

How will Generative AI transform the way teachers plan and conduct assessments?

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1. Executive Summary

Even with all the attempts by technology providers to support educators by explaining the benefits of their tools in classroom management and support for teachers and students, still challenges ¹ have stopped many schools from embracing these innovations and teachers suffer from time and resources scarcity. Over the past year, the technology landscape for teachers has grown even more complex with the arrival of Generative AI.

This research work uses a case study with an eye on this still prominent problem. The question is now how to interrogate the current new technology, Generative AI, into classroom practices and see the opportunities and challenges that it presents. The question that drives this piece of work reads as

Generative AI has many implications for assessment from the perspective of all stakeholders (learner, tutor, organisation, economy). What are the challenges/opportunities offered with the introduction of generative AI?

Teachers have been using different approaches when assessing learning in the classroom. The most innovative teachers have turned towards the use of formative assessment and integrated different assessment activities along the learning journey: short quizzes, group work and presentations, role-playing or even reflection exercises. With the incorporation of technology, teachers can enhance these formative assessments by automating some of the subtasks or diversifying the output format.

Yet, thoughtful lesson planning will be key at this point. All these activities will obviously require time from the teacher to produce the right strategy, choose appropriate resources, guide students through the activities and finally collect results and assess new knowledge and skills acquired.

So, can AI help teachers to create these innovative authentic assessment approaches? This case study is inspired by recent work in the area. First, Dr. Stephen Murgatroyd from the

¹ <https://blog.gitnux.com/technology-in-education-statistics/>

University of Toronto ², explains how he uses ChatGPT to create effective short courses with relevant material and instructions for students to follow the activities within the course. For Dr. Murgatroyd, it was crucial to choose the right language, so-called prompt engineering, and explain to ChatGPT the role it will be playing in the conversation, noting hallucination ³ with the responses, looking for justification, the accuracy of responses and deepness.

In a similar presentation, Prof. Mark Sharples from Open University ⁴ also reflects on the positive potential uses of generative AI in education, highlighting that teachers can improve their assessment strategies with the use of ChatGPT and other AI tools as they seek to move *to more authentic assessments, such as project work.*

Generative AI has been gaining multiple uses in the last year ⁵, including visual, audio, text-based, code-based, and other sector-based applications. Teachers can choose from this pool of tools, test their benefits and try to incorporate them into the classroom.

In the same vein Dr. Murgatroyd and others ⁶ have used to explain the value of ChatGPT when enhancing the assessment methods in the classroom aiming for a more authentic approach, this case study will follow the story of Carol:



“A fictitious Primary School teacher with the mission to design next year's assessment for the class on World History. As a curious and innovative teacher, she would like to remove most of the summative assessments and introduce more formative assessments. Still, it is not sure if she will be able to find the appropriate resources for her class if she will be able to develop the material, transfer it to students and finally get evidence of learning with some sort of new innovative assessment method.”

² <https://teaching.utoronto.ca/resources/generative-artificial-intelligence-in-the-classroom/>

³ Survey of Hallucination in Natural Language Generation, Ji et al. 2023

⁴ <https://blogs.uoc.edu/elearning-innovation-center/es/mike-sharples-apuesta-por-explotar-los-beneficios-de-la-inteligencia-artificial-en-la-educacion-superior/>

⁵ <https://research.aimultiple.com/generative-ai-applications/>

⁶ <https://themindfulteacher.medium.com/how-im-using-chatgpt-as-a-school-teacher-1e82b8e2b101>

In our scenario, the Learnovate Centre team will introduce Carol to the potential of Generative AI-based tools (with a focus on ChatGPT) and they will chat with the AI to see if it is able to solve Carol's problem:

*How might Carol use generative AI to design a learning journey that includes engaging and impactful small assignments on a variety of History topics that will serve as an **assessment method**?*

With that Carol's need, the team together will create a prompt to challenge ChatGPT initially, following the recommendations from the previously named works. Our objective is to validate if the Generative AI tools can propose appropriate assessment tasks for Carol's classroom, considering the next scope: a certain language (Primary School), a specific subject (History), a topic (Democracy in ancient Greece) and a desired type of assessment approach (teamwork - role-playing - applied concepts).

The plan is to evolve from a well-phrased initial prompt (because the output whether content or assessment is as good as the prompt) and try to validate the potential of ChatGPT in this scenario of bringing more authentic assessment methods into the classroom successfully. For example, we could kick off the conversation with *Hi! Could you be my history class assistant this morning? I need 5 examples of scenarios to play with my 5th-class students to help them understand what democracy was in Greece and progress from there.*

Also, a different tool called AgentGPT ⁷ can be used to see if the approach that we followed can be replicated by an AI agent. Seeking some validation on our strategy, we noted that this tool works with AI Agents that help you solve a complex problem by dividing it into small tasks and giving you the answers to those. This is basically what we are trying to do when supporting Carol with her lesson planning.

The next step is to open the floor for teachers in the area to join this quest of testing ChatGPT to produce these role-play scenarios in a way that will serve teachers and engage the students,

⁷ <https://agentgpt.reworkd.ai/>

focusing on the assessment methodology improvement. Teachers can help evaluate the viability of this process and the final outputs of the experience.

2. Introduction

This case study is part of the series of pieces that Learnovate is working on when approaching the currently ubiquitous Generative AI and its implications in the learning environment. Specifically, this study focuses on one of the most critical parts of the learning journey: the assessment. The last years have been seen as some of the most relevant years for technology adoption to be introduced in the classroom^{8 9}. Learning Management Systems have tried to support teachers and students in generating and organising collaborative content to build for them a more effective learning flow¹⁰. Now, students can access and produce impactful learning output with the appropriate use of mobile technology. Augmented Reality and Gamification have both brought some extra immersive experience and sustained engagement in those environments that can afford to adopt these technologies. When LMS turned into proper LXP and users have been guided profoundly in the use of these systems, Learning Analytics helped teachers, school administrators and education leaders to track and trace the improvements. It may sound like it has been a very successful process as teachers and other school actors have embraced some of the benefits and enjoy the innovation¹¹, but they still highlight time constraints and lack of resources when planning their lessons to be engaging and effective and assessing the learning of skills and knowledge^{12 13 14 15 16}.

