Metacognitive Self-Reflection Teacher Workshop Plan

Originally prepared by Sara Tomczuk, Leuphana University

Note: This plan is included in the CREATES Toolkit for Co-creative Learning. Please see http://europe-creates.eu/ for more information and educational resources.

Summary

Total time: 2 h 30 min
Lecture: 45 minutes
Small group discussion: 45 minutes (including time for a short break)
World cafe: 30 minutes
De-brief and feedback: 30 minutes

Slides

https://prezi.com/view/cs95srYezJb1xuJd0qW8/

Warm up activity and introduction

Look through each of the 7 topics/techniques of the CREATES Toolkit for Co-creative Learning and think about how competent you are with each of them.
- Are you an **expert**? Are you knowledgeable and competent with the technique at an **intermediate** level? Or are you a **novice**/beginner? Mark each one E, I, N
- Go through each and ask to raise hands if people feel comfortable doing so.

This was an example of a metacognitive self-reflection exercise that was:

- Relevant to our training event
- Social
- (somewhat) Responsive

In this session, we will review the definition of and ideas behind the technique of metacognitive self-reflection. We will discuss the learning objectives that metacognitive self-reflection can support and the principles teachers can follow to allow it to be effective. Finally, we will engage with some practical examples and discuss possibilities for using this technique in your own teaching and learning.

What is metacognitive self-reflection?

- Metacognition means thinking about thinking or thinking about learning.
- Metacognitive self-reflection is a kind of critical reflection in which students describe their own learning process, monitor their own learning strategies and attitudes, and manage or even adjust those strategies and attitudes.
  - Other kinds of critical reflection may question the content, concepts or activities of learning, but the metacognitive exercises highlight one's own relationship to these. In that way, metacognitive reflection supports other kinds of critical reflection.
- Teachers can encourage development of metacognitive skills to help create more self-directed, self-aware learners who are better able to transfer their learning to new topics and endeavors.

  "Metacognition refers to people's abilities to predict their performances on various tasks... and to monitor their current levels of mastery and understanding (e.g., Brown, 1975; Flavell, 1973). Teaching practices congruent with a metacognitive approach to learning include those that focus on sense-making, self-assessment, and reflection on what worked and what needs improving. These practices have been shown to increase the degree to which students transfer their learning to new settings and events….” (*How People Learn*, NRC 2000)

Which learning objectives or competences does it support?

Metacognitive reflection should be authentically related to the content and contexts of the material and experiences in the course. This way, it can support varied learning objectives and competences, though encouraging students to acknowledge and articulate their learning --their strengths and challenges.

Overall, metacognitive reflection is often overlapping with other kinds of critical reflection including the "reflective observation" and "abstract conceptualization" in Kolb's Learning Cycle, "bridge building" in Co-constructed Developmental Teaching Theory and "examining experience" in the DEAL model of reflection. For Anderson and Krathwohl's (2001) revision of

Bloom's taxonomy, metacognitive is the most abstract type of knowledge in learning. Within this type of knowledge are the sub-types of: 1) strategic knowledge, 2) knowledge about cognitive tasks (including appropriate contextual and conditional knowledge) and 3) self-knowledge. In [Marzano and Kendall's](#) (2007) taxonomy, metacognition is an entire category of educational objectives.

While the following learning objectives are neither exhaustive nor comprehensive for the types of courses listed, they are a starting point for thinking about how to productively integrate metacognitive reflection into your courses:

> **Introductory courses**
> - Learning new content, learning new perspectives, acquiring new skills
>
> **Upper-level (Advanced) courses**
> - Acquiring new skills, interpreting feedback/critique, articulating competencies
>
> **'Applied' courses**
> > **Practical/experiential/internships/volunteering**
> > - Applying knowledge/skills, articulating competencies, collaborating with others
> >
> > **Creative/artistic**
> > - Monitoring the process, identifying/letting go of prejudices/assumptions, making decisions
> >
> > **Research-based courses**
> > - Applying knowledge/skills, identifying challenges, monitoring the process, interpreting feedback/critique, making decisions

One of the strengths of this classroom techniques is that because the student's experience and learning is the center of the activity, it can be used in courses in any subject or field.
> The literature on teaching and learning is rich with examples of how metacognitive skills can be built in courses from varied subjects such as biology (Tanner, 2012), philosophy (Concepción, 2004), and many more (e.g. psychology, literature and geography in Chick et al, 2009).

One of the most valuable competences is that metacognitive strategies help students to become self-directed learners (Ambrose et al 2010).
> For those of us who believe that much of the specific information that students learn at university will likely fade, the most important learning outcome we can encourage in students is 'learning to learn.' Thus, when faced with new contexts, changing labor markets, and everything else we cannot predict, our students will be critical, adaptable, and up to the challenge.

How can we do metacognitive self-reflection well?

We have all been asked to reflect on anything from the completion of our higher degrees to the customer service experience with a company. Students have probably encountered self-

reflection exercises by the time they reach you, some of which were likely thoughtlessly designed --the chief offenders being standardized course evaluations and one-time retrospective reflections on a project or paper.

So, how can we design our exercises and our courses to actually train and encourage students to practice metacognitive self-reflection? I've curated some principles and techniques for you as a reference guide, gleaned from a literature review and my own experiences with employing these techniques in the classroom. I would love to hear what else you think is important, and which successes and challenges you've had in your own classroom.

Key idea/principle: Metacognitive phases
Think about the phase of the metacognitive process and design exercises that help students to identify their experience of this phase.

