

KU LEUVEN

Developing Engineering Students' Self-Regulation: A Longitudinal Intervention



RefL³ect

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Intervention

- Three years (spans across the bachelor program)
- Piloted at Ghent Campus as part of the study program of Engineering Technology
- Aim: developing students' self-regulation to prepare them for successful lifelong learning



Awareness
BA 1



Usefulness
BA 2



Development
BA 3

Intervention



Awareness BA 1

Focus on learning and study strategies and introduction to self-regulation in the context of learning



Usefulness BA 2

Continued development of learning and study strategies, showing the usefulness of self-regulation in various contexts



Development BA 3

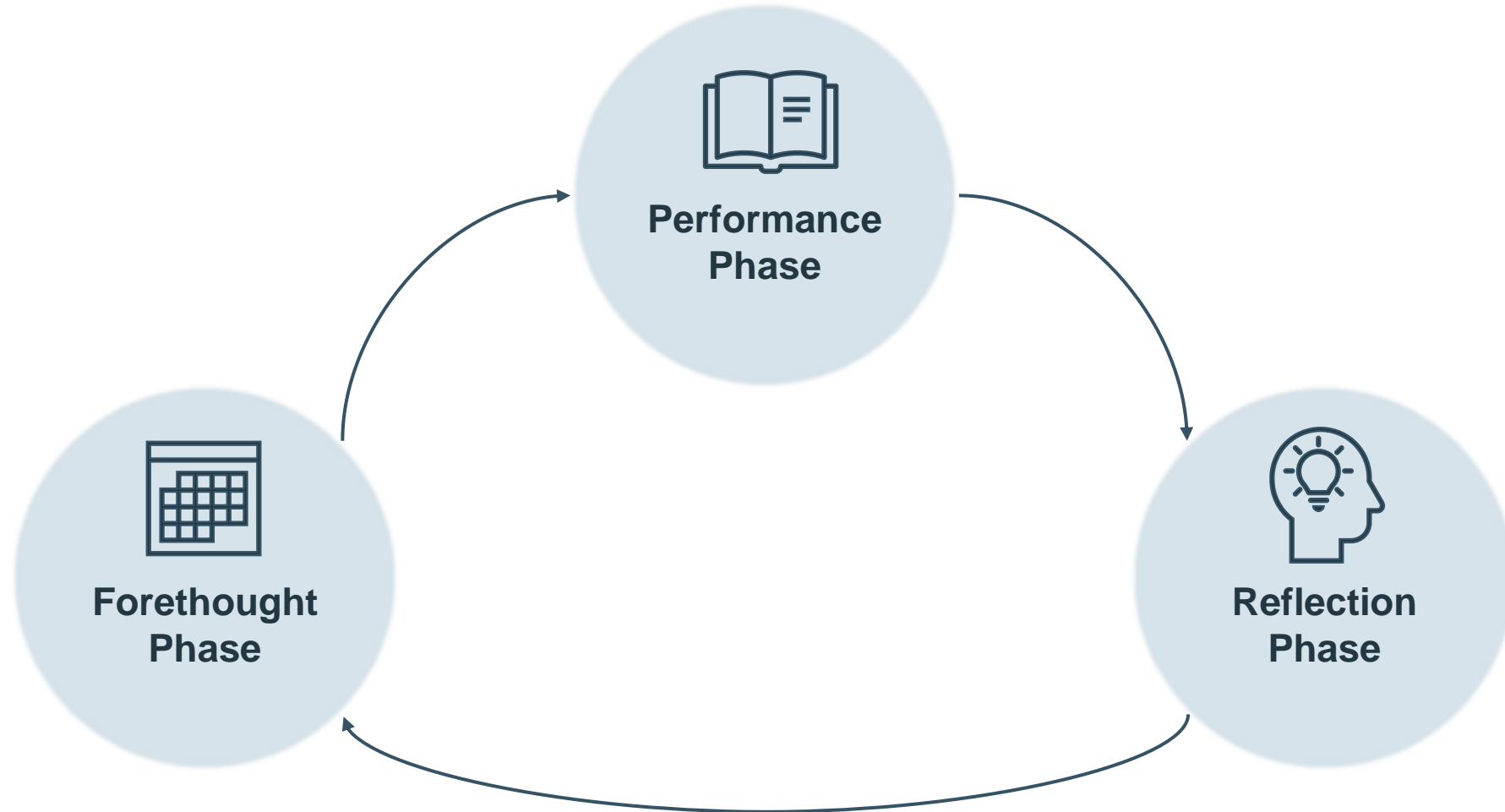
Focus on self-regulation development and lifelong learning attitude

