

# UOC

## How to incorporate AI into learning activities

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## Credits

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## Introduction

Generative artificial intelligence (GenAI) allows you to tailor learning to each person, encourage active learning and turn the educational experience into a more efficient and adaptive process.

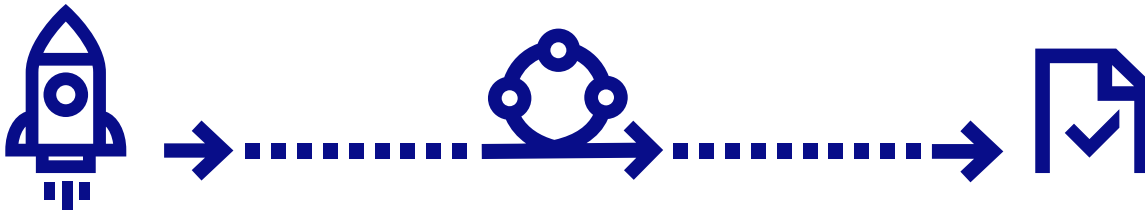
GenAI can be incorporated into learning activities at various key times in the educational process. It can be used early on to generate a preliminary solution or draft that forms a basis for students to work on. It can also be used as part of the creation or problem-solving process, by guiding students with suggestions and support in real time. Finally, GenAI can be used at the final stage, to review the completed task and obtain feedback to help identify errors and improve the quality of the final work.

The use of GenAI is thus a new key competency for students, who must be properly trained to include AI in their digital literacy skills. This will help them adapt to the worlds of work and education, where this technology will play an increasingly relevant role, both now and in the future.

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## Introduction

There are **three different strategies** for using GenAI tools when designing activities. Which one you should use depends on when you want to use it and what you want to achieve with it:



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### At the start of the activity

- **Using GenAI as a starting point**
- **Role of GenAI:** *Draft mode*, to create an initial draft or solution.

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### During the activity

- **Using GenAI as part of the creation and problem-solving process**
- **Role of AI:** *Dialogue/collaboration mode*, to create or find the solution to an activity.

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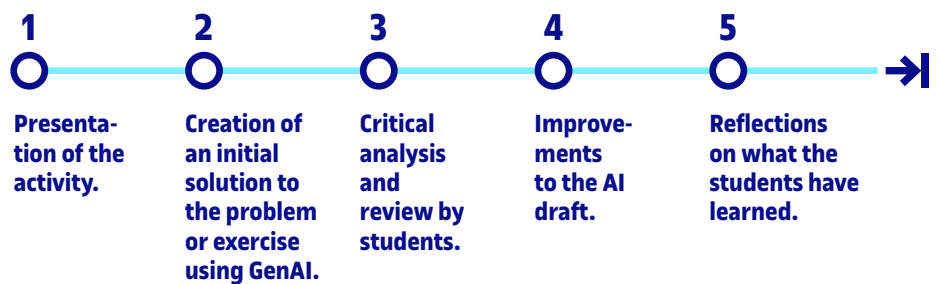
### At the end of the activity

- **GenAI as the endpoint**
- **Role of AI:** *Smart review mode*, to fine-tune and improve the solution to the activity.

## At the start of the activity

Students can use GenAI tools in learning activities to create a first draft or preliminary solution to complex problems. This preliminary solution enables them to explore ideas and concepts more efficiently by providing a foundation on which they can build more in-depth knowledge based on a critical assessment of the AI solution and their own efforts to improve it.

The recommended **teaching sequence** is as follows:



Furthermore, using GenAI at this early stage fosters creativity and encourages students to experiment by presenting them with a variety of automatically generated solutions and approaches, which helps them develop critical thinking and problem-solving skills.

Teaching staff have many options available to them when it comes to introducing AI. An idea for working in the classroom could be to give students the AI-generated solution in the activity's instructions itself in order to save them the trouble of having to create their own account for that tool. The students would then focus on critically analysing and improving the suggested solution. This would also make grading easier for the teacher.

