Interaction Protocol with Generative AI for Teachers

The following operational protocol is designed to guide teachers in their interactions with Generative AI. It ensures that the technology is used as a reflective tool — one that preserves professional autonomy while fostering intentional, informed, and up-to-date teaching practices. It consists of the following steps:

1. ***Know the content of the interaction***

   The teacher should be familiar with the subject matter or competency they intend to address with Generative AI. This does not mean "knowing everything" (otherwise, why seek support?), but having a sufficiently critical understanding to evaluate the AI-generated output for relevance and applicability.

2. ***Know why you want to use the technology: the teaching goal***

   The interaction should be aimed at a specific teaching goal, supporting a practical purpose within one of the three key phases of instruction: *pre-active* (needs analysis and design), *interactive* (delivery and implementation), or *post-active* (assessment).

3. ***Know how you want to interact with the technology: the partnership with AI***

   Decide on the mode of collaboration you wish to activate with Generative AI. This involves selecting a type of partnership such as *concretization* (realizing a clear idea), *re-elaboration* (refining or transforming ideas), or *inspiration* (sparking new directions).

4. ***Formulate the prompt***

   The prompt must align with the intent established in steps 2 and 3 and should include all the essential elements that allow the system to produce a relevant and useful output. To identify those elements, refer to the *Promptuarium*©, described on the following page.

5. ***Submit the prompt to the system***

6. ***Critically evaluate the output***

   Analyze the generated content: Is it useful? Is it accurate? Does it align with your teaching goal and professional context? Does it require modification? Does it raise new questions?

7. ***Decide whether to continue the conversation***

   When appropriate, consider extending the interaction—refining the output, probing deeper, or linking to new areas. It is through conversation that AI interaction becomes dynamic and, at times, even Socratic.

You can explore this protocol interactively at: https://gtvp.it/promptuarium.

Promptuarium©

The *Promptuarium*© is a "pantry" of pedagogical ingredients to draw from when crafting educationally meaningful prompts. It is intended for use in step 4 of the protocol above.

Based on the four dimensions of the TPACK model (Mishra & Koehler, 2006), it presents a curated selection of instructional variables. Not all variables must be included in every prompt, nor are they always necessary. The list is not exhaustive and may not cover all specific cases.

The goal is not to provide fixed recipes, but to support in crafting meaningful, context-sensitive requests based on professional expertise and needs. This is not a prescriptive tool; rather, it is an invitation to engage in conscious experimentation.

1. Contextual Knowledge Dimension

Variable	***Description***	***Prompt Example***
Reference Documentation	Guidelines or regulations that guide teaching, such as those from national, regional, or institutional frameworks.	"Follow the learning objectives of the **national curriculum for Art History** in the final year of high school."
Socio-cultural Environment	Type of social setting of the learning environment, e.g., urban, rural, multicultural, or international.	"Design an activity for a class in an **urban multicultural context**."
Type of Learners	Characteristics of the students, such as age or school level.	"Adapt the text for **first-year middle school students**."
Number of Learners	Number of students involved, from small groups to entire classes.	"Plan a collaborative activity for a class of **30** students."
Social Form	Social configuration of the activity: pair, small group, whole class, audience.	"Design a task for **pair work** on analyzing short literary texts."

Specific Needs of Learners	Particular student needs, such as learning difficulties or socio-cultural disadvantages.	"Consider the presence of a student with **dyslexia**."
Educational Relationship	Nature of the teacher-student relationship: new, ongoing, positive, or with challenges.	"I **don't yet know the students**."
Form of the Educational Event	Temporal and spatial format of the activity: synchronous/asynchronous, in-person, online, hybrid, or blended.	"The lesson will be conducted **online**."
Timing	Time available to carry out the teaching activity.	"Design a **30-minute** metacognitive activity on modal verbs."
Setting	Physical and/or virtual environment where the lesson takes place.	"Consider a visit to a **contemporary history museum**."
Constraints	Logistical, financial, technical, or skills-related limitations.	"Take into account the **lack of budget** to carry out the activity."

