Guidelines for facilitating the learning of STEAME
Reference Number: 101102619

Module and Workshop Learning Plan

Module Number and Area/Topic: Module 9: LEARN HOW TO LEARN
Module leaders: UKEN (P1), UB (P9)

1. Introduction and broad description of the context and goal of the area/topic addressed with reference to the STEAME Teacher Facilitators Competence Framework for student and serving teachers

This module is designed to navigate the intricate landscape of STEAME education, emphasizing the vital roles of self-reflection and effective communication. The module underscores the necessity of developing a reflective practice, enabling educators to continually assess and enhance their teaching methodologies, and the importance of mastering communication to foster an environment conducive to learning and collaboration.

Aligned with the STEAME Teacher Facilitators Competence Framework, this module aims to elucidate the relevance of these competences in the broader context of facilitating STEAME learning. It addresses how the intricate process of learning how to learn is not just about acquiring new knowledge but is intrinsically linked to the ongoing development of skills and attitudes that underpin the competences outlined in the Framework. This module sets the stage for educators to delve deeper into the specific competences necessary for planning, organizing, and reflecting on STEAME learning activities, highlighting how self-awareness and communicative proficiency are instrumental in their roles as facilitators of student learning in STEAME subjects.

By establishing a clear understanding of the module's goals and its alignment with the competence framework, educators are prepared to embark on a journey of professional growth. They are encouraged to explore the dimensions of their teaching practice through the lens of self-reflection and to enhance their effectiveness as communicators within the classroom setting and beyond, ensuring that they are well-equipped to nurture the next generation of STEAME learners.

2. Learning objectives and learning outcomes with reference to the defined list of learning outcomes in the Competence framework

Learning Objective 1: Develop Reflective Practice
- **Related Framework Competence: Area 3, Competence 8 (Promote student self-regulation and metacognition)**
  - *Learning Outcomes from the Framework:*
    - **Student Teachers**: Develop an understanding of formative assessment strategies that can ensure students' self-regulation.
    - **Service Teachers**: Design formative assessment strategies to ensure students' self-regulation.
  - *Module specific outcome:*

- Identify and use reflective strategies to evaluate teaching practices and foster continuous professional growth.

Learning Objective 2: Enhance Self-Regulation Skills
- **Related Framework Competence: Area 3, Competence 8 (Promote student self-regulation and metacognition)**
  - *Learning Outcomes from the Framework:*
    - **Student Teachers**: Design formative assessment strategies to ensure students' self-regulation.
    - **Service Teachers**: Argue for the introduction of metacognition in specific STEAME PBL Learning and Creativity Plans as a tool to ensure that students integrate new competences/knowledge into existing ones.
  - *Module specific outcome:*
    - Demonstrate techniques for fostering self-regulation in educators and students, enabling independent learning and skill development.

Learning Objective 3: Foster Effective Communication
- **Related Framework Competence: Area 2, Competence 6 (Support STEAME projects with the right learning environment and resources)**
  - *Learning Outcomes from the Framework:*
    - **Student Teachers**: Define a productive use of up-to-date technologies to facilitate student learning in STEAME PBL learning activities, including artificial intelligence, virtual, and hybrid learning environments.
    - **Service Teachers**: Demonstrate a productive use of up-to-date technologies to facilitate student learning in STEAME PBL learning activities, including artificial intelligence, virtual, and hybrid learning environments.
  - *Module specific outcome:*
    - Apply effective communication strategies, including the use of technology, to create a collaborative and supportive learning environment.

Learning Objective 4: Support Metacognition
- **Related Framework Competence: Area 3, Competence 8 (Promote student self-regulation and metacognition)**
  - *Learning Outcomes from the Framework:*
    - **Student Teachers**: Determine moments for students (i.e., with a calendar) to check their progress along the project.
    - **Service Teachers**: Design formative assessment strategies to ensure students' self-regulation.
  - *Module specific outcome:*
    - Integrate metacognitive checkpoints and strategies into teaching plans to help learners reflect on and regulate their progress.