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## Activities<sup>1</sup> that lend themselves to using GenAI at the initial stage:

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### Tasks involving finding, selecting and managing information, such as:

- Searching for information and scientific articles.
- Selecting and organizing relevant information and sources on a specific topic.

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### Summarizing tasks. For example:

- Making glossaries.

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### Activities relating to theoretical or empirical foundations based on:

- Defining concepts.
- Describing scientific methods.

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### Tasks relating to the initial stages of a project or assignment:

- Planning processes.
- Outlining the structure or blueprint of a project.

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### Activities involving representing information visually or using data, depending on the aims pursued:

- Creating draft flowcharts.
- Creating draft mind maps.

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### Tasks relating to the initial stages of a project or assignment, such as:

- Brainstorming.
- Outlining the structure or blueprint of a project.
- Creating drafts for data collection tools such as interviews, surveys or questionnaires, as well as for focus groups.
- Starting to develop or partially developing the solution.

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<sup>1</sup> Learning Processes team (2020). What activities can be carried out in the classroom? eLearning Kit. eLearn Center. UOC. <https://kit.elc.uoc.edu/quines-activitats-es-poden-fer-a-laula/>

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## Assessment

You should take the following aspects into account when assessing students' performance in these activities:

### **Students' critical assessment of the AI-generated draft.**

This should take into account the quality of the AI draft and the student's ability to identify the strengths and weaknesses of the initial solution and detect errors, inconsistencies or areas for improvement. You must also consider whether the student has provided sound and well-founded reasons for their criticism.

### **The improvements made to the initial solution.**

You should consider whether the changes made by the student are significant and properly reasoned, as well as the creativity and originality of the improvements. You should also assess whether the final product represents a substantial improvement compared to the first draft.

### **Students' reflections on the lessons learned.**

You should assess the students' reflections on their own learning process, what they think they have learned and the learning outcomes achieved, the strengths and limitations of GenAI for the task involved, and how they will apply what they have learned to future tasks or projects.



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## Throughout the activity

GenAI tools can be used for complex activities, such as projects, interviews, simulations and gamification. By fostering dialogue and interaction, they can give students a variety of suggestions, answers and perspectives. Working with GenAI in this way enriches the learning process and leads to a more dynamic and participatory environment. Students can explore a variety of paths to reach a solution, receive instant feedback and adjust their strategies in real time, improving their problem-solving skills and creativity.

It is essential that students have access to these tools and that the role of GenAI in the educational process and in any given context is clearly established by teaching staff. Students should also describe how they have used GenAI in the assignment and keep a record of the process followed and of the intermediate results so that their contribution can be assessed.

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## Activities that lend themselves to using GenAI during the activity:

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### Tasks involving finding, selecting and managing information, such as:

- Selecting and organizing relevant information and sources on a specific topic.
- Analysing and assessing the information and sources found.

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### Activities in which students have to present and disseminate structured information:

- Preparing a draft presentation.
- Writing the first draft of a blog post.
- Preparing a draft social media post.
- Preparing a draft article or video script.
- Initial structure of a report to be written.
- Initial plan for a new website, blog, wiki or similar.
- Preparing the outline of a presentation.
- Creating tables with data.

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### Activities involving summarizing key information:

- Analysing and comparing images.
- Putting together tables to compare two or more concepts.
- Developing tools to compare theories or concepts, such as rubrics, observation templates and questionnaires.
- Creating the outline for a concept map.
- Writing a review or summary of a book, article or publication.

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### Activities in which students must draw conclusions and carry out a critical analysis:

- Reasoning on a given topic.
- Analysing one's own discourse.
- Analysing texts.
- Creating a SWOT analysis outline.

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### Analysing and solving a case study or problem:

- Analysing and assessing a given context.
- Presenting the solution to a case study or problem.

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### Activities in which students must apply their knowledge to simulations or in role-playing:

- Experimenting in simulated settings.
- Reflecting on attitudes, values or behaviours.
- Immersive environments.
- Mock negotiations.
- Mock conversations in a different language in a given context.