Intervention

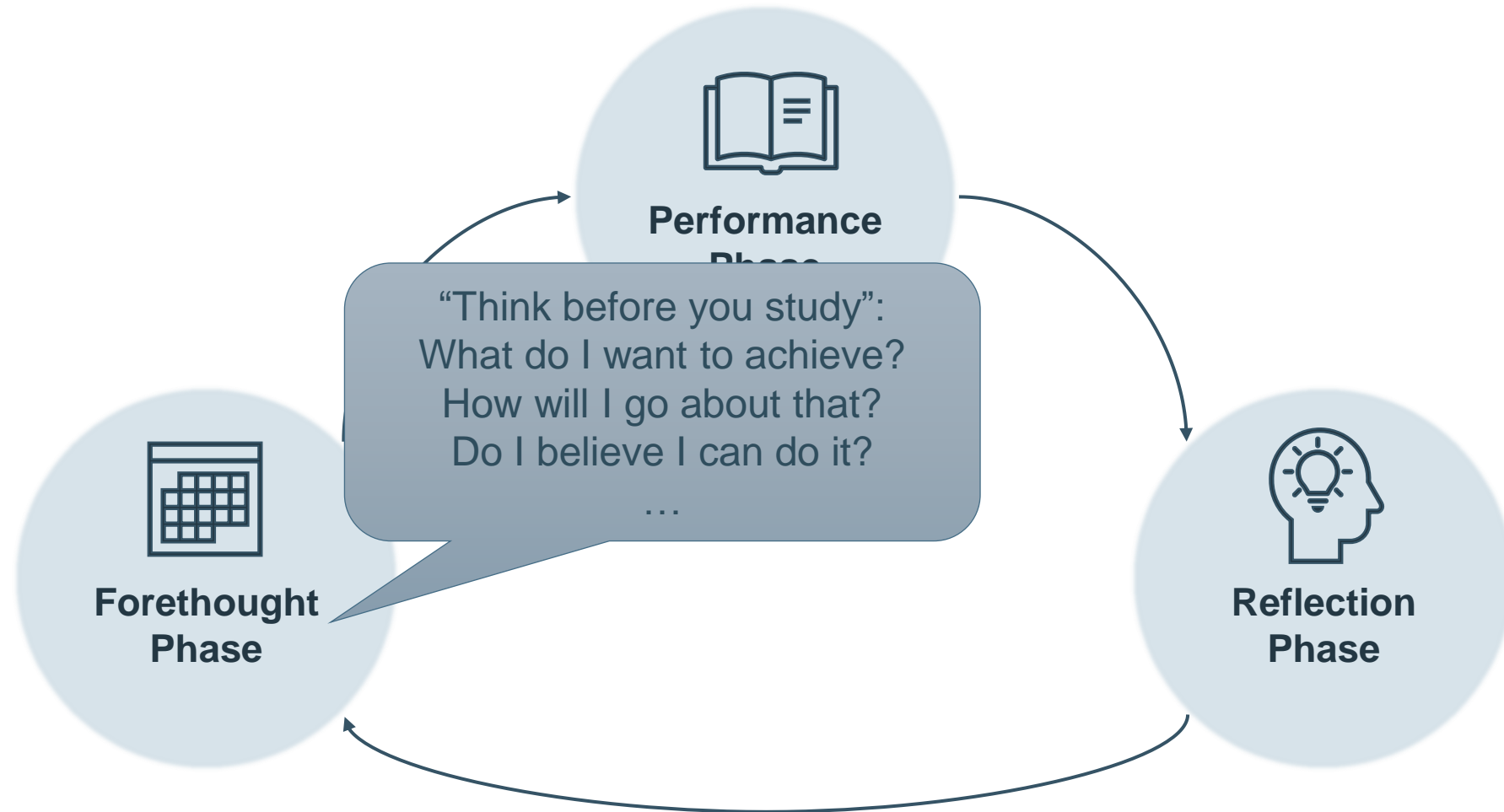
- Bachelor 1: part of courses 'Dynamica en energie' and 'Trillingen en golven'
- Aim: developing a few learning and study strategies, introduction to self-regulation, making students aware of their study habits and that they have agency over this