Learning Objective 5: Facilitate Student Agency

- **Related Framework Competence: Area 3, Competence 7 (Involve students in STEAME projects)**
  - *Learning Outcomes from the Framework:*
    - **Student Teachers**: Name strategies to involve students in choosing the context for STEAME PBL activities, out of recent developments in society or from their internal curiosity, through genuine personal or moral involvement.
    - **Service Teachers**: Propose strategies to involve a specific group or groups of students in choosing the context for STEAME PBL activities, out of recent developments in society or from their internal curiosity, through genuine personal or moral involvement.
  - *Module specific outcome:*
    - Empower students to take ownership of their learning by involving them in setting goals and selecting meaningful project contexts.

3. Competences that are developed

This section outlines the key competences participants will develop during Module 9, using the STEAME Competence Framework as a foundation and tailoring them to the module's focus on reflective practice, metacognition, self-regulation, and effective communication.

Self-Regulation and Metacognitive Awareness

- **From the Framework (Area 3, Competence 8):**
  Promote student self-regulation and metacognition in STEAME projects.
- **Module-Specific Competence:**
  Develop and apply strategies to foster self-awareness and self-regulation in educators and learners, enabling continuous learning and adaptation.

Reflective Practice

- **From the Framework (Area 1, Competence 3):**
  Monitoring STEAME projects and reporting.
- **Module-Specific Competence:**
  Use reflective practices to evaluate and improve personal teaching methodologies, enhancing learning outcomes and professional growth.

Effective Communication and Collaboration

- **From the Framework (Area 2, Competence 6):**
  Support STEAME projects with the right learning environment and resources.
- **Module-Specific Competence:**
  Demonstrate communication skills to facilitate collaboration with students, colleagues, and external stakeholders, leveraging technology where appropriate.

Facilitation of Student Agency

- **From the Framework (Area 3, Competence 7):**
  Involve students in STEAME projects.

- **Module-Specific Competence:**
  Engage students in shaping their learning journeys by considering their interests and empowering them to take ownership of their educational process.

Planning and Implementation of Learning Strategies

- **From the Framework (Area 1, Competence 1):**
  Design and implement context-bound STEAME projects.
- **Module-Specific Competence:**
  Plan and execute learning activities that incorporate self-reflection, self-regulation, and collaborative problem-solving within STEAME contexts.

4. Content and Resources (providing information on the various constituents/ dimensions of the topic under consideration), including presenter's notes for guidelines of the workshops organisation

This section is aligned with the learning objectives and competences of the module, focusing on self-regulation, metacognition, reflective practice, and effective communication. It includes specific content suggestions and resources with presenter's notes for workshop organization.

4.1. Content

4.1.1 Reflective Practice

- **Topics:**
  - Importance of self-reflection in professional growth.
  - Tools for reflective teaching (journals, peer reviews, video recordings of lessons).
  - Continuous improvement through feedback.
- **Resources:**
  - **Article:** "Reflecting on Teaching Practice" by Purdue University.
    https://onlineteachinghub.education.purdue.edu/reflecting-on-teaching-practice/?utm_source=chatgpt.com
  - **Video:** "Understanding Reflective Practice" – A concise overview of reflective teaching strategies.
    https://www.youtube.com/watch?v=iBmtH0Qx0YU
  - **Video:** "Reflecting on Teaching Practice" – Insights into the significance of reflection in teaching.
    https://www.youtube.com/watch?v=bXLwu5an044

4.1.2 Metacognition and Self-Regulation

- **Topics:**
  - Understanding metacognitive strategies (goal setting, self-monitoring, self-assessment).
  - Designing activities that promote self-regulation among students.
  - Implementing formative assessments to encourage self-awareness.
- **Resources:**
  - **Website:** The Learning Scientists – Resources on metacognition and effective learning strategies.