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## Assessment

You should take the following aspects into account when assessing students' performance in these activities:

### **The process followed by the student in order to do the activity.**

Focusing on students' use of AI and the results obtained in the learning process, analysing the AI-generated data and making any necessary adjustments during the process.

### **Transparency and documentation of the process of working with GenAI.**

Based on students' documentation of their work process, including the decisions made, the steps taken and the reasons for each choice.

### **Whether the GenAI tools were used appropriately.**

Assessing students' use of GenAI tools, whether they chose the right one for the task (in cases in which no particular tool was specified) and the quality of the prompt. You must also check whether students have considered the ethical implications of using GenAI, such as data privacy and transparency in the output. You should also assess students' ability to integrate GenAI tools in an innovative and creative way to do the activity.

### **Students' reflections on the lessons learned.**

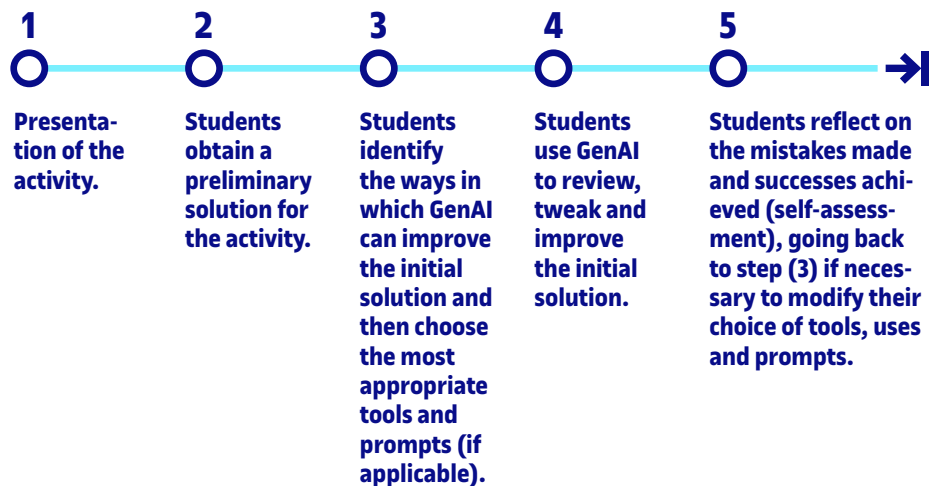
Assessing students' reflections on their own learning process, what they have learned and the learning outcomes achieved, and considerations on how they will apply the lessons learned to future tasks or projects. A reflection on what they have learned about the use of GenAI tools and how they can apply this new knowledge to future projects can also be included.

## At the end of the activity

GenAI can play a crucial role in education as an automatic review tool by carrying out a final review of projects and assignments. GenAI tools can analyse and correct errors, make suggestions for improvement and ensure that contents meet academic requirements. Using the review capabilities of GenAI allows students to obtain detailed and immediate feedback, helping them hone their skills and produce higher quality work (when used appropriately). Furthermore, AI can detect patterns and provide personalized advice, leading to more adaptive and efficient learning. It can also help students improve the presentation of documents or include audiovisual resources appropriate to the topic discussed. In order to maximize their educational benefits, students must have access to these tools and the role of GenAI in the review process must be clearly defined by teaching staff. GenAI can be used to provide support by helping students identify areas for improvement that they might not otherwise have identified, but it should never be used to replace their effort or creativity.

If students are given a choice of GenAI tool, it is important for them to reflect on the most appropriate option for the problem at hand, how it should be used and how prompts should be worded to get the most out of it. This process should be repetition-based, with students assessing the GenAI output and then refining how they use GenAI, which tools they want to use and how they word the prompts until they reach an appropriate solution. When submitting their final work, students must include with the final product a description of the creation process that led to it.