This recognised pain point in the learning journey is the focus of this case study. The question is now how to interrogate the current new technology, Generative AI, and see the

⁸ OECD Digital Education Outlook 2021. Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots

⁹ Using emerging technologies to promote creativity in education: A systematic review, Li et al. 2022

¹⁰ What Makes Learning Management Systems Effective for Learning?, Chaw et al. 2018

¹¹ <https://research.com/education/lms-statistics>

¹² Teaching with technology: A large-scale, international, and multilevel study of the roles of teacher and school characteristics, Konstantinidou et al. 2022

¹³ Understanding the role of digital technologies in education: A review, Haleem et al. 2022

¹⁴ Defining and measuring authentic assessment: a case study in the context of tertiary science, Schultz et al. 2022

¹⁵ Developing Authentic Assessment: Case Studies of Secondary School Mathematics Teachers' Experiences, Suurtamm. 2004

¹⁶ When barriers are not an issue: Tracing the relationship between hindering factors and technology use in secondary schools across Europe, Schmitz et al. 2022

opportunities and challenges that it brings to the plate. The research question that drives this whole piece of work reads as

Generative AI has many implications for assessment from the perspective of all stakeholders (learner, tutor, organisation, economy). What are the challenges/opportunities offered with the introduction of generative AI?

Teachers have been using different approaches when assessing the learning in classroom. While some will still tend to rely on summative assessment with a final essay or written exam, most teachers have turned towards the use of formative assessment and integrated different assessment activities within the learning journey^{17 18}. These formative assessments take the form of short quizzes, group work and presentations with role-playing in problem-based learning schema¹⁹ or even reflection exercises and have shown strong benefits in the student's performance^{20 21}.

With the incorporation of technology, teachers can enhance these formative assessments by automating some of the subtasks (self-corrected quizzes) or diversifying the format of the output, for example, using video-based tools for students to create video representations of their learning and skills development²², with the final aim of moving towards a more oriented Assessment for Learning²³.

When teachers introduce some form of innovative assessment in their classroom they may want technology support at some point. For example, some teachers use Google Classroom features for running collaborative tasks such as writing a project report or use Moodle forum

¹⁷ Formative assessment: an overview of history, theory and application, Cizek et al. 2023

¹⁸ Rubrics and formative assessment in K-12 education: A scoping review of literature, English et al. 2022

¹⁹ Exploring the efficacy of problem-based learning in diverse secondary school classrooms: Characteristics and goals of problem-based learning, Lonergan et al. 2022

²⁰ Does practice make perfect? The effect of online formative assessments on students' self-efficacy and test anxiety, Blondeel et al. 2023

²¹ Formative assessment and self-regulated learning: How formative assessment supports students' self-regulation in English language learning, Xiao et al. 2019

²² A case study of a technology enhanced learning initiative that supports authentic assessment, Jopp. 2020

²³ Implementation of Assessment for Learning, Van der Kleij et al. 2023

feature to open a discussion for a class topic. Or they will look out for an effective and user-friendly app for students to work together on a digital version of their class portfolios ²⁴.

Thoughtful lesson planning will be key at this point. All these activities will obviously require a certain amount of time from the teacher to produce the right strategy, choose the appropriate resources, guide students through the activity flow and finally collect the results and assess the knowledge learnt or new skills acquired.

Here is where Generative AI may help teachers to create these innovative authentic assessment approaches. In a recent presentation ²⁵, Dr. Stephen Murgatroyd from the University of Toronto, explains how he uses ChatGPT to create effective short courses with relevant material and instructions for students to follow the activities within the course. As Professor Murgatroyd summarises, ChatGPT can be used as a digital assistant to accelerate teachers' work, discover ideas, improve teachers' writing, create a variety of resources, write code, etc.

Some recommendations raise from this webinar:

- It is important to choose the right language and explain to ChatGPT the role it will be playing in the conversation.
- Note that Generative AI tends sometimes to hallucinate with the responses, it gives back elements that do not exist, are wrong or inaccurate.
- Remember to ask for justification when any answer is given.
- Try to ask to increase difficulty or go deeper into the answer.
- Use ChatGPT to accelerate your work, and discover ideas, resources, and materials, always with caution.
- If ChatGPT is used as a valid tool when resolving an assignment in a class by students, a final score should be a fair combination of both the final output and also the evaluation of the end-to-end process they have followed to complete the task, tracking their journey throughout the assessment process.

²⁴ Designing the digital in authentic assessment: is it fit for purpose?, Nieminen et al. 2022

²⁵ <https://teaching.utoronto.ca/resources/generative-artificial-intelligence-in-the-classroom/>

In a similar frame, Prof. Mark Sharples from Open University ²⁶ also reflects on the positive potential uses of Generative AI in education. He highlights that teachers can improve their assessment strategies with the use of ChatGPT and other AI tools as they seek *to move towards more authentic assessments, such as project work*.

Generative AI has been gaining multiple uses in the last year ²⁷, including visual (image generation), audio (text-to-speech and music generation), text-based (sentiment analysis and ChatGPT), code-based (bug fixing), and other sector-based applications in healthcare, education, fashion, banking, gaming, etc. Teachers can choose from this pool of tools, test their benefits and try to incorporate them into their existing classroom management system. However, smart integration of this range of tools may serve better the purposes of an overwhelmed teacher.

Now that we have exposed the current status of the assessment and the plans for future improvement, the next section briefly exposes an example of the role that Generative AI can play in a teacher's common situation when trying to implement a more authentic assessment.

²⁶ <https://blogs.uoc.edu/elearning-innovation-center/es/mike-sharples-apuesta-por-explotar-los-beneficios-de-la-inteligencia-artificial-en-la-educacion-superior/>

²⁷ <https://bootcamp.uxdesign.cc/revolutionizing-education-the-power-of-generative-ai-in-enhancing-teaching-a744a8e5265d>

3. A User Story

This piece of work will expose the story of Carol. Carol will be our Primary School teacher with the mission to design next year's assessment for the class on World History. Consider this choice as a simple framing strategy to run the experiment of using generative AI tools with our initial objective. It is important to note that the following process will be applicable to any scenario where an educator (teacher/tutor/lecturer) needs to design a lesson. For example, we could replace "Primary School teacher" and "World History" with "Online certified tutor" and "Business Administration" and the process will be replicable (with the corresponding redesign of the prompts used when running a conversation with ChatGPT). With that said, let's go back to Carol. As a curious and innovative teacher, she wants to move far from summative assessment and prefers formative assessment but it is not sure if she will be able to find the appropriate resources for her class, if she will be able to develop the material, transfer it to students and finally get evidence of learning with some sort of new innovative assessment method. In the same vein as Dr. Murgatroyd and others ²⁸ have been using to explore the benefits of ChatGPT when enhancing the assessment methods in the classroom and aiming for a more authentic approach,