- o **Video:** "Teaching Strategies Grades K-12: Metacognition" – An exploration of metacognitive strategies in education. https://www.youtube.com/watch?v=afc8vcleJ90

- o **Video:** "Metacognition in the Classroom" – Practical approaches to incorporating metacognition in teaching.
  https://www.youtube.com/watch?v=_6vxOI6nlQY

4.1.3 Effective Communication and Collaboration

- **Topics:**
  - o Techniques for fostering open and supportive classroom discussions.
  - o Using technology for collaborative learning.
  - o Building communication bridges with stakeholders.
- **Resources:**
  - o **Website:** Collaborative Classroom – Strategies and tools for collaborative teaching.
  - o **Video:** "Metacognition, Effective Teaching & Learning" – Discusses the role of metacognition in effective teaching and collaboration.
    https://www.youtube.com/watch?v=yo-c-Q3KHlA
  - o **Tool:** Padlet – A digital platform for collaborative brainstorming and idea sharing.

4.1.4 Student Agency

- **Topics:**
  - o Strategies for involving students in project design.
  - o Balancing teacher guidance with student autonomy.
  - o Leveraging student interests for meaningful learning.
- **Resources:**
  - o **Article:** "12 Reflective Teaching Examples" – Discusses methods to enhance student engagement and agency.
    https://helpfulprofessor.com/reflective-teaching-examples/?utm_source=chatgpt.com

  - o **Video:** "The Art of Metacognition" by Dhaarini Sudha – A TED Talk emphasizing student-centered learning approaches.
    https://www.ted.com/talks/dhaarini_sudha_the_art_of_metacognition

4.2. Presenter's Notes for Workshop Organization

4.2.1 Reflective Practice Workshop

- **Goal:** Participants create a personalized reflective practice plan.
- **Activities:**
  - o **Group Discussion:** Share previous experiences with self-reflection.
  - o **Practical Task:** Analyze a teaching scenario and identify areas for improvement.
  - o **Output:** Individual action plans for implementing reflective tools.

4.2.2 Metacognition and Self-Regulation Workshop

- **Goal:** Equip educators with strategies to develop self-regulation in learners.
- **Activities:**
  - o **Introduction:** Short lecture on metacognitive processes.

- o **Activity:** Use a metacognitive reflection worksheet to plan a classroom activity.
- o **Group Work:** Share and refine strategies with peers.

4.2.3 Effective Communication and Collaboration Workshop

- **Goal:** Build skills for fostering collaboration in STEAME projects.
- **Activities:**
  - o **Role-Play:** Practice communication techniques.
  - o **Group Task:** Design a collaborative classroom activity using digital tools.
  - o **Output:** Sample activity plans incorporating communication strategies.

4.2.4 Student Agency Workshop

- **Goal:** Enable educators to involve students in their learning process.
- **Activities:**
  - o **Case Study:** Analyze a successful project emphasizing student agency.
  - o **Practical Task:** Use Padlet to brainstorm student-driven project ideas.
  - o **Group Discussion:** Share best practices for maintaining student motivation.

5. Methodology and approaches for the module training presentation and guidelines for workshops organisation

5.1. Training Presentation Methodology

The training presentation will combine theoretical insights with practical application, fostering an interactive and reflective learning environment.

5.1.1 Interactive Lectures

- **Purpose:** Introduce foundational concepts (e.g., reflective practice, metacognition, self-regulation).
- **Approach:**
  - o Use visuals like slides or infographics to simplify complex concepts.
  - o Incorporate real-life teaching scenarios to illustrate theoretical points.
  - o Encourage active participation by asking reflective questions.

5.1.2 Collaborative Discussions

- **Purpose:** Build shared understanding and peer learning.
- **Approach:**
  - o Use breakout groups (virtual or in-person) to discuss specific topics like "barriers to self-regulation in classrooms."
  - o Summarize group findings in plenary sessions to synthesize diverse perspectives.

5.1.3 Hands-On Demonstrations

- **Purpose:** Connect theoretical concepts to practice.
- **Approach:**
  - o Demonstrate tools such as Padlet or reflection journals.