The recommended **teaching sequence** is as follows:



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## **Activities that lend themselves to using GenAI at the final stage:**

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### **Activities in which students have to present and disseminate structured information, such as:**

- Reviewing and adapting a text or discourse.
- Including AI-generated audiovisual resources.
- Improving the appearance and presentation of a document.

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### **Activities in which students must draw conclusions and carry out a critical analysis:**

- Validating conclusions.
- Verifying analyses of survey results.

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### **Activities relating to the final stages of a project or assignment:**

- Final review and analysis of the project.
- Preparing documents or resources derived from the results of the project (such as user manuals or websites).

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### **Metacognitive activities in which students must put together learning or other portfolios, work dossiers or lab notes:**

- Identifying and reviewing evidence and students' own reflections.

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### **Self-assessment activities, such as:**

- Validating the solutions provided.
- Proposed improvements to the solution to an activity.

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## Assessment

You should take the following aspects into account when assessing students' performance in these activities:

### **The extent to which students understand the activity or problem to be solved.**

This should take into account both the proposed solution and the changes and improvements made to it, to ensure that the student has understood both the original problem and the underlying concepts before using GenAI.

### **Students' reflections on their own mistakes and successes.**

Focusing on students' reflective process and on their interpretation and analysis of the GenAI output. Validating results, identifying possible errors or limitations and reflecting on the improvements made.

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## Recommendations

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### Regarding the activity:

- ✓ **GenAI is not suitable for every activity.**

Teachers must take a critical approach when deciding to use it, considering when it can add value to the activity and the learning process.
- ✓ **You should ensure that the answers given are appropriate.**

You must check that the AI-generated answers provided to students for their tasks or activities are appropriate and/or meet the aim to be achieved.
- ✓ **Generative AI tools should be used for support or assistance.**

When designing activities involving an active use of GenAI, you should always remember that students are ultimately responsible for the final product they submit.
- ✓ **Using generative AI for activities should help students in their learning process.**

When designing activities involving an active use of GenAI tools, remember that these tools must never replace the students' own work or their efforts to improve competencies such as creativity, critical analysis, reflection or oral and written skills.
- ✓ **You should always check the authenticity and accuracy of the sources and information provided by GenAI-based tools.**

They are a useful resource for finding information, helping make decisions or supporting learning and problem-solving, among other uses. However, their answers should not be fully trusted. The fact that they are correct from syntax, grammar, visual, auditory or other points of view does not necessarily mean that their content is accurate.
- ✓ **Both teaching staff and students must truly and consciously question the GenAI tool's answers.**

Otherwise, they risk falling into the [empty dialogue paradox \(spanish version\)](#), a perverse cycle of low-quality dialogue with the AI tool if the student fails to work carefully with its output. Teachers must get students to engage in metacognitive work.
- ✓ **You also need to be aware of the legal implications of using GenAI.**

To protect students' confidentiality and privacy, you must ensure that your input contains no personal data. It is also a good idea to set the tool not to save conversations or use contents for self-improvement.

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## Regarding prompts:

- ✓ **You must word the prompt very clearly to make sure you obtain the answer you want.**  
Include those aspects that match the expected output (what you want from the tool, course name, activity type and target audience, type of deliverable and so on).
- ✓ **Tweaking the prompt is key to ensuring you obtain what you want.**  
If you're not happy with the first result, you can keep modifying and resubmitting the question until you obtain an appropriate answer.

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## Regarding the type of tool to be used:

- ✓ **If you use AI on a regular basis, you will learn about the specific features of each tool.**  
Remember that these tools are based on machine learning and probabilistics, so results may vary based on the variables involved.
- ✓ **It is important to choose the right conversation style.**  
For tools that allow you to change this setting, the output will depend on whether you have chosen the right style (e.g. Creative, Balance or Precise) in accordance with the aim of the prompt. The Precision setting is suitable for answers that must strictly conform to a particular type of content; Creative is appropriate for matters relating to imagination, such as overcoming writer's block; and Balance may be best for other information- or communication-based questions.
- ✓ **Find the right tool through trial and error.**  
You should ideally test more than one tool until you find the one that best suits your needs. Below are a few options to consider:
- ✓ **Cost:**  
You should find out whether the tool you want to use requires you to create a personal account; whether it is free to use or, if not, whether there is a trial period; whether it has freemium features (i.e. if you can use general features for free but need to pay for more advanced ones); or whether you have to pay for any use you make of it and, if so, how and how often you need to pay.
- ✓ **Security, privacy, ethics and use of data:**  
You should be able to access the tool's legal terms and conditions, information on how it handles security and privacy and whether it has a code of ethics you agree with.
- ✓ **Language:**  
When choosing a tool, knowing whether it has an interface in the language you want to use and if the output text will also be in the language you want is key to the quality of the experience.
- ✓ **Output format:**  
GenAI has to be useful for your specific purpose, so the ability to produce its output in the format you need is very important.



## Examples

### Example of GenAI AS A STARTING POINT: creating activities that can be completed with the help of AI



#### INSTRUCTIONS FOR THE ACTIVITY:

Use GenAI to create a post-impressionist painting, and then analyse it as if you were trying to establish its authenticity.

*The aim of this activity is to learn about the post-impressionist movement and use this knowledge to describe a painting from this period.*

*Write a detailed prompt to generate a post-impressionist artwork in Copilot (you can choose in which painter's style the image should be produced and what it should depict), and then analyse the result and explain why the painting might be considered authentic or a forgery.*



#### Example of a student prompt:

##### [AIM]

I'm taking the course "Modern Art Techniques" as part of a Bachelor's Degree in Art History. Please create a painting of Gaudí's Sagrada Família basilica in Barcelona.

##### [BACKGROUND INFORMATION]

Paint it in the style of Vincent van Gogh.

##### [EXPECTATION]

It must be as close to his style as possible. No people must appear in the painting.

#### GenAI:

I will try to create a painting of Gaudí's Sagrada Família basilica in Barcelona, in Van Gogh's style, without any people.



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## Example of GenAI IN THE CREATION AND PROBLEM-SOLVING PROCESS: Socratic dialogue (using AI as a dialogue tool)



### INSTRUCTIONS FOR THE ACTIVITY:

#### Discussion with a Socratic Dialogue tool about Rousseau's Philosophy

*To do this activity, you must have a conversation with a Socratic Dialogue tool about Jean-Jacques Rousseau's ideas. To do this, you must include this prompt: "From now on, you are a Socratic Dialogue tool. Don't answer my questions directly. Instead, ask me a reflective question so that I can find the answer myself."*

*Focus on the topics covered in the course module on Jean-Jacques Rousseau, particularly the social contract and the state of nature and his views on education and human nature.*

*Document your dialogue by taking screenshots or downloading the entire conversation. In addition, write a 300-word summary on the main points discussed.*

*Submit your work as a PDF or Word file and upload it to the space provided before the deadline. Points will be given for in-depth discussions and clear summaries. If you're unsure about anything, contact the teaching staff.*



### Example of a student prompt:

#### [AIM]

From now on you, you are a Socratic Dialogue tool. I'm a student of the Bachelor's Degree in Philosophy, and I'd like to talk to you about Rousseau and his Philosophy.

#### [BACKGROUND INFORMATION]

Don't answer my questions directly. Instead, your answers should take the form of questions, because I'm trying to prepare for an exam.

#### [EXPECTATION]

Then give me feedback and ask me reflective questions so that I can find the answer and challenge myself.

#### [SOURCE]

Please also provide a reading list where I can find information related to the question.

### GenAI:

OK! Let's start with Jean-Jacques Rousseau, an influential philosopher of the Enlightenment who had a major impact on modern political and social thinking<sup>1</sup>.



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Rousseau is known for his ideas on freedom, equality and supporting the common good<sup>2</sup>. He also suggested that humans in a state of nature are free and equal and have two basic instincts: a sense of self-preservation and pity for others<sup>3</sup>.

