What can we do to scaffold students in collaborative learning?

Process-oriented case studies of a digital tool for content monitoring at the group level

Suijing Yang, Jason Lodge, Cameron Brooks

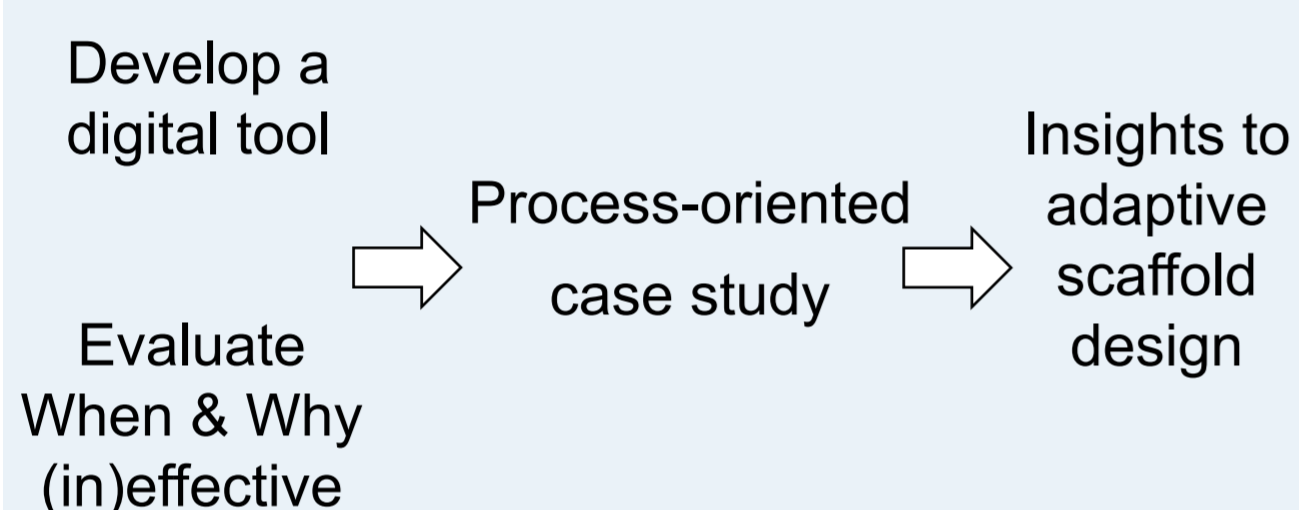School of Education, The University of Queensland, St Lucia, QLD, Australia

Background

Successful collaboration does not occur automatically. Student groups **do not always appropriately monitor**

Challenges
+
Learning processes of other members

⬆

Content Monitoring

→ Facilitates individual- and group-level regulation of different dimensions (see Figure 1).
→ Develop deep content understanding + knowledge construction

Aims

Develop a digital tool

Evaluate When & Why (in)effective

→ Process-oriented case study →

Insights to adaptive scaffold design

Methods

 Video data
[Scaffolded collaborative sessions]

 Video stimulated recall interviews

⬇

Process mining (data mining)
Content analysis
Thematic analysis

⬇

Changes in the phases before and after prompting
- Regulatory processes
- Perceived challenges
- Perceived helpfulness and problems

Implications

- Systems thinking – leverage the interplay between multi-levelled and dimensional regulation to scaffold.
- Regulatory process and perceived challenges - resources for identifying student learning deficits and adapting scaffolds.

✉ **Suijing.yang@uq.edu.au**

Figure 1. Regulated learning as a multi-levelled and multi-dimensional system in collaboration