- o Showcase examples of successful metacognitive strategies or reflective practices.

5.2. Workshop Organization and Methodology

Workshops will emphasize experiential learning through group tasks, case studies, and hands-on activities.

5.2.1 Workshop Structure

Workshops are divided into four segments, following Kolb's experiential learning cycle: experience, reflection, conceptualization, and application.

5.3. Guidelines for Workshop Organization

5.3.1 Reflective Practice Workshop

- **Goal:** Develop actionable reflective teaching strategies.
- **Activities:**
  - o Icebreaker: Share a teaching moment participants wish to improve.
  - o Group Task: Analyze a video of a teaching scenario, identifying areas for improvement.
  - o Output: Individual reflective action plan.
- **Duration:** 1.5 hours.
- **Tools:** Reflective Teaching Online Toolkit, whiteboards, or virtual collaboration tools like Miro.

5.3.2 Metacognition and Self-Regulation Workshop

- **Goal:** Design metacognitive and self-regulatory strategies for students.
- **Activities:**
  - o Scenario Discussion: Present a case study of a struggling student.
  - o Task: Develop a metacognitive activity, such as a self-assessment worksheet.
  - o Peer Feedback: Share designs in small groups for improvement.
- **Duration:** 2 hours.
- **Tools:** Templates for metacognitive strategies, case studies.

5.3.3 Effective Communication and Collaboration Workshop

- **Goal:** Strengthen communication skills for collaborative learning environments.
- **Activities:**
  - o Role-Playing: Practice non-verbal communication techniques for managing classroom discussions.
  - o Digital Collaboration Task: Create a group project plan using Padlet.
  - o Reflection: Share insights on improving communication in specific scenarios.
- **Duration:** 1.5 hours.
- **Tools:** Padlet, communication frameworks.

5.3.4 Student Agency Workshop

- **Goal:** Enable educators to design learning experiences driven by student agency.
- **Activities:**
  - o Brainstorming: Identify barriers to student ownership in learning.

- o Planning Task: Draft a STEAME project proposal integrating student-selected topics.
- o Feedback Session: Evaluate each other's project proposals.
- **Duration:** 2 hours.
- **Tools:** Example project outlines, collaborative platforms like Miro.

5.4. Approaches for Delivery

5.4.1 Blended Learning

- **Rationale:** Combines the benefits of face-to-face interaction with the flexibility of online learning.
- **Implementation:**
  - o Use synchronous sessions for collaborative activities.
  - o Provide asynchronous materials, such as video lectures and readings, for self-paced learning.

5.4.2 Reflective Practices

- **Rationale:** Encourages ongoing self-improvement and professional growth.
- **Implementation:**
  - o Integrate reflection checkpoints at the end of each session.
  - o Encourage the use of reflective journals throughout the module.

5.4.3 Scaffolding Techniques

- **Rationale:** Gradually build participants' competence by starting with simpler tasks and moving to complex applications.
- **Implementation:**
  - o Begin with guided group discussions.
  - o Progress to independent problem-solving tasks.

5.5. Evaluation

- Use formative assessments (e.g., peer feedback, short quizzes).
- Conduct a final reflective discussion to evaluate participant learning and gather feedback for improvement.

6. Instruments/Tools/Supporting Materials/Resources to be used

6.1. Instruments/Tools

6.1.1 Digital Collaboration and Brainstorming Tools

- **Padlet:** A digital platform for brainstorming, idea sharing, and collaboration. (www.padlet.com)
- **Miro:** A virtual whiteboard tool for collaborative planning and discussions. (www.miro.com)
- **Zoom/MS Teams Breakout Rooms:** For facilitating group discussions during online workshops.

