Role-based Group Formations and Interactions to foster Collaborative Learning in Large Classrooms

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Problem Definition

Collaboration in large or virtual classes is challenging

- Group formation of a high number of students that are spatially, or geographically distributed
- High noise levels and distraction, or high resource demands
- Short-term group activities

Usage of the Role-Concept [1]

Pro
- More intuitive implementation of different behavior for current user role / group (e.g., moderator assignment)
- Separation between data provided by the metamodel and runtime: Extend functionality by extending metamodel

Contra
- Less “conventional” implementation

Group Formation

Choose between five group formation algorithms

- random, bestToWorst, similar, sameAnswer, differentAnswer

Set one of the following settings

- groupSize or numberOfGroups

Group Interaction Blocks

Use different group interactions

Chat
Present Group Answers
Group Voting

Example Scenario

Implementation of Peer Instruction [2]:

Lessons Learned & Future Work

Create customized collaborative group scenarios [3]

- Execution in both virtual and traditional settings
- CL is an essential part in Software Engineering: Prepare students for teamwork, even during COVID-19 pandemic

Investigation of further use cases

- AudioVideoChat
- Implementation of Jigsaw Learning