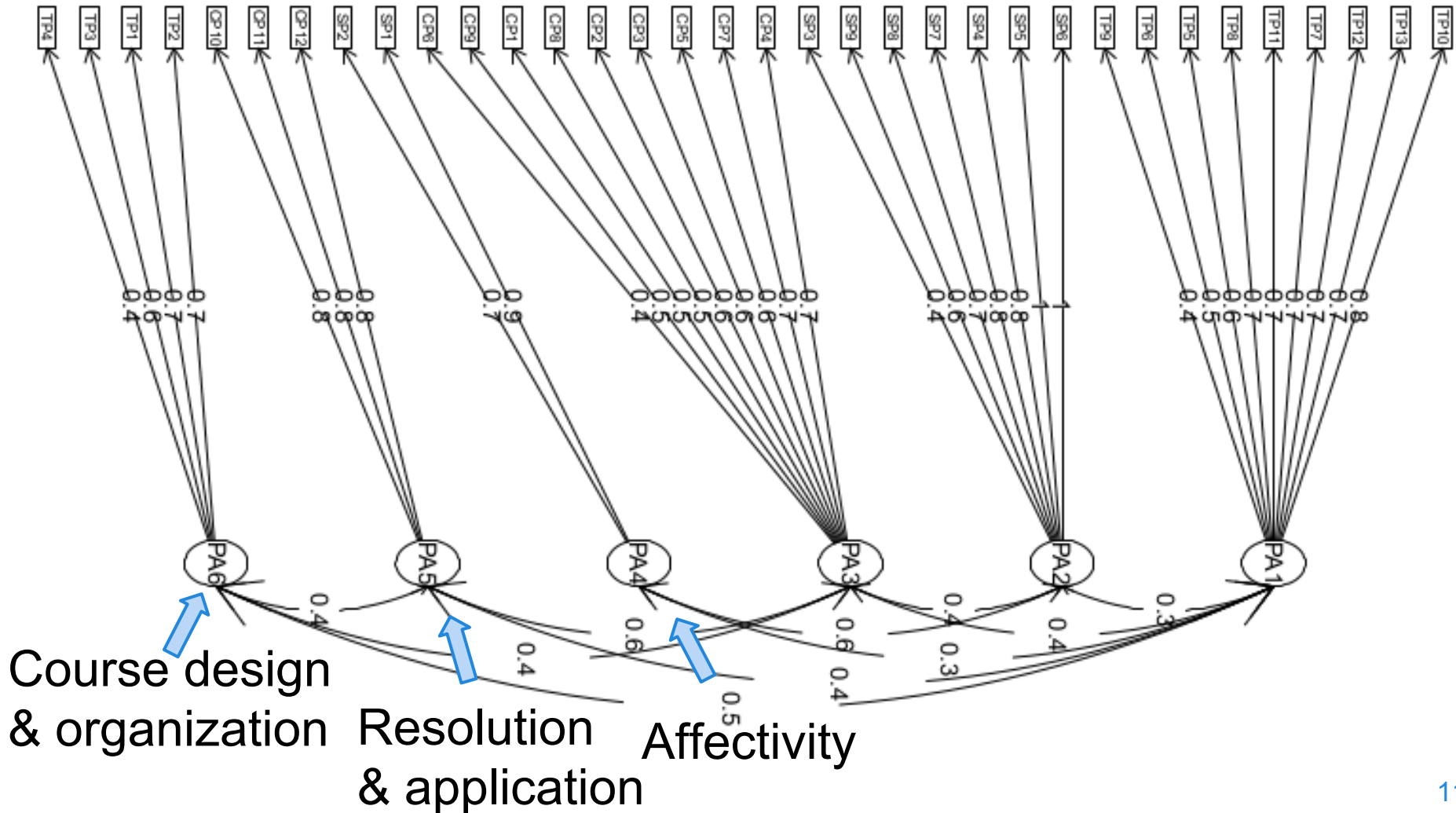
- We evaluated Col survey instrument
- Data from 5 MOOCs

- Exploratory Factor Analysis (EFA) of existing Col survey instrument
- Structural Equation Model (SEM) of relationships between three presences

Col EFA in MOOC context



CoI EFA in MOOC context



How different is MOOC context?