6.1.2 Reflective Tools

- **Reflection Journals:** Encourage participants to document their learning and insights.
- **Reflective Teaching Online Toolkit:** Templates and guides for reflective practice. (onlineteachinghub.education.purdue.edu)
- **Metacognitive Reflection Worksheet:** For structuring reflective activities. (bit.ly/metacog-worksheet)

6.1.3 Communication and Presentation Tools

- **Canva:** For creating visual aids and infographics for presentations. (www.canva.com)
- **PowerPoint/Google Slides:** For presenting theoretical concepts and workshop outlines.
- **Kahoot or Mentimeter:** Interactive tools for quizzes and polls to engage participants.

6.2. Supporting Materials

6.2.1 Case Studies

- Example project: "Tech for Trees" – A STEAME-based environmental project emphasizing interdisciplinary collaboration and student agency.

6.2.2 Scenarios and Examples

- Pre-designed teaching scenarios for reflective analysis.
- Examples of metacognitive strategies in practice (self-assessment rubrics, goal-setting activities).

6.2.3 Workshop Handouts

- Templates for brainstorming and reflective practice (e.g., Padlet layouts, journaling prompts).
- Guidelines for implementing metacognitive strategies in classrooms.

6.3. Resources

6.3.1 Articles and Readings

- **"Becoming a Reflective Teacher"** by Robert J. Marzano (2012). ISBN: 978-0983351248.
- **"Promoting Student Agency in the Classroom"** by ASCD. (Link)
- **"12 Reflective Teaching Examples"** (helpfulprofessor.com).

6.3.2 Books

- **"Drive: The Surprising Truth About What Motivates Us"** by Daniel H. Pink. Riverhead Books (2009). ISBN: 978-1594484803.
- **"10 Mindframes for Visible Learning: Teaching for Success"** by Hattie & Zierer. Routledge (2018). ISBN: 978-1138635524.

6.3.3 Websites

- The Learning Scientists: Resources on metacognition and effective learning strategies.
- Collaborative Classroom: Tips and tools for collaborative teaching.

6.3.4 Videos

- **"Understanding Reflective Practice"** (youtube.com).
- **"Teaching Strategies Grades K-12: Metacognition"** (youtube.com).
- **"Empowering Student Voice"** TEDx talk by Russell Quaglia (ted.com).

6.4. Summary Table for Easy Reference

Category	Tool/Resource	Purpose
Digital Collaboration	Padlet, Miro	Brainstorming, collaboration
Reflective Tools	Journals, Reflective Toolkit, Metacognitive Worksheet	Reflection and self-regulation
Communication Tools	Zoom, Canva, Kahoot	Facilitate communication and engagement
Articles/Books	Marzano (2012), Pink (2009), ASCD (2020)	Deepen understanding of core concepts
Videos	Reflective Practice, Metacognition in Teaching, Student Voice (TEDx)	Illustrative and engaging multimedia content
Case Studies/Scenarios	"Tech for Trees," pre-designed teaching examples	Practical applications

PART 1	Reflective Practice Workshop – Developing Actionable Strategies
Learning Objectives	Participants will learn to identify and use reflective strategies to evaluate teaching practices and foster growth.
Learning Outcomes	- Recognize the importance of reflective teaching. - Develop an individual reflective action plan.
Competences	- Self-regulation and metacognitive awareness. - Reflective practice.
Content, Resources and Tools	- Reflective Teaching Online Toolkit. - Miro for collaboration. - Example videos of teaching scenarios.
Activities	- **Icebreaker:** Share a teaching moment participants wish to improve. - **Group Task:** Analyze a teaching video to identify areas for improvement. - **Reflection:** Create an individual reflective action plan.