2. Methodological Knowledge Dimension

Variable	***Description***	***Prompt Example***
Teaching Task	Teaching phase and purpose supported by AI (planning, execution, or evaluation).	"Generate an image to include in my slides to **support the explanation**."
Disciplinary Learning Goal	Subject-specific learning objectives: knowledge, skills, or attitudes.	"I want students to understand the **aurea mediocritas** ideal in Horace's poetry."
Cross-disciplinary Learning Goal	General-purpose skills such as digital literacy or emotional intelligence.	"Design an activity that promotes the development of **empathy**."
Type of Learning Object	Specific educational products: task, worksheet, rubric, checklist, etc.	"Design the steps of an activity to enhance **critical interpretation** of poetic texts."
Prerequisites	Knowledge, skills, or attitudes students should already possess.	"Assume that students are already familiar with **result clauses**."
Instructional Framework	Educational models such as UDL, SEL, or CLIL.	"Use the **CLIL** approach with English to analyze Montessori's pedagogical principles."

Instructional Architecture	Pedagogical macrostructure that defines the modes through which the individual acquires, processes, and manages knowledge. Along a continuum from low to high student engagement, six types can be identified: transmissive-receptive, behavioral, simulation-based, collaborative, exploratory, and metacognitive-self-regulated.	"Design an **exploratory** activity for students to discover the meaning of fascist propaganda symbols."
Teaching Strategy	Action plan that enables the achievement of objectives within a given instructional architecture. For example, collaborative architecture may involve strategies such as peer teaching, discussion, and cooperative learning.	"At the end, propose a **discussion** to analyze rhetorical devices in a news article."
Teaching Technique	Operational tool that allows the implementation of a strategy. For example, peer teaching can be realized through co-tutoring, peer tutoring, or think-aloud-pair-problem solving.	"Use **peer tutoring** to review the main climate zones of the world."
Method of Assessment	Tools and types of assessment: formative, summative, diagnostic, etc.	"Create questions for an **oral test** to evaluate students' understanding of Comte's positivism."
Student Motivation	Factors that enhance student motivation (internal or external).	"Create an activity connecting **Ungaretti's themes** to modern conflicts to engage students."
Learning Style	Preferred learning modalities: visual, auditory, kinesthetic.	"Prepare a **concept map** on Italian 20th-century art movements to guide upcoming lessons."

3. *Content Knowledge Dimension*

Variable	***Description***	***Prompt Example***
Subject	The discipline or curricular area involved.	"Develop an activity for the subject of **Geography** that includes map interpretation skills."
Topic	Specific subject content.	"Create instructions for a game on **European physical and political geography**."
Interdisciplinarity	Integration of multiple subject areas.	"Plan an **interdisciplinary approach** between literature and history."
Difficulty Level	Complexity of the content relative to student skill.	"Adapt the text to be **clear and straightforward**, with simple explanations and examples."
Content Updates	Recent discoveries, tools, or trends in the field.	"Include a short activity on **digitizing ancient texts** to show current trends in linguistics."

4. *Technological Knowledge Dimension*

Variable	***Description***	***Prompt Example***
Resources and Tools	Use of digital or traditional resources.	"Include a **digital tool** to manage a classroom debate."
Output Format	Requested media format: text, table, image, video, code, etc.	"Produce a **table** to organize the phases of the proposed activity."
Accessibility	Ensuring content is usable by students with different needs or disabilities.	"Ensure materials are **accessible to visually impaired students** and include alternative text for images."
Safety and Privacy	Compliance with data protection and privacy regulations.	"Verify that the software complies with **student data protection laws**."

Example

The following is an example of a prompt based on the metacognitive-self-regulated instructional architecture. It refers to the creation of an assessment tool (*interactive task*) and illustrates the use of Generative AI in a *concretization* mode.

Prompt

Create a checklist in table format for self-assessment to be used in a class of 18 final-year high school students, focusing on the poem "The Tyger" by William Blake. The checklist should help each student reflect on their understanding of the poem and connect its content to their own personal experiences and worldview.

Variables involved

- ***Create*** – Methodological Knowledge → *Teaching Task*
- ***Checklist*** – Methodological Knowledge → *Type of Learning Object*
- ***Table format*** – Technological Knowledge → *Output Format*
- ***Self-assessment*** – Methodological Knowledge → *Teaching Strategy / Method of Assessment*
- ***Class*** – Contextual Knowledge → *Social Form*
- ***18*** – Contextual Knowledge → *Number of Learners*
- ***Final-year high school students*** – Contextual Knowledge → *Type of Learners*
- ***"The Tyger" by William Blake*** – Content Knowledge → *Topic*
- ***Reflect on understanding of the poem*** – Content Knowledge → *Disciplinary Learning Goal*
- ***Connect to personal experiences and worldview*** – Methodological Knowledge → *Cross-disciplinary Learning Goal*

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