

Detailed evaluation's protocol of pedagogical approaches

Examples approach

- **Relevance:** This criterion evaluates whether the provided examples are directly related to the questions posed. **Guiding question:** Were the examples relevant?
- **Correctness:** This criterion evaluates whether the provided examples allow students to execute the code successfully and obtain the expected solution. **Guiding question:** Were the examples correct?
- **Details level:** This criterion evaluates whether the provided examples contain sufficient detail to allow independent reproduction and understanding. **Guiding question:** Were the examples sufficiently detailed?
- **Variety:** This criterion evaluates whether the provided examples cover different contexts and perspectives, rather than being restricted to a single scenario. **Guiding question:** Were the examples varied?
- **Abstract-concrete connections:** This criterion evaluates the extent to which the provided examples establish clear links between abstract concepts and real-life applications. **Guiding question:** Were the examples connecting abstract concepts with concrete ones?

Explanations and Analogies approach

- **Explanation:** This criterion evaluates whether a clear explanation was provided to support the understanding of the topic addressed in the exercise. **Guiding question:** Was there an explanation?
- **Analogy:** This criterion evaluates whether an analogy was included to facilitate comprehension by relating the topic to a familiar or comparable situation. **Guiding question:** Was there an analogy?
- **Clarity, consistency and ease:** This criterion evaluates whether the explanations and analogies were expressed in a clear, consistent, and accessible manner. **Guiding question:** Were the explanations and analogies clear, consistent, and easy to understand?
- **Critical parts focus:** This criterion evaluates whether the explanations and analogies addressed the most critical aspects of the concept, highlighting essential elements. **Guiding question:** Were the explanations and analogies focused on the most critical parts?
- **Correctness:** This criterion evaluates whether the explanations and analogies were accurate and aligned with the intended solution of the exercise. **Guiding question:** Were the explanations and analogies correct?

- **Level adaptation:** This criterion evaluates whether the explanations and analogies were adapted to the beginner's level of knowledge and expertise of the students. Guiding question: Were the explanations and analogies level adapted?
- **Usefulness:** This criterion evaluates whether the explanations and analogies were helpful in facilitating understanding and problem-solving. Guiding question: Were the explanations and analogies useful?
- **Previous knowledge connection:** This criterion evaluates whether the explanations and analogies established links with students' prior knowledge, promoting integration with previously learned concepts. Guiding question: Were the explanations and analogies connected with previous knowledge?

Socratic Method approach

- **Initial question:** This criterion evaluates whether there was an initial question about the main topic of the exercise posed to stimulate curiosity and inquiry. **Guiding question:** Was there an initial question?
- **Counterexamples:** This criterion evaluates whether the models presented counterexamples after an attempted answer by student, validating or refuting it. **Guiding question:** Were there counterexamples to validate the answer?
- **Only questions:** This criterion evaluates whether the models rely exclusively on carefully constructed questions, rather than on direct instruction, to guide reasoning and reflection. **Guiding question:** Was it conducted only by questions?
- **Well-formulated questions:** This criterion evaluates whether the questions were carefully designed to encourage investigation and exploration of the topic. **Guiding question:** Were the questions well-formulated to encourage investigation?
- **Critical thinking promotion:** This criterion evaluates whether the questions were able to stimulate critical thinking and deeper reasoning. **Guiding question:** Were the questions able to promote critical thinking?