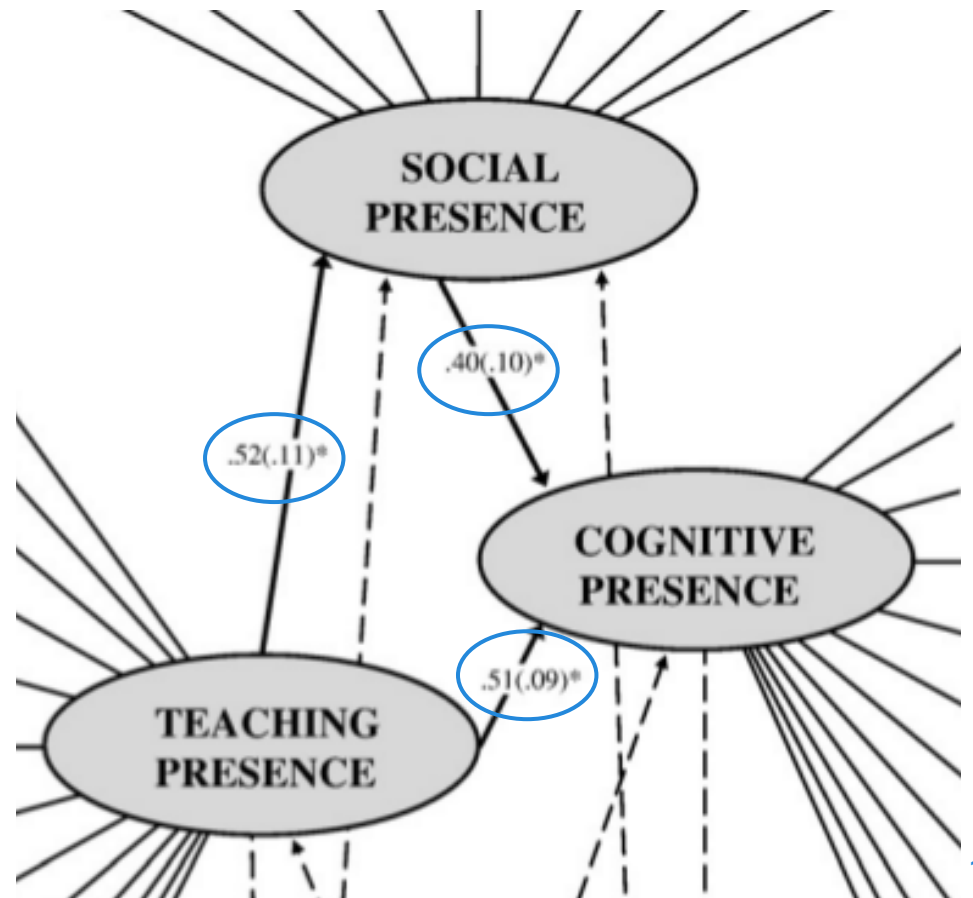
- *Course design & organization are particularly important*
- Less affective communication
- Application & resolution are not reached most of the time

CoI SEM in MOOC context

SEM model of relationships between presences

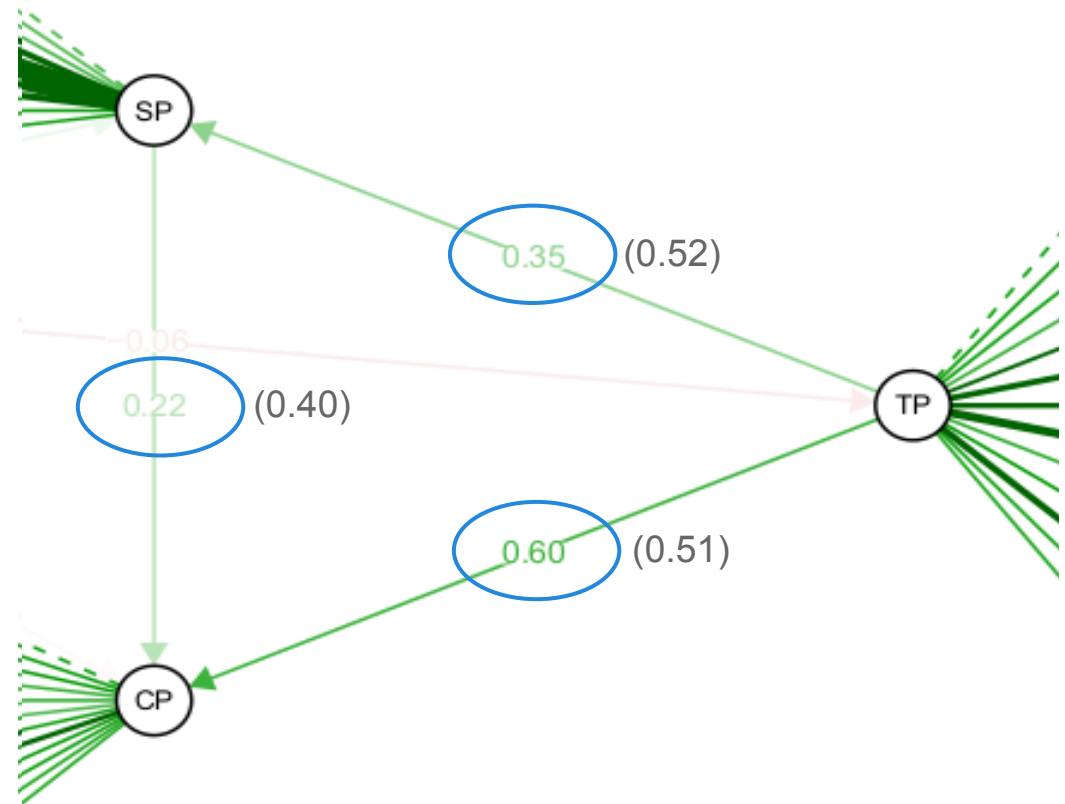
Main findings:

- Strong direct effect of TP on CP
- SP mediator between TP and CP



Col SEM in MOOC context

- Moderately good fit (RMSEA = 0.09)
- Stronger direct effect of TP on CP
- Lesser mediating effect of SP



Summary: How much different is the MOOC context?

