

## Phases and areas for self-regulated and co-regulated learning

	Kind of regulation	Areas for regulation			
Phases		Cognitive / Socio-cognitive	Motivation/Affect	Behavior	Context
Phase 1. Forethought, planning and activation	Self-regulation	Target goal setting. Prior content knowledge activation. Metacognitive knowledge activation.	Goal oriented adoption. Efficacy judgements. Perception of task difficulty. Task value activation Interest activation.	Time and effort planning. Planning for self-observations of behavior.	Perceptions of task. Perceptions of context.
	Co-regulation	Establishing sharing understandings of tasks demands, negotiating the meaning of the problem and setting goals. Communicating with team members about the actions to be performed.	Anticipating good relations in the group.  Encouraging future participation in interactions.	Making workflows to achieve goals, including setting timelines. Negotiating the division of labor.	Negotiating and describing roles according to students' profile. Planning team organization (communication protocol/rules of engagement). Choice of groupware technologies (workflows, etc.).
Phase 2. Monitoring	Self-regulation	Metacognitive awareness and monitoring of cognition.	Awareness and monitoring of motivation and affect.	Awareness and monitoring of effort, time use, need for help. Self-observation of behavior.	Monitoring changing task and context conditions.
	Co-regulation	Monitoring the shared understanding. Monitoring overall group processes. Monitoring knowledge advancement. Detecting errors or checking plausibility. Detecting group socio-cognitive conflicts.	Monitoring group motivation for participations and interactions.  Detecting group socio-emotional conflicts.	Awareness on the group's goals and progress.  Using workflows to monitor activities progress.	Monitoring changing roles and communication protocols.  Monitoring rules of engagement.
Phase 3. Control	Self-regulation	Selection and adaptation of cognitive strategies for learning, thinking.	Selection and adaptation of strategies for managing, motivation, and affect.	Increase/decrease effort. Persist, give up. Help seeking behavior.	Change or renegotiate task.  Change or leave context.
	Co-regulation	Communicating with team members about the actions being performed. Making collaborative plans to achieve goals, including selecting socio-cognitive strategies. Discovering the type of collaborative interaction to solve the problem, along with goals. Advancing and explaining solutions. Coordinating socio-cognitive conflicts. Controlling overall group solutions progress. Facilitating criticizing and building on others' perspectives.	Controlling group quantity and quality of participations and interactions.  Providing feedback on group participations and interactions Avoiding and controlling group socio-emotional conflicts.  Facilitating respect on criticizing other's point of view.	Managing workflows.  Seek help from the teacher when a conflict of ideas does not reach consensus.	Controlling group roles and communication protocols.  Providing feedback on group roles and communication protocols.
Phase 4. Reaction and Refection	Self-regulation	Cognitive judgments Attributions, rehearsal elaboration organization, critical thinking, and meta-cognition.	Affective reactions. Attributions, Intrinsic and extrinsic goals, task value, control beliefs, self-efficacy, and test anxiety.	Choice behavior. Effort regulation. Help-seeking. Time/study environment.	Evaluation of task. Evaluation of context. Peer learning. Time/study environment.
	Co-regulation	Reflecting and Repairing the shared understanding. Evaluating current joint solutions. Monitoring results of actions and evaluating success in solving the problem. Reflecting on the group's goals. Progress and achievements. Making adaption to goals, collaborative plans or strategies.	Evaluation of the emotional aspects of the group members, with respect to mutual respect and engagement in group activities. Group assessment regarding the amount of interactions and how many different people interacted. Preventing lack of participations and interactions.	Reflecting on the group's goals and progress. Reflecting on workflows to check productivity. Adapting workflows.	Adapting group roles and communication protocols.