SSRL — Group Level

CoRL — Simultaneous Interdependent

SRL — Individual Level

Time

Cognition   Emotion
Behaviour   Motivation
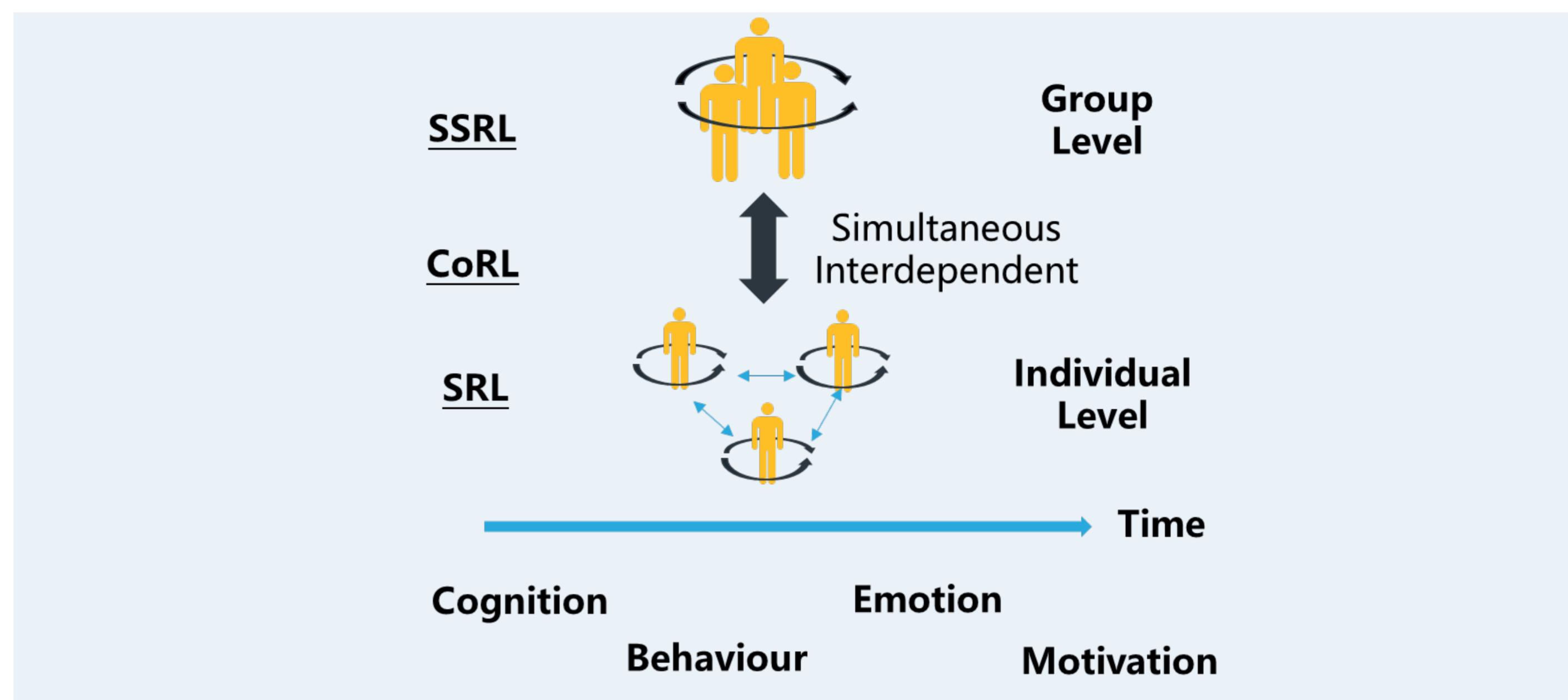
Figure 2. A digital tool with Type 1 and Type 2 prompts for content monitoring at group level

Timer
1.1 Did we understand what are required to propose to the client?
1.2 Did we understand the assessment criteria for pricing strategies, tactics, and justification?

10:00

Start   Reset   Pause

Timer
2.1 Did we have all information required on our poster?
2.2 Did we use appropriate terms/concepts and apply them to the given scenario of the client?
2.3 Did our poster meet the assessment criteria for pricing strategies, tactics and justification?