Here is where the Learnovate Centre team will introduce Carol to the potential of ChatGPT. Carol's profile tells us that she likes to try new innovative ideas and she is usually enthusiastic about testing new apps, but this time ChatGPT seems a little cryptic and she does not know how to start. Therefore, Learnovate will help Carol to start a conversation to see if the Generative AI is able to solve her problem:

*How might Carol use generative AI to design a learning journey that includes engaging and impactful small assignments on a variety of History topics that will serve as an **assessment** method?*

From an initial problem definition, Carol's plan will be to build a series of prompts to understand the potential of ChatGPT in this scenario of bringing more authentic assessment methods into the classroom successfully. To exemplify this challenge and obtain

²⁸ <https://themindfulteacher.medium.com/how-im-using-chatgpt-as-a-school-teacher-1e82b8e2b101>

contextualised responses, the team decided to use the topic “The Democracy in Ancient Greece”. To begin generating these prompts for ChatGPT to help Carol to cover that example, the Learnovate research team followed some or most of the next suggestions:

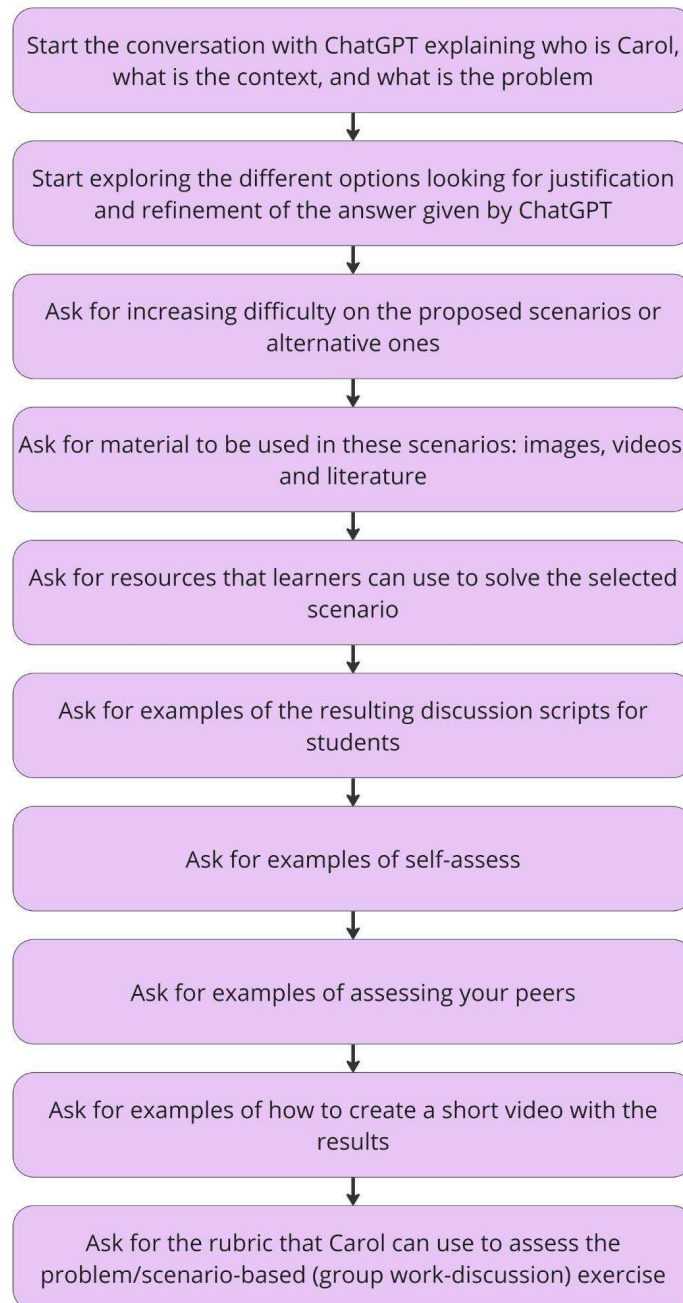


Figure 1: Suggested Plan for Creating Prompts

With this plan in mind, and following the recommendations found in mentioned presentations from Dr. Murgatroyd and Prof. Sharples, the team kicked off the conversation with

➤ **Carol:** *Hi! Could you be my history class assistant this morning? I need 5 examples of scenarios to play with my 5th-class students to help them understand what democracy was in Greece.*

This initial prompt contains different elements that can be replaced with a different value such as the subject, the role we assume for the AI, the grade and the topic. In this section, our aim is to see how ChatGPT and other generative AI tools are able to support Carol in planning the lesson and conducting the desired assessment. For that reason, there is no debate here about changing these different elements to see other alternatives. Yet, we will provide a deeper discussion of how manipulating this prompt changes the responses provided by ChatGPT in the [discussion](#) section of the report.

From the very first question, Carol would find out that ChatGPT is suggesting using **Role Play** among other scenarios (running an assembly, creating a law or designing a city-state):

➤ **ChatGPT:** Sure! Here are five scenarios you can use to help your 5th-grade students understand democracy in ancient Greece: **A) The City-State Assembly:** Divide your students into groups, each representing a city-state in ancient Greece. Assign roles such as citizens, government officials, and a leader. Encourage them to discuss and debate issues affecting their city-state, and then hold an assembly where decisions are made by voting. Emphasize the importance of active citizen participation and the idea that decisions are made collectively. **B) Creating Laws:** Present your students with a fictional problem that requires a law to be established. For example, you could describe a scenario where theft has become an issue in the city-state, and the citizens need to decide on punishments for thieves. Split the class into smaller groups and have them propose and debate different laws, considering factors like fairness and effectiveness. Afterwards, hold a vote to determine which law will be enacted. **C) Role Play:** Assign different roles to your students, such as citizens, magistrates, and jurors. Create a mock trial where a citizen is accused of a crime, and guide your students

through the trial process. Encourage them to analyze evidence, question witnesses, and make a decision as jurors. This activity helps them understand the principles of justice and the importance of a fair trial in democracy. **D) Decision-Making in Athens:** Focus on the democratic city-state of Athens. Present your students with a historical scenario, such as the decision to go to war or the allocation of resources. Divide the class into groups, each representing different factions in Athens, such as politicians, merchants, or farmers. In their groups, students can discuss and debate their positions, trying to persuade others to support their views. Finally, hold a vote to determine the decision made by the city-state. **E) Designing a City-State:** Have your students create their own city-state, considering various aspects such as laws, government structure, and citizen rights. Ask them to think about how they would incorporate democratic principles into their city-state, drawing inspiration from ancient Greece. Encourage them to present their ideas to the class, explaining the reasoning behind their choices and highlighting the democratic elements they have included. **These scenarios will engage your 5th-grade students in hands-on activities that illustrate the concepts of democracy in ancient Greece and promote critical**