Estimated Time	1.5 hours

(add more Activity sections as needed)

PART 2	Metacognition and Self-Regulation Workshop – Designing Effective Strategies
Learning Objectives	Participants will develop strategies to foster metacognition and self-regulation among students.
Learning Outcomes	- Design metacognitive activities to promote self-regulation. - Apply formative assessment techniques to support learning.
Competences	- Self-regulation and metacognitive awareness. - Facilitation of student agency.
Content, Resources and Tools	- Templates for metacognitive strategies. - Case studies of student challenges. - Self-assessment worksheet examples.
Activities	- **Scenario Discussion:** Analyze a case study of a struggling student to identify challenges and solutions. - **Task:** Create a metacognitive activity (e.g., a self-assessment worksheet). - **Peer Feedback:** Share and refine designs in small groups.
Estimated Time	2 hours

(add more Activity sections as needed)

PART 3	Effective Communication and Collaboration Workshop – Strengthening Skills for Learning Environments
Learning Objectives	Participants will enhance their communication techniques and collaboration skills for fostering effective learning environments.
Learning Outcomes	- Demonstrate non-verbal communication techniques for managing discussions. - Develop a collaborative project plan using digital tools.
Competences	- Effective communication and collaboration. - Facilitation of collaborative learning processes.
Content, Resources and Tools	- Communication frameworks. - Padlet for collaborative project planning. - Role-playing scenarios for non-verbal communication practice.
Activities	- **Role-Playing:** Practice non-verbal communication techniques for classroom management. - **Digital Collaboration Task:** Create a group project plan using Padlet. - **Reflection:** Share and discuss insights on improving communication in specific teaching scenarios.
Estimated Time	1.5 hours

(add more Activity sections as needed)

PART 4	Student Agency Workshop – Designing Learning Experiences Driven by Student Ownership
Learning Objectives	Participants will develop strategies to empower students by fostering ownership and agency in learning.
Learning Outcomes	- Identify barriers to student agency in learning environments. - Draft a project proposal that integrates student-selected topics.
Competences	- Facilitation of student agency. - Planning and implementation of learner-centered strategies.
Content, Resources and Tools	- Example STEAME project outlines. - Collaborative platforms like Miro for planning. - Guidelines for designing student-driven activities.
Activities	- **Brainstorming:** Identify barriers to student ownership in learning. - **Planning Task:** Create a STEAME project proposal incorporating student-selected topics. - **Feedback Session:** Share and evaluate project proposals within the group.
Estimated Time	2 hours

(add more Activity sections as needed)

7. Reflection and Closure activity

This part serves as a critical opportunity to consolidate the learning from Module 9: "Learn How to Learn." It ensures participants leave with clear insights, actionable strategies, and a sense of accomplishment. This activity emphasizes the importance of continuous professional growth and the application of learned competences in real-world educational contexts.

Reflection and Closure Goals

1. **Consolidate Learning:** Summarize key takeaways from the module, including reflective practices, metacognitive strategies, and communication techniques.
2. **Encourage Action:** Enable participants to identify specific ways to implement module concepts in their teaching practices.
3. **Foster Feedback:** Provide an avenue for participants to share their experiences, insights, and suggestions for improvement.

Structure of the Activity

1. Reflection

- **Activity:** Participants complete a brief self-reflection exercise using prompts such as:
    - What is the most valuable insight you gained from this module?
    - How will you integrate reflective practice and self-regulation into your teaching?
    - What challenges do you anticipate, and how will you address them?

- **Tool:** A simple reflection worksheet or an online platform like Padlet for collective responses.

2. Group Discussion

- **Activity:** In small groups, participants discuss their responses, focusing on shared challenges and strategies for implementation.
- **Objective:** Build a sense of community and mutual support among educators.

3. Individual Action Plan

- **Activity:** Each participant drafts a concise action plan detailing:
    - One immediate change they will implement in their teaching.
    - One long-term goal inspired by the module.
- **Tool:** An action plan template provided at the start of the module.

4. Closing Remarks

- Facilitator summarizes the main themes of the module, emphasizing the importance of lifelong learning and adaptability.
- Participants are encouraged to share feedback on the module through a short survey.

Estimated Time

- **Reflection Exercise:** 15 minutes
- **Group Discussion:** 20 minutes
- **Action Plan Drafting:** 15 minutes
- **Closing Remarks:** 10 minutes
    Total: 1 hour

This approach ensures participants leave the module with a clear understanding of how to apply their learning and a framework for ongoing professional development!