> Planning
>> One phase/kind of metacognitive thinking, looking to the future
>> Also helps to think about what one already knows or assumes about the topic or activity and also about their own metacognitive knowledge (self-assessment)

> Monitoring the process/Midst of process
>> One phase/kind of metacognitive thinking, looking inward
>> Helps identify challenges as well as productive practices
>> Allowing for possible adjustments

> Evaluation/retrospection
>> One phase/kind of metacognitive thinking, looking backwards

> Key source: the metacognitive cycle

Key idea/principle: Creating a metacognitive environment
   A. Training or scaffolding self-reflection
   B. Encourage authentic reflection
   C. Faculty metacognition

> **A. Training or scaffolding self-reflection**
> These suggested techniques encourage us to design exercises that are most likely to facilitate the kind of self-reflection that will improve students' metacognitive skills -and avoids traps of the ones-off retrospective reflection that is unlikely to inspire depth from students. In a nutshell, we should not assume that students have developed metacognitive skills, any experience with expressing metacognitive reflection, or that this is an intuitive kind of knowledge or thinking.

>> Training/scaffolding self-reflection
>>> Students might not be familiar or comfortable with this way of thinking.

They may not have the skills to express the metacognitive knowledge that they do have.
They may not feel comfortable sharing this kind of thinking with others.

B. Techniques to encourage authentic metacognitive self-reflection and avoid superficial or empty reflection
Other than training/scaffolding metacognitive skills and self-reflection activities, you can design them using techniques to encourage deeper reflection.
Relevant
Should relate to what students are actually learning, should be specific
Should be relevant to the field or to the task

Social
Helps encourage a culture of metacognitive expression
Reveals that experiences/thinking/learning can be different between people

Responsive
Keeps students reflecting metacognitively throughout the semester
Also helps students find solutions to issues or affirmation of productive practices

Remaining open to different forms of reflection
Creative reflection
Moving away from only writing
Key source: Harvey et al (2016)

C. Modeling and practicing metacognitive self-reflection as a teacher
Key source: faculty metacognition (p. 118) (Tanner, 2012, p. 118-120)

Reading Diaries: Content and self-reflection

An opportunity to foster metacognitive self-reflection.

Beyond that, they are an occasion to discuss and practice the following:
- Understanding of the content (especially in the case of very difficult texts)
- Writing skills
- Exchange and inter-advising among the students

Exchange: What are some examples or possibilities?

Step 1: Break into groups for smaller discussions.
Have a moderator for each group.

45 MINUTES

Four different groups, one theme for each group:
1. Activities based on the metacognitive cycle of planning, monitoring, evaluating
2. Encouraging authentic self reflection (scaffolding, social, and creative forms of reflection)
3. Promoting an environment of metacognition including:
   a. Promoting metacognitive thinking in the classroom with "Classroom Assessment Tools – CATS" (Point 6 on this list of Ten Metacognitive Teaching Techniques)
   b. faculty metacognition (p. 118)
4. Reading diaries

Step 2: Do a 'world cafe' style poster session 30 MINUTES

Instructions for Working Groups

Take a few minutes to look over the materials provided. Then begin a discussion.

Do you use these techniques?
    Where do they fit into the cycle/techniques/approach we suggest here?
    What was successful about those techniques/approaches?
    What fell short or was unsatisfying?

What are your impressions of the suggested techniques/activities?
    What is most promising about what you see in front of you?
    Where might issues emerge?

Design a 'sketch notes' style poster/slide to demonstrate your conversation in your group

---

Wrap-up, Reflection, and Feedback

30 MINUTES
Brief wrap up
Space to ask questions/give comments

References

Ambrose, S. A., Bridges, M.W., DiPietro, M., Lovett, M.C., and Norman M.K. (2010) *How Learning Works : Seven Research-Based Principles for Smart Teaching*. John Wiley & Sons.

Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives (Complete edition)*. New York: Longman.

Center for Innovation and Excellence in Learning (CIEL) Website. "Ten Metacognitive Teaching Strategies." Link: https://ciel.viu.ca/teaching-learning-pedagogy/designing-your-course/how-learning-works/ten-metacognitive-teaching-strategies

Concepción, D. W. (2004) Reading Philosophy with Background Knowledge and Metacognition. *Teaching Philosophy 24*(4), 351-368.

Chick, N. L., Karis, T., and Kernahan C. (2009) Learning from Their Own Learning: How Metacognitive and Metaaffective Reflections Enhance Learning in Race-Related Courses. *International Journal for the Scholarship of Teaching and Learning*. *3*(1),1-28. Available at: https://doi.org/10.20429/ijsotl.2009.030116

Harvey, M., Walkerden, G., Semple, A., McLachlan, K., Lloyd, K., and Baker, M. (2016) A song and a dance: Being inclusive and creative in practicing and documenting reflection for learning. *Journal of University Teaching and Learning Practice. 13*(2), 3.

Bransford, J. D., Brown, A. L. & Cocking, R. R., (Eds.). (2000) *How people learn: Brain, mind, experience, and school* (Expanded Edition). Washington, D.C.: National AcademyPress. Available: https://www.nap.edu/catalog/9853/how-people-learn-brain-mind-experience-and-school-expanded-edition

Sweetland Center for Writing. (2020). Cultivating Reflection and Metacognition. University of Michigan College of Literature, Science, and the Arts. https://lsa.umich.edu/sweetland/instructors/teaching-resources/cultivating-reflection-and-metacognition.html

Tanner, K. D. (2012) Promoting Student Metacognition. *CBE-Life Science Education. 11*,113–120. https://www.lifescied.org/doi/pdf/10.1187/cbe.12-03-0033
University of Puget Sound Website (2020) "Creating Critical Reflection Assignments: Design Models" Available: https://www.pugetsound.edu/academics/experiential/for-faculty/available-resources/creating-critical-reflection-assignments/design-models/