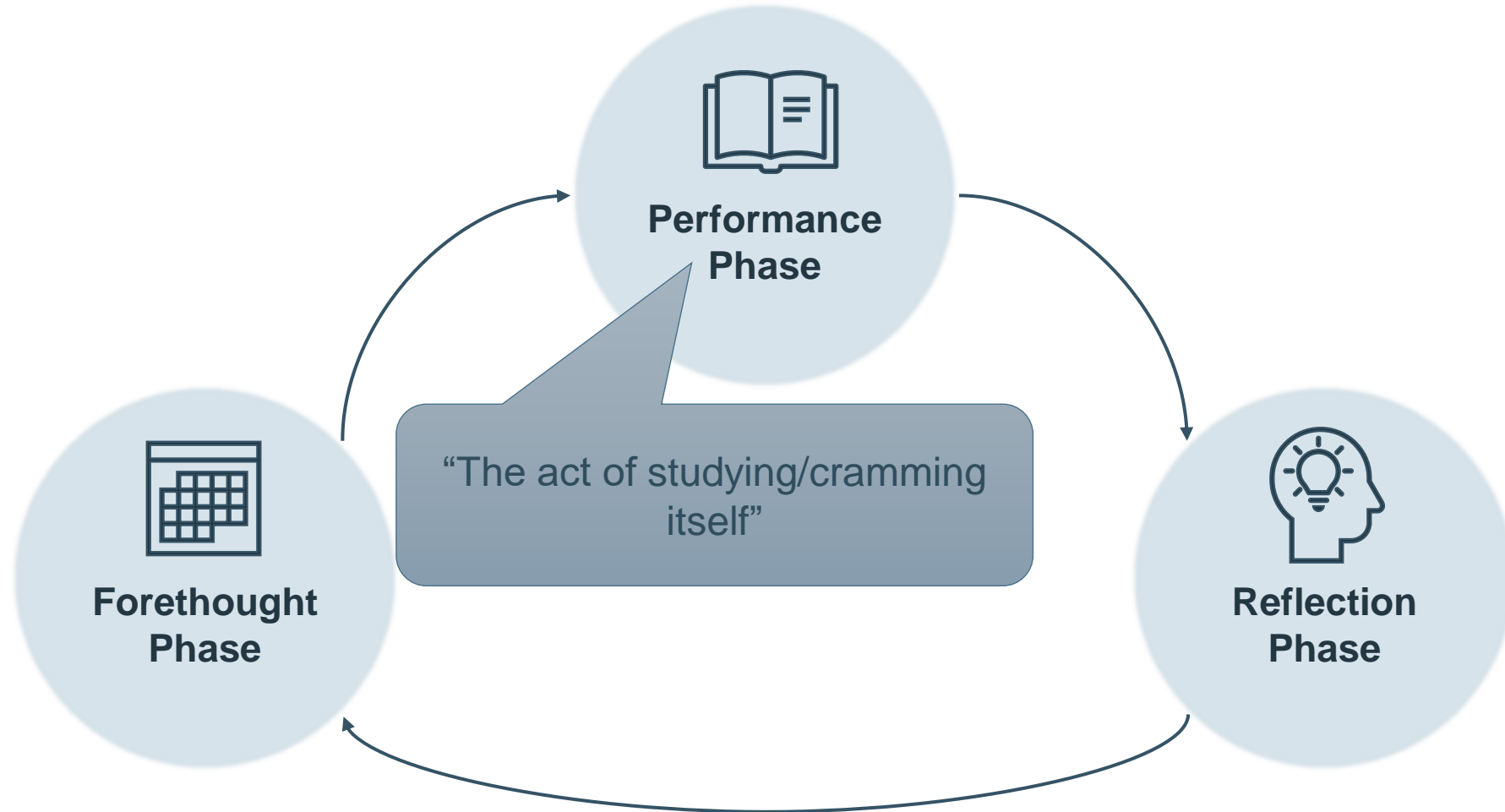
Self-Regulated Learning



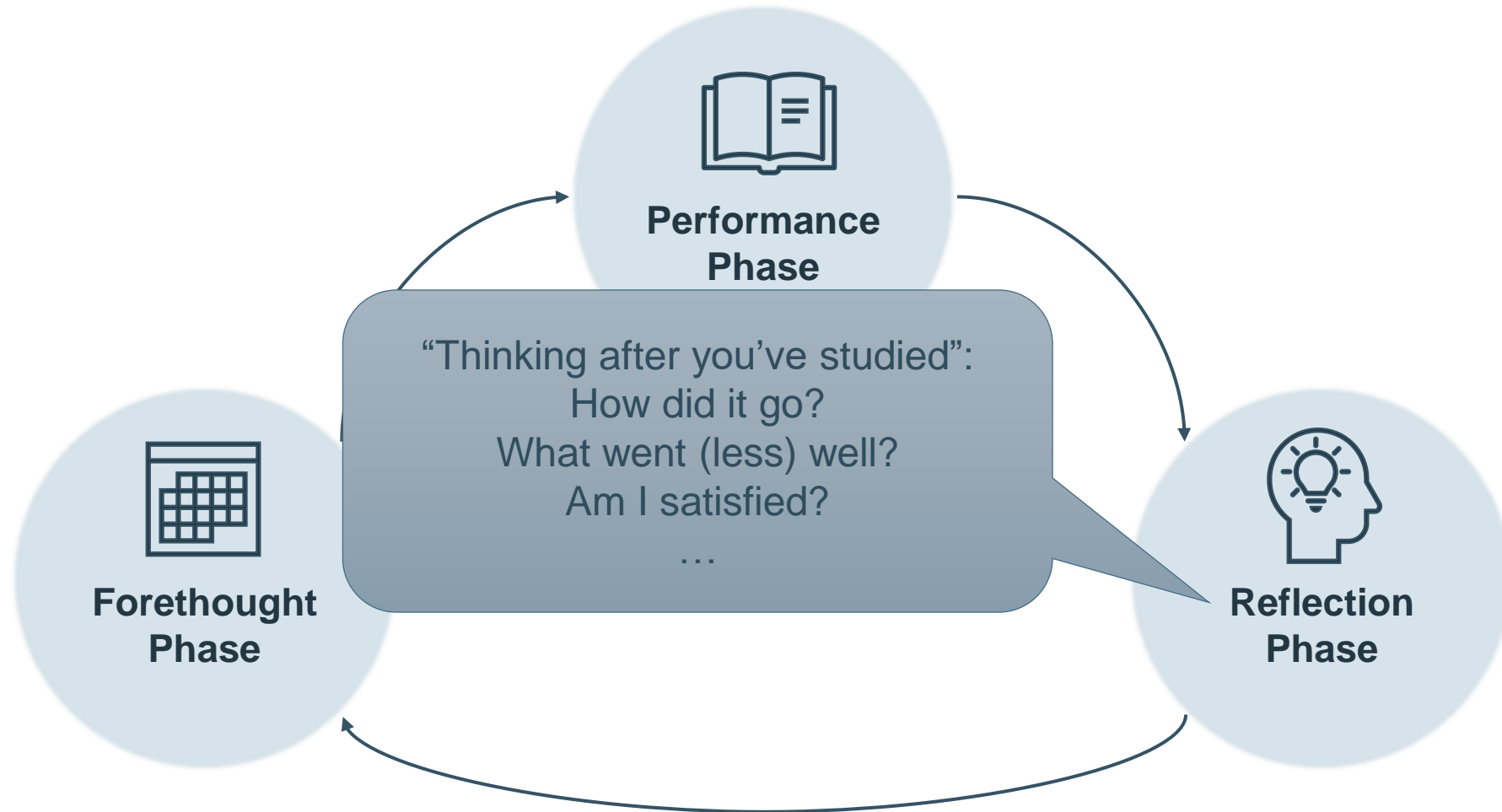
Self-Regulated Learning



Self-Regulated Learning



Self-Regulated Learning



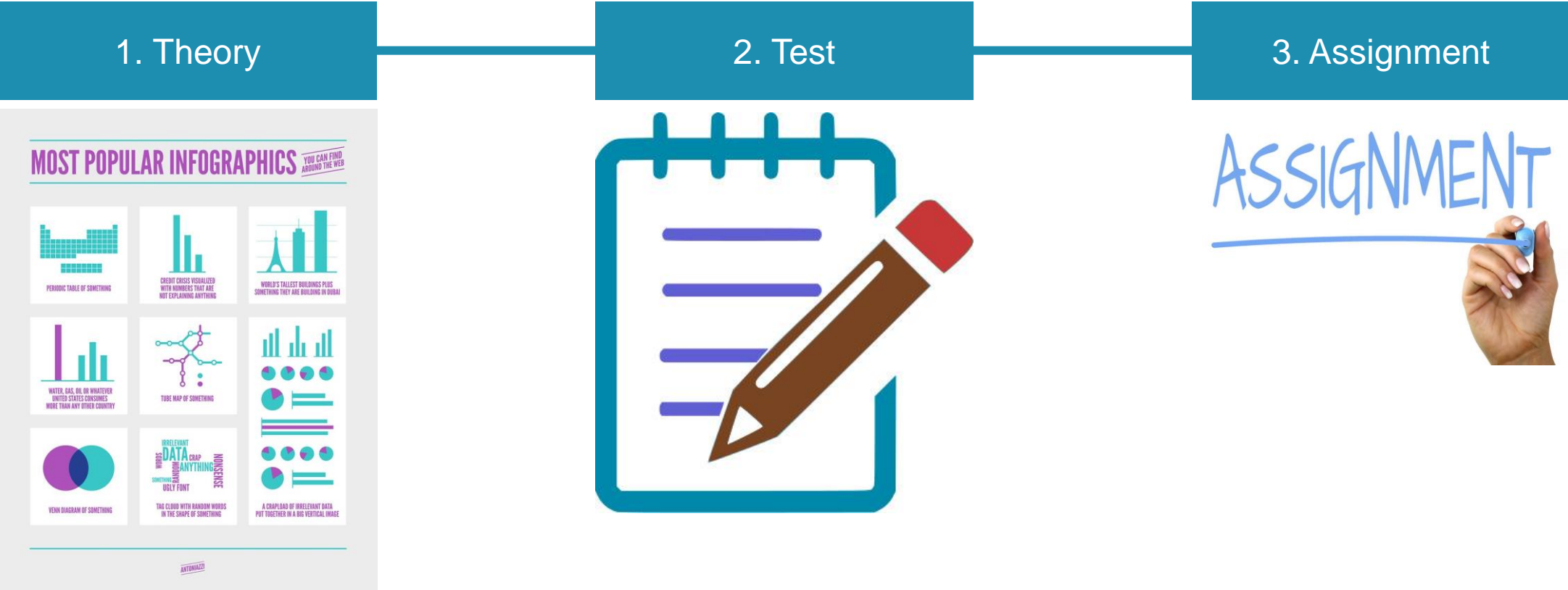
Intervention Topics

- Study strategies mapped to the self-regulation phases
 - Planning, goal setting (forethought phase)
 - Learning strategies (performance phase)
 - Self-reflection, feedback (reflection phase)
- Experimental group vs control group

Learning Strategies

- Three types of knowledge are necessary for effective use of learning strategies
 - Declarative knowledge (what is it?)
 - Procedural knowledge (how do I do it?)
 - Conditional knowledge (when should I use it?)
- Repertoire of learning strategies allows students to choose an effective strategy based on the task at hand
- By doing this, students can engage in self-regulation and thereby train the competency
- Positive effect on academic performance

Intervention Format



Discussion

How would you assess whether the intervention helped students become a more self-regulated learner?

Evaluation

- Quantitative data: SRIS (October) and LASSI or MSLQ (May) every year, to measure self-regulation
- Qualitative data: assignments and small questions answered by students on self-regulation knowledge and application, and study approach
- Checklist study strategies: every year at the start of the second semester, a checklist with actions related to study methods without jargon → study approach, self-regulating strategies, control for other measurement methods
- Satisfaction and feedback: every year at the end of the academic year, collecting anonymous student feedback and suggestions

Discussion

Do you foresee any issues regarding the implementation of this intervention? How would you tackle those issues?

Discussion

Do you recognize either of the other theoretical framework discussed today in the intervention?

Discussion

Are there aspects of self-regulation that you think are not covered in the intervention? How would you integrate those?

Discussion

How do you think you can encourage self-regulation in day-to-day educational activities?

Discussion

How do you think we can make students interested in developing their self-regulation?

Discussion

Do you think there are any prerequisite competencies to self-regulation, that should be developed first?