From that initial response, the team decide to explore further Scenario A and see if ChatGPT and other AI-based tools can help to cover most of the suggestions in the plan. Here are some valuable extracts from the conversation with ChatGPT (See full plan in [Appendix](#)):

- **Carol:** Which were the most important city-states in ancient Greece?
- **ChatGPT:** In ancient Greece, a city-state, also known as a polis, was a self-governing political unit that consisted of a city and its surrounding territory [...] Prominent city-states in ancient Greece included Athens, Sparta, Corinth, Thebes, and many others.
- **Carol:** What would have been the main 5 issues affecting a city-state in Greece?
- **ChatGPT:** Here are five main issues that commonly impacted city-states during that time: Defense and Warfare [...] Economy and Trade [...] Social Struggles and Inequality: Ancient Greek city-states were not free from social struggles and inequality. Social divisions were common, with different classes of citizens and non-citizens, including slaves and foreigners. Ensuring social cohesion, addressing

grievances, and managing the disparities between different groups within the city-state were constant challenges. [...] Political Power and Leadership [...] Citizen Participation and Governance [...] These issues varied in intensity and impact across different city-states and periods of ancient Greek history. It's important to note that the specific challenges faced by each city-state could differ based on factors such as geographical location, size, internal dynamics, and external influences.

- **Carol:** *What would have been the role of citizens/gov officials/leaders in a city-state in Greece?*
- **ChatGPT:** *In a city-state in ancient Greece, the roles of citizens, government officials, and leaders were distinct and played crucial parts in the functioning of the political system. Here's an overview of their roles: Citizens [...] Government Officials [...] Leaders: - Tyrants: In some city-states, particularly during periods of political unrest, a leader known as a tyrant might emerge. Tyrants seized power by force and ruled as sole leaders, often disregarding traditional political structures. However, not all city-states experienced tyrannical rule. - Strategos: In times of war, city-states appointed strategoi (plural of strategos) as military leaders. Strategoi were responsible for commanding the armies and making strategic decisions.*
- **Carol:** *Can you suggest a general breakdown of how the scenario could be structured over multiple days?*
- **ChatGPT:** *Here's a general breakdown of how the scenario could be structured over multiple days: (See table below)*
- **Carol:** *Can you suggest ways for students to present to others their city-state as it existed in ancient Greece?*
- **ChatGPT:** *Here are a few suggestions for students to present their city-state and the changes they would adopt in the context of ancient Greece: Oral Presentations [...] Role-Play or Skits: Students can engage in role-play or skits to present their city-state and the changes they would implement. They can create short dramatic scenes depicting important events or decision-making processes. This allows for a more interactive and engaging presentation format. Multimedia Presentations [...] Written Reports [...] Panel Discussion [...] Encourage creativity and provide guidelines for*

effective presentations, such as clear organization, visual aids, and engaging delivery. Additionally, allocate time for questions and discussions after each presentation to encourage students to engage with and learn from their peers' work.

- **Carol:** *Can you suggest a video where students can see how an assembly was being run back in Greece?*
- **ChatGPT:** *I apologize for the inconvenience [...] **None of the videos suggested was available. ChatGPT would suggest that you search on YouTube.***
- **Carol:** *Could you recommend then a website with videos to explain how democracy worked in ancient Greece for 5th-grade students?*
- **ChatGPT:** *While I cannot guarantee video availability on specific websites [...] **Websites suggested: BBC Bitesize, National Geographic Kids, Ducksters and Khan Academy.***
- **Carol:** *How would you recommend assessing the debate process?*
- **ChatGPT:** *Here's an example of how five students could work on a role-play activity focusing on social struggles and inequality in an ancient Greek city-state: [...]*
- **Carol:** *Can you suggest a rubric that students can use to assess their peers in this type of scenario?*
- **ChatGPT:** *When using the "Role-Play or Skits" option for student presentations, you can utilize a peer-assessment rubric to evaluate their performances. Here's a suggested rubric that focuses on key criteria for assessing role-plays or skits: [...]*

As expected, ChatGPT is able to easily and quickly generate content about the topic proposed (democracy in ancient Greece). However, when Carol asks for specific resources like videos or websites, ChatGPT begins to “hallucinate” and struggles to find an existing source that Carol can use in class.

If Carol wants some visual representation of this information to help students better understand the concept, ChatGPT would not be able to generate such a diagram, but it gets

smart and gives it a try by explaining to Carol the components of that diagram (circles, symbols, lines, areas, etc):

➤ **ChatGPT:** *As a text-based AI model, I am unable to provide visual diagrams directly. However, I can describe a simple diagram of a city-state in ancient Greece, which you can visualize: Imagine a circle in the center of a piece of paper. This circle represents the city, which is the urban core of the city-state. Surrounding the circle, draw a larger area, symbolizing the territory or land controlled by the city-state. This outer area can be represented as concentric circles or irregular shapes, depending on how you want to depict it. [...]*

Existing AI-driven tools such as Dalle-e, Midjourney or Gencraft may help here to generate those visuals that she can include in the presentation slide deck she uses in class:

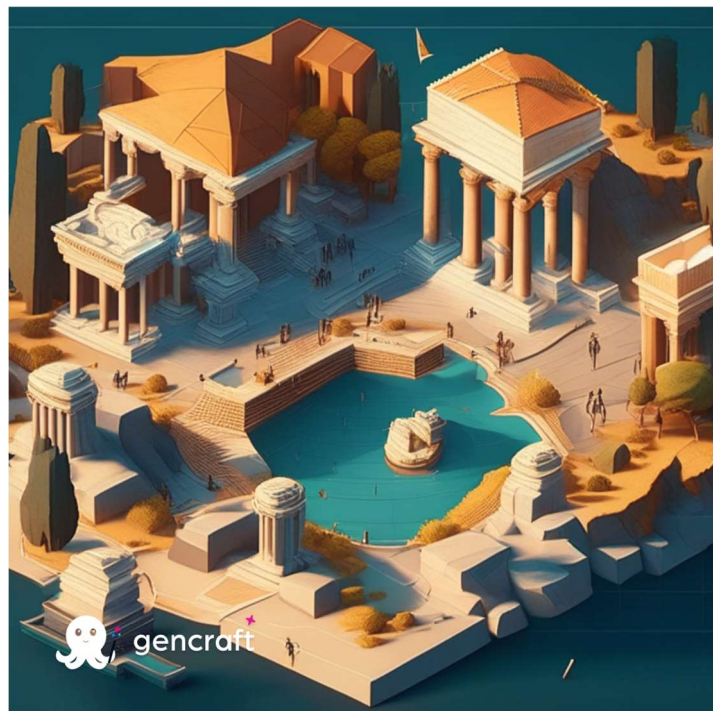


Figure 2: GenCraft AI generated visual for city-state in ancient Greece

When back in front of her class, Carol would need to present this to the students so she may probably use a presentation deck. Other AI tools such as SlidesAI.io can help to transform text

produced by ChatGPT into a sequence of slides. Still, Carol will need to analyse the text she wants the AI tools to analyse and include as part of the presentation and insert into the separate tool:

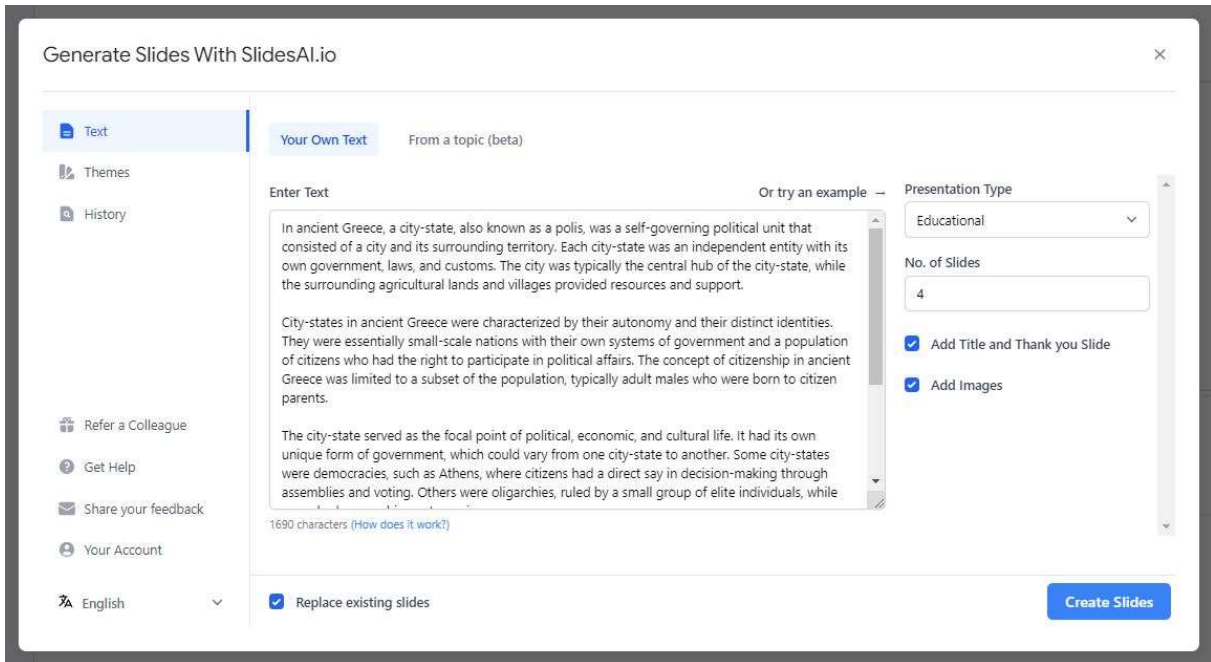


Figure 3: Creating a new AI-generated presentation with SlidesAI.io with content from ChatGPT

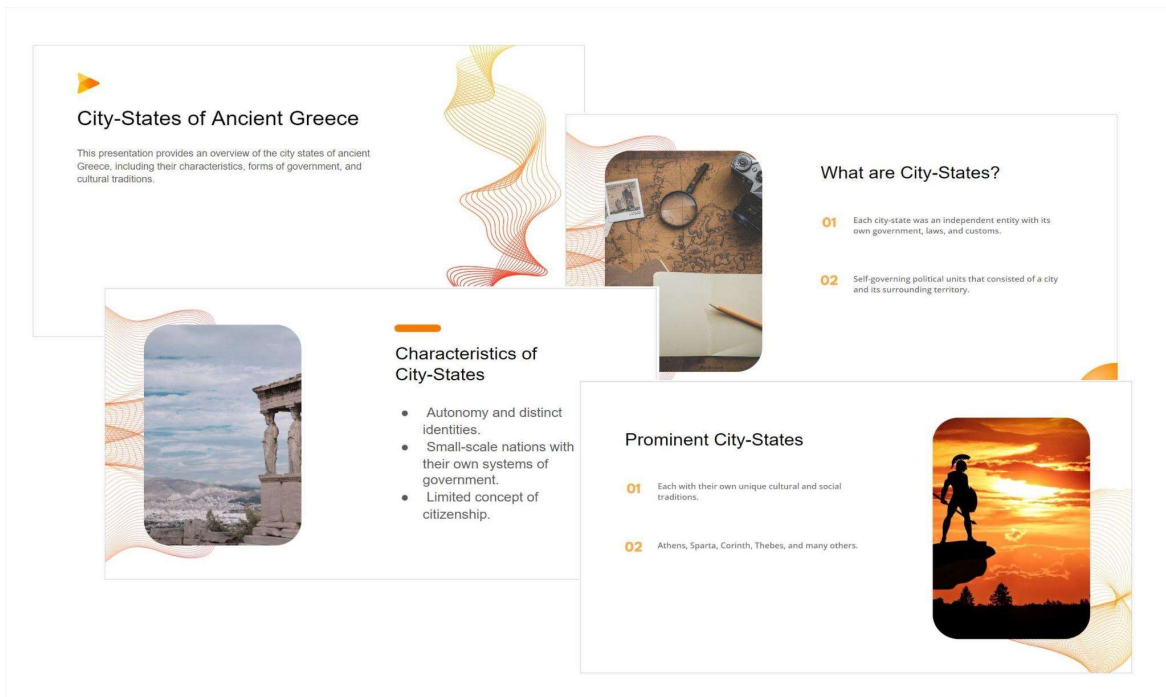


Figure 4: Examples of slides generated by SlidesAI.io with content generated from ChatGPT