Now let's reflect on this:

- How do you think Rousseau's views of society and politics may be influenced by his ideas on the state of nature?
- According to Rousseau, what may be the relationship between freedom and equality?
- How do you interpret Rousseau's view that private property is the root of inequality?

To learn more about Rousseau's philosophy, I recommend that you read his main works, such as "The Social Contract", "Emile or On Education" and "Confessions"<sup>4</sup>. You can also have a look at this Oxford Bibliography article on Rousseau<sup>5</sup>. What do you think you can learn from these works?

[Jean-Jacques Rousseau - Wikipedia](#)

[Rousseau explained: What his philosophy means for us today - Big Think](#)

[Jean-Jacques Rousseau - World History Encyclopedia](#)

[Jean-Jacques Rousseau | Biography, Education, Philosophy, Achievements, Beliefs, Social Contract, & Facts | Britannica](#)

[Jean-Jacques Rousseau - Philosophy - Oxford Bibliographies](#)



### Students:

Rousseau's ideas about the state of nature influenced his view of society and politics because he believed that humankind is good by nature but is corrupted by society. According to Rousseau, freedom and equality are linked because true freedom can only be achieved in an egalitarian society where the general will prevails over individual interests. Rousseau believed that private property is the root of inequality because it creates divisions and conflicts between people. By reading "The Social Contract", "Emile or On Education" and "Confessions", you can learn about his ideas on democratic government, education and self-knowledge.

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**GenAI:**

That was a great reflection! Now consider the following additional questions:

- How do you think Rousseau's view of human nature is affected by his view of the corruption of society?
- If freedom and equality are linked, what happens according to Rousseau if they are in conflict?
- How do you think Rousseau's view of private property as the root of inequality relates to his ideas about freedom and equality?
- What do you think can be learned from Rousseau's ideas on democratic government, education and self-knowledge?

To learn more about this, I recommend you read "The Social Contract", "Emile or On Education" and "Confessions". You can also have a look at the Oxford Bibliographies article on Rousseau. What do you expect to learn from these readings?

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**Students:**

(...)

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## Example of AI AS AN ENDPOINT: Interim feedback with GenAI



### INSTRUCTIONS FOR THE ACTIVITY: Artificial feedback

Write a seven to nine page essay.

It must be split into two distinct sections: interim feedback (produced with AI) and final submission.

You must follow these steps:

- 1) Write a draft essay on one of the topics covered during this course. The draft must contain at least: the title, table of contents, an introduction, a three-page discussion and interim findings.
- 2) Upload it to a text-based AI tool and ask it for feedback to help improve your answer. Use the following prompt (or a similar one, as you can keep tweaking it in accordance with the answers you receive): “Review this essay on XXX and make suggestions for improvement.”
- 3) Download the prompt and the AI output.
- 4) Now continue writing your essay (or rewrite it) keeping in mind the feedback received.
- 5) Once you have finished your essay, add a section at the end explaining how this feedback was helpful and whether you followed its advice and contributions, including reasons (maximum one page in Word).
- 6) Submit your screenshots, the finished essay and the additional final section as a single document in the space provided.



#### Example of a student prompt:

Review this essay (uploaded as a file to the GenAI tool) and make suggestions for improvement in terms of formal style, appropriateness of the content, writing structure, ease of understanding and length of sentences.

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### Gen IAG:

Here are a few suggestions to improve your essay:

- *Make your aims clear:* make sure the aims of your essay are clear and well defined. This will help you give direction to your work and focus on the expected learning outcomes.
- *Clarity and structure:* you could start by providing a clearer introduction that sets out the context and aim of the essay. This will help readers understand your point of view from the outset.
- *Detailed description:* give a more detailed description of the faculty environment. For example, you could explain why the building doesn't look modern or exactly what the folding seats and long tables are like.
- *Smooth transitions:* use transitions to link ideas more smoothly. For example, when you go from talking about travelling to the faculty to describing the classroom, a smooth transition would make the text feel more coherent.

These improvements will make your essay more engaging and easier to follow by readers.

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