- *Basic Col model still holds*
- *In MOOCs, social presence is not developed as good as in traditional DE/OL courses.*
- Teaching presence is still very important

Goal: More social MOOCs through Learning Analytics and Data Mining

- Build on the existing models such as Col
- Make MOOCs “feel smaller”
- Overcome barriers for social-constructivism in MOOCs

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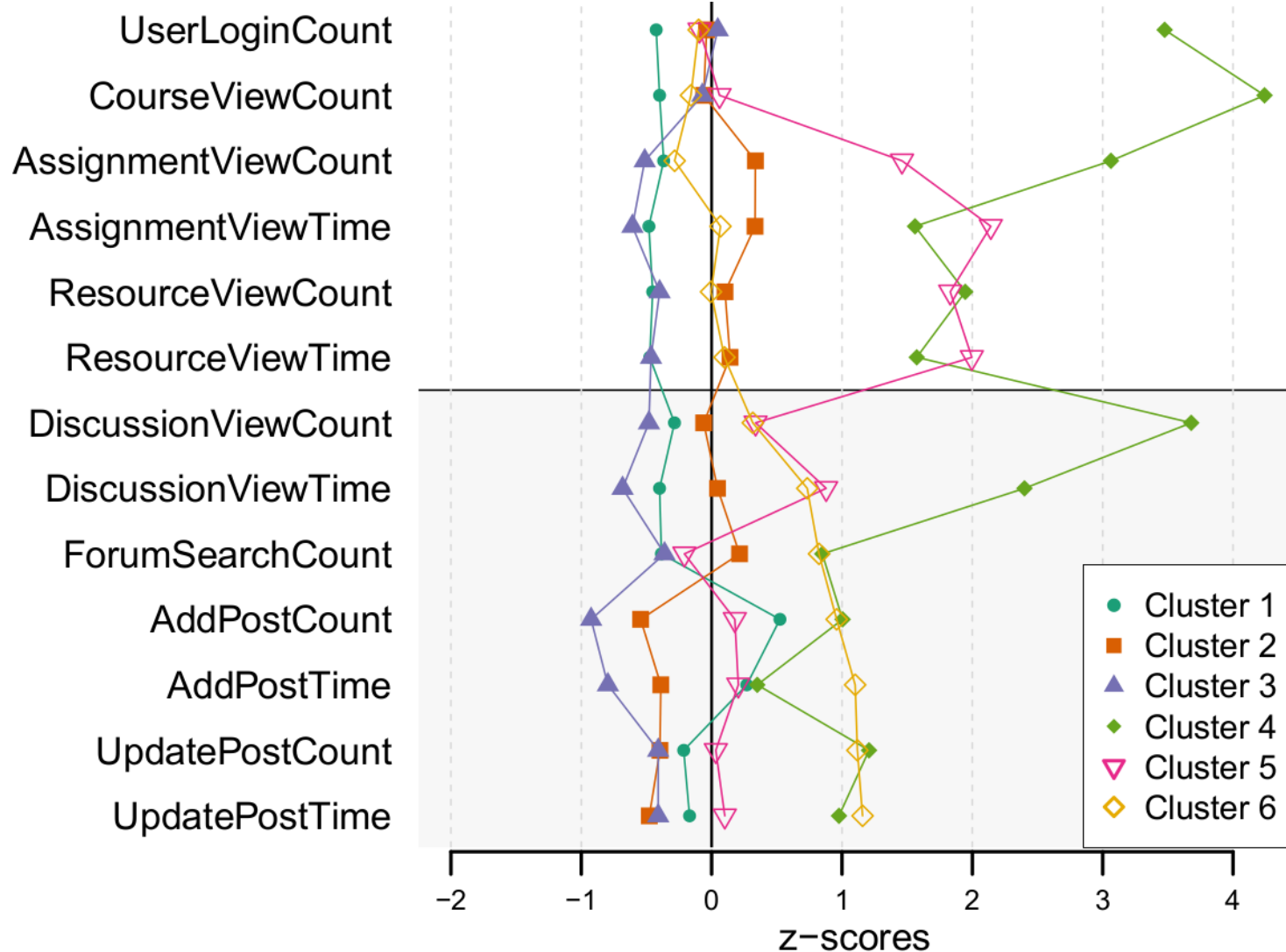
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Automate as much as possible

Current work: automated message classification (Kovanovic et al., 2014)

- Automatically classify messages in accordance with Col coding scheme
- Faster and much cheaper use of Col model
- Provide feedback to students and instructors in real-time
- Wider adoption of Col model
- Better insights into Col coding scheme

Current work: Profiling students by the technology use (Kovanovic et al., 2015a)



Thank you

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Questions?