Let's frame Carol's challenge in time. Carol usually runs 4 history lessons a week with her class. This month the class are looking at ancient civilizations and will cover a different civilization each week. This week it will be Greece. Carol would need a plan to run the different exercises proposed by ChatGPT in a week:

➤ **Carol:** *Can you suggest a general breakdown of how the scenario could be structured over multiple days?*

The AI is able to propose a weekly breakdown for the scenario and specific exercises for each day so that Carol can focus on each day, and probably ask for more detail later from the AI:

<p>Day 1:</p> <p>Introduction to ancient Greece and the concept of a city-state. Explanation of the assembly and its importance in ancient Greek democracy. Discussion and exploration of the key features and functions of the assembly. Watching videos or using other multimedia resources to illustrate the assembly in action.</p>	<p>Day 2:</p> <p>Role-play activity: Assign students different roles such as citizens, government officials, and leaders in an assembly simulation. Provide students with scenarios or topics to debate and discuss in the assembly. Facilitate the role-play activity, allowing students to take part in discussions, propose laws, and vote on decisions.</p>
<p>Day 3:</p> <p>Reflection and discussion: Ask students to share their experiences from the role-play activity and discuss the challenges and benefits of the democratic process. Engage in a class discussion on the importance of citizen participation and the significance of democratic decision-making.</p>	<p>Day 4:</p> <p>Extension activity: Encourage students to research and prepare short presentations on other aspects of ancient Greek democracy, such as the role of juries, the concept of ostracism, or the role of women in the democratic process. Students present their findings to the class, fostering a deeper understanding of the broader democratic system in ancient Greece.</p>

Table 1: Weekly breakdown for Scenario A

When students get their work done and they have to present to the rest, a form of assessment has to be put in place:

➤ **Carol:** *Can you suggest a rubric that students can use to assess their peers in this type of scenario?*

In this matter, a rubric for peer-assessment is developed and suggested by ChatGPT for Carol to use when assessing students' presentations in the Role-Play exercise. This rubric would evaluate students in the following areas:

- Content knowledge
- Role development
- Presentation skills
- Creativity and originality
- Collaboration and teamwork

It is significant that, aside from the expected standard rubric levels, ChatGPT recommends making the rubric more user-friendly with description levels (e.g. Excellent, Good, Fair, Needs Improvement), providing space for written comments and encouraging constructive feedback and discussions. At this point, it seems like ChatGPT is working as a reliable assistant when pursuing a more authentic form of assessment.

➤ **ChatGPT: Content Knowledge:** *Assess the students' understanding and accuracy in portraying their assigned city-state and the proposed changes. Consider the depth of their research, the inclusion of relevant historical information, and the coherence of their ideas. Role Development: Evaluate how well the students embody their assigned roles within the skit. Look for the demonstration of appropriate characteristics, behaviors, and attitudes that align with the historical context. Consider the level of detail in their portrayal and the consistency with which they maintain their roles throughout the presentation. Presentation Skills: Evaluate the students' performance skills and their ability to effectively communicate their ideas. Consider aspects such as clarity of speech, body language, eye contact, and overall confidence in delivering their lines. Assess their ability to engage the audience and maintain the flow and pace*

*of the skit. **Creativity and Originality:** Assess the level of creativity and originality demonstrated in the skit. Look for unique approaches, innovative ideas, and engaging storytelling techniques that make the presentation memorable and captivating. Consider the incorporation of props, costumes, or other visual elements that enhance the overall performance. **Collaboration and Teamwork:** Evaluate the students' ability to work together as a team. Consider their cooperation, coordination, and support for one another during the preparation and execution of the skit. Assess how well they listen to and respond to each other's ideas and contributions. To make the rubric more user-friendly, you can assign a numerical rating scale or use descriptive levels (e.g., Excellent, Good, Fair, Needs Improvement) for each criterion. It's also helpful to provide space for written feedback or comments to give students specific areas of improvement or praise. Remember to explain the rubric to students beforehand, so they understand how they will be evaluated and what is expected of them. Encourage constructive feedback and discussions among students about their performances, promoting a supportive and learning-focused environment.*

As we could see, following a logical sequence of questions, we got promising responses from ChatGPT in terms of pure text-based content to explain the overall historical context, the description of a concrete scenario, the activity schedule, a description of the roles that each student may play in the scenario, the type of assessment to use (role-play or skits) and how a rubric for peer assessment would look like. However, it is still early to say if ChatGPT would be able to present valid video resources. The generation of images and audio will be also considered in the next steps of research work.

4. AI agents

In order to validate our approach, the team explored the use of a different tool called AgentGPT²⁹. This AI-driven tool has been used to see if an AI agent can replicate the approach that we followed. Note that this tool works with AI Agents that help you solve a complex problem by dividing it into small tasks and giving you the answers to those, which is basically what we are trying to do when supporting Carol with her lesson planning. In the next figure you can see how an AI agent called AssessGPT was created to work on that same challenge:

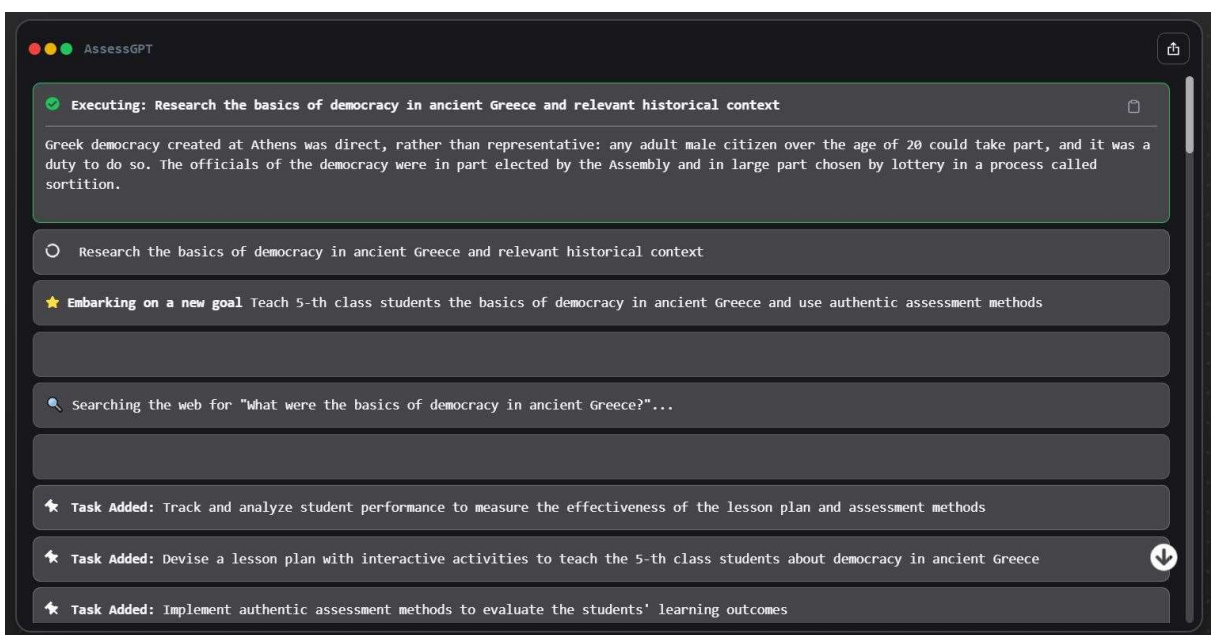


Figure 5: AgentGPT agent solving our general scenario

The next step is to call for teachers in the sector to join this quest of testing ChatGPT to produce these role-play scenarios in a way that will serve teachers and engage the students, focusing on the assessment methodology improvement. Teachers can help evaluate this process's viability and the experience's final outputs.

As we have mentioned, there are more Generative AI tools that teachers can use to generate material and content for students to work on. Also, students can use ChatGPT and other tools to create the outputs for the exercise. Still, we believe that teachers must be guided in this

²⁹ <https://agentgpt.reworkd.ai/>

How will Generative AI transform the way teachers plan and conduct assessments?

process of using Generative AI carefully thereby they can effectively introduce the tools to their students.

5. Discussion

With this case study, the Learnovate research team wanted to walk in the shoes of a Primary School teacher trying to plan a History lesson about Democracy in ancient Greece. There were two requirements for this plan: it will use some form of authentic assessment for learning (group work with role-playing, presentations and peer assessment) and it should be completed in 1 week.

The team worked on simple prompts to get content from ChatGPT that a teacher can use to share with students, populate Google Slides presentations or structure a role-playing exercise. Since ChatGPT is merely a text-based tool, it was not able to generate images, which forced the team to go and search for a different AI tool to generate those (e.g. GenCraft).

ChatGPT was not able to neither generate valuable video resource lists nor recommend a valid list of websites for the teacher to find those. We were forced again to go out of ChatGPT and find these videos using the regular searching tools on YouTube or Google.

With the content generated by ChatGPT, we used SlidesAI.io to create a basic set of slides to be used in the classroom for presentation purposes. The AI tool and the presentation generated both seem pretty rudimentary but it serves as a scaffold for teachers to avoid starting from scratch.

The full conversation with ChatGPT ran for 2 hours. Most of the text-based content generated by ChatGPT is useful for a teacher to plan a History lesson and structure assessment following the recommended role-playing exercise and the peer assessment rubric. Still, there will be time for the teacher to expand content, generate more visuals, create guides for students to develop the exercises and peer assessment and track the 1-week learning journey and collect final results.

To expand the experiment, we can take each prompt and re-word it following Dr Murgatroyd's suggestion. With this prompt engineering task, we may find more detailed content coming from ChatGPT. For example, if we take the very first prompt and we change the school grade,

we can see how ChatGPT is able to refine the answer trying to match the difficulty that a teacher would expect for that class.

Alternative 1:

- **Carol:** *Hi! Could you be my history class assistant this morning? I need 5 examples of scenarios to play with my **7th-class** students to help them understand what democracy was in ancient Greece.*
- **ChatGPT:** *Absolutely! Here are five scenarios suitable for a 7th-grade history class to help them explore democracy in ancient Greece in more depth: **Reforms of Solon:** Setup: Introduce Solon, the Athenian statesman known for his reforms. Scenario: Divide the class into groups, with each group representing a different faction in ancient Athenian society (e.g., aristocrats, farmers, merchants, etc.). Ask them to identify the problems faced by their respective factions and have them propose reforms to address these issues. Students can then discuss and debate these proposed reforms, similar to how Solon introduced changes to the Athenian government. This scenario will demonstrate how Solon's reforms laid the groundwork for democracy in Athens. **Constitution of Sparta vs. Athens:** Setup: Explain the fundamental differences between the governments of Sparta and Athens. Scenario: Divide the class into two groups representing each city-state. Conduct a structured debate where students from Sparta and Athens present arguments about the strengths and weaknesses of their respective political systems. Emphasize the contrasting aspects, such as the emphasis on military prowess in Sparta and the democratic principles in Athens. This activity will encourage students to understand the varied forms of governance in ancient Greece. **The Battle of Marathon:** Setup: Briefly discuss the Battle of Marathon and its significance in Athenian democracy. Scenario: Organize a role-playing activity where students take on the roles of Athenian citizens who participated in the battle. Each student should have a different perspective (e.g., soldier, general, politician, etc.). After the battle, have a town hall-style meeting where students discuss the aftermath and decide how to commemorate the victory. This scenario will highlight the importance of citizen participation and shared*