20:00

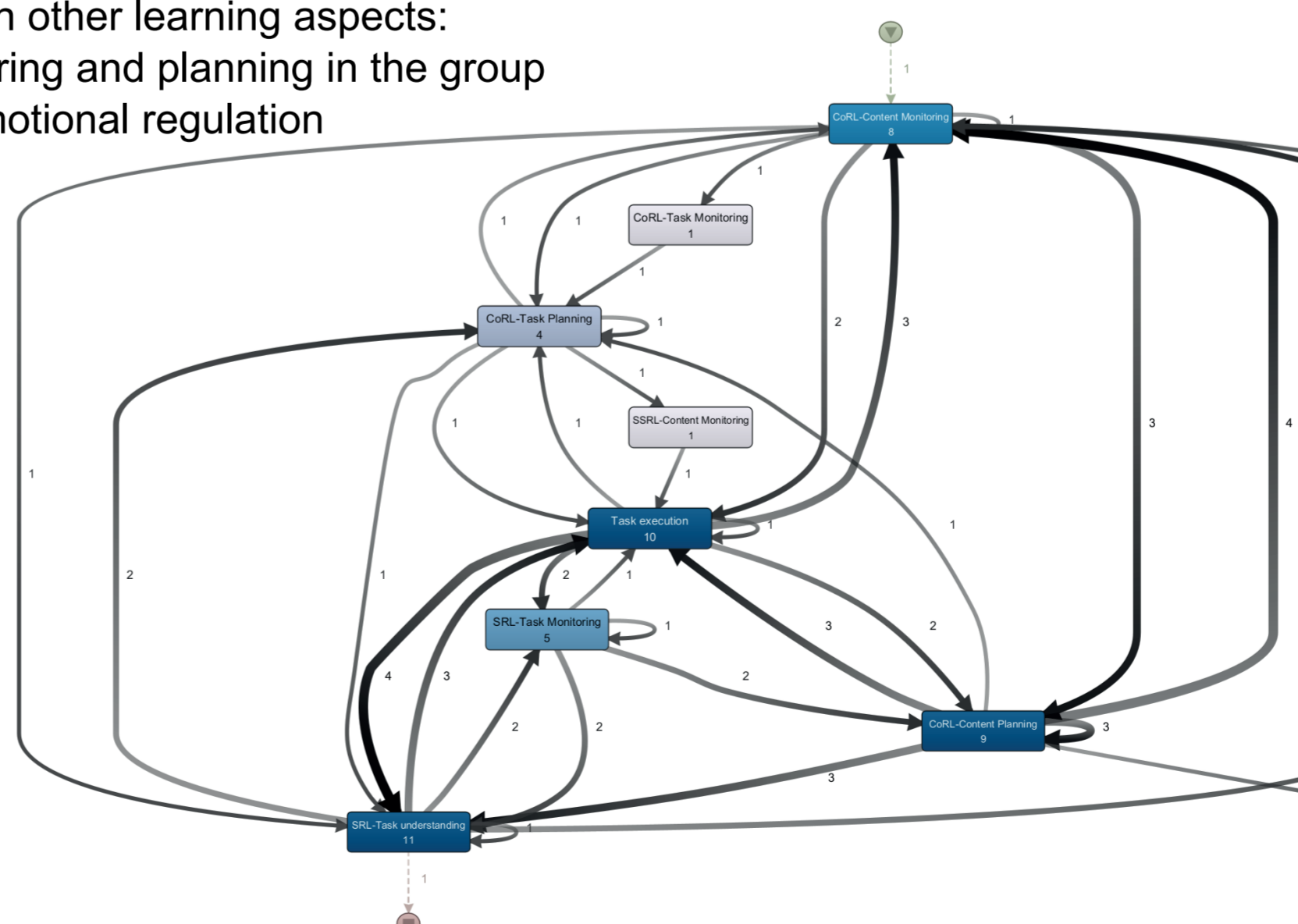Start   Reset   Pause

Key Findings

Type 1 prompts

→ Monitoring personal task understanding
→ Externalising confusion perceived in the previous phase to the group
→ Failed to target the most salient challenge of task planning (time management) that the group perceived → Decreased perceived helpfulness of scaffolding
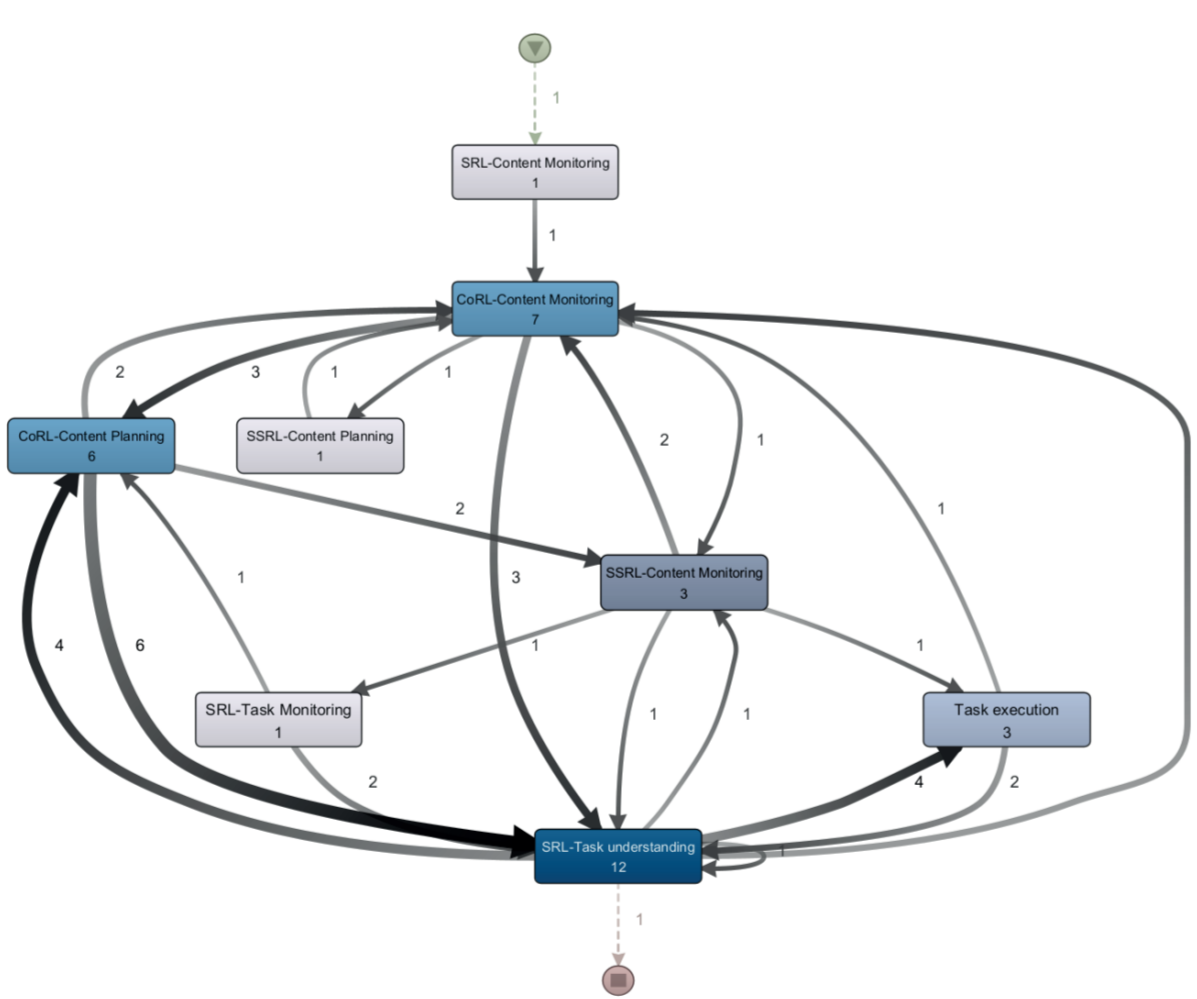
Challenges	Sub-category	Group 1				
		0	10:00	20:00	30:00	46:00
Cognitive	Task understanding	X				
	Content understanding and application		X			
	Knowledge construction	X	X			
	Difficulty understanding other's ideas		X			
	Different strategies (content) to solve the problem					
Metacognitive	Content planning				X	X
	Task planning			X	X	X
	Monitoring and evaluation					X
Motivational	Confidence					
	Lack of motivation				X	
	Different goals/standards for the task					X
Emotional	Anxiety, feeling overwhelmed, frustration					
	Lack of group member's feedback	X	X			
	Difficulty communicating due to unfamiliarity with group members	X				
	Different strategies (task) to complete the task					

Type 2 prompts

→ Assessing one's own, other group members', and the group's task solutions against task criteria
→ Regulation in other learning aspects:
  Task monitoring and planning in the group
  Personal emotional regulation

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
CREATE CHANGE