*decision-making in ancient Athens. **The Rise of Pericles:** Setup: Introduce Pericles, the influential Athenian statesman, and orator. Scenario: Divide the class into smaller groups, and each group will represent a different aspect of Athenian society (e.g., artists, merchants, soldiers, etc.). Students should imagine that they are attending a speech by Pericles, and they need to prepare questions or statements based on their interests and concerns. Conduct a mock "Periclean Oration" where each group presents its questions or concerns, and other students can respond as Pericles. This activity will illustrate how Pericles engaged citizens and emphasized the importance of democratic ideals in Athens. **Greek Democratic Philosophers:** Setup: Discuss the ideas of ancient Greek philosophers like Plato and Aristotle regarding democracy. Scenario: Divide the class into groups, and each group will focus on a different philosopher's perspective on democracy. In a roundtable discussion, have each group present their philosopher's views on the strengths and weaknesses of democracy and how they proposed to improve or criticize the system. This scenario will encourage critical thinking and help students understand the philosophical debates surrounding democracy in ancient Greece. **As with the previous scenarios, ensure that you facilitate thoughtful discussions and reflections after each activity. Encourage students to draw connections between historical events and democratic principles and how they have shaped governance throughout history. Enjoy exploring these activities with your 7th-grade students!***

In this alternative answer for the 7th class, the AI is giving the teacher more depth around each of the scenarios, names some crucial people in the History of Greek Democracy and suggests that students will start making connections between history and democracy. It sounds like the AI understands this grade would stand more difficulty.

Alternative 2:

- **Carol:** Hi! Could you be my history class assistant this morning? I need 5 examples of scenarios to play with my **2nd-class** students to help them understand what democracy was in ancient Greece.
- **ChatGPT:** Absolutely! Here are five simplified scenarios suitable for a 2nd-grade history class to introduce the concept of democracy in ancient Greece in a fun and engaging way:
Classroom Rules: Setup: Explain to the students that in ancient Greece, citizens had a say in making rules for their community. Scenario: Divide the class into smaller groups and ask each group to come up with a rule they think would make their classroom a better place. For example, they can propose rules about sharing, taking turns, or being kind to one another. Each group can present their rule to the class, and then all students can vote on which rule they want to adopt for the classroom. This activity will introduce the concept of voting and collective decision-making.
Building a City-State: Setup: Explain that ancient Greeks lived in city-states, each with its own unique characteristics. Scenario: Divide the class into teams and give each team a blank map of a city-state. Ask the students to design their own city-state with features like mountains, rivers, and farmland. Then, have them draw buildings like an assembly hall, a market, and a school. Encourage students to share their designs with the class, and everyone can discuss the unique aspects of each city-state. This activity will introduce the idea of local governance and the diversity of city-states in ancient Greece.
Ancient Greek Olympics: Setup: Explain that the ancient Greeks held the Olympics as a way to bring people together and celebrate sportsmanship. Scenario: Organize a mini "Olympic Games" for the class. Divide students into teams and create simple games that they can play in the classroom or outdoors. For example, you can have relay races, mini javelin throws (with safe materials), or a long jump competition. After the games, have a "ceremony" where students award medals to their teammates and practice congratulating each other on their efforts. This activity will demonstrate the spirit of friendly competition and cooperation in ancient Greece.
Democratic Storytelling: Setup: Explain that in ancient Greece, people enjoyed storytelling and theater performances. Scenario: Have the

*students sit in a circle, and one student can start a story with a simple sentence. Then, each student in the circle can add one sentence to the story. Encourage creativity and imagination. After the story is complete, discuss how everyone participated in creating the story, and how this is similar to how citizens had a voice in decision-making in ancient Greek democracies. **Voting for Class Activities:** Setup: Explain the concept of voting and how it allows people to choose what they want to do as a group. Scenario: As a class, brainstorm a list of fun activities (e.g., playing a game, watching a short video, or drawing together). Then, have the students vote on which activity they want to do. Count the votes together, and the winning activity will be the one the class does. This activity will introduce the concept of majority rule and decision-making through voting. **These scenarios are designed to be age-appropriate and engaging for 2nd-grade students. They aim to introduce the fundamental concepts of ancient Greek democracy in a playful and interactive manner. As always, take the time to discuss the key takeaways with the students and connect the activities to the broader idea of democracy in ancient Greece. Have a wonderful time exploring these scenarios with your 2nd-grade class!***

On the other hand, when we tried with a younger age cohort (2nd class) we saw that ChatGPT changes the language to reflect the new context. It suggests the teacher use these scenarios in a playful and interactive way and all scenarios are explained as they relate to regular class activities (voting, rules, stories, sports, etc).

This short exercise raises again the importance of designing the prompts and refining them with the aim of obtaining the best content from the Generative AI tool. Leaving things open for the AI tool to reason could bring smart moves. See for example that in our scenario ChatGPT recognised from our prompt that we wanted to know about ancient Greek democracy rather than modern democracy even though we weren't very explicit about this. At the same time, we can't necessarily rely on ChatGPT's ability to correctly disambiguate between topics or terms that have similar semantic meanings. Also, note that we were following recommendations from Dr Murgatroyd's presentation when treating ChatGPT as a teacher assistant. When removing that part from the prompt, the content generated looked

pretty similar, giving the sense that this treatment had not impacted our results, but may impact other scenarios depending on the role you state.

6. Next steps

This case study explores a fictitious situation where a Primary School teacher attempts to use ChatGPT and other AI tools to help plan their lessons, with the side goal to conduct a more authentic assessment. Presenting this situation to real teachers would provoke reactions and give us a sense of validation of the use of technology that may help devise a new innovative way to interact (or User Interface) that will ease the communication between the classroom and the technology. The final goal is to make technology invisible, a mere instrument that supports teachers and students to enjoy the learning experience and make it more effective and efficient. Transform current technology to the real purpose of the education environment. Teachers like Carol do not want to jump from one tool to another when planning a lesson and conducting assessments. Therefore, technologists should make an effort to integrate the range of digital AI tools and deliver a user-friendly interface. We envisage this new interface will combine, for example, the potential of generative AI-powered chatbots to guide teachers when using other generative AI tools to find and produce resources.

On an additional note, we believe that it is worth mentioning the ongoing Core Project DIALS (Democratic, Inclusive and Authentic Assessment For Learning and Sustainability) that Learnovate is running in parallel with this series of reports. This project has a hypothesis that teachers will be eager to turn towards the use of a more authentic way of assessment. As we concluded from Stage 1 of this research work, some of the authentic assessment forms would be a collaborative eportfolio that captures group work, enabling discussion and reflection, and supported by self and peer assessment. We knew from the academic literature review that these types of assessments will encounter barriers in the classroom and perhaps Generative AI and the user story described in this case study can be a valid path to solve some or most of these drawbacks.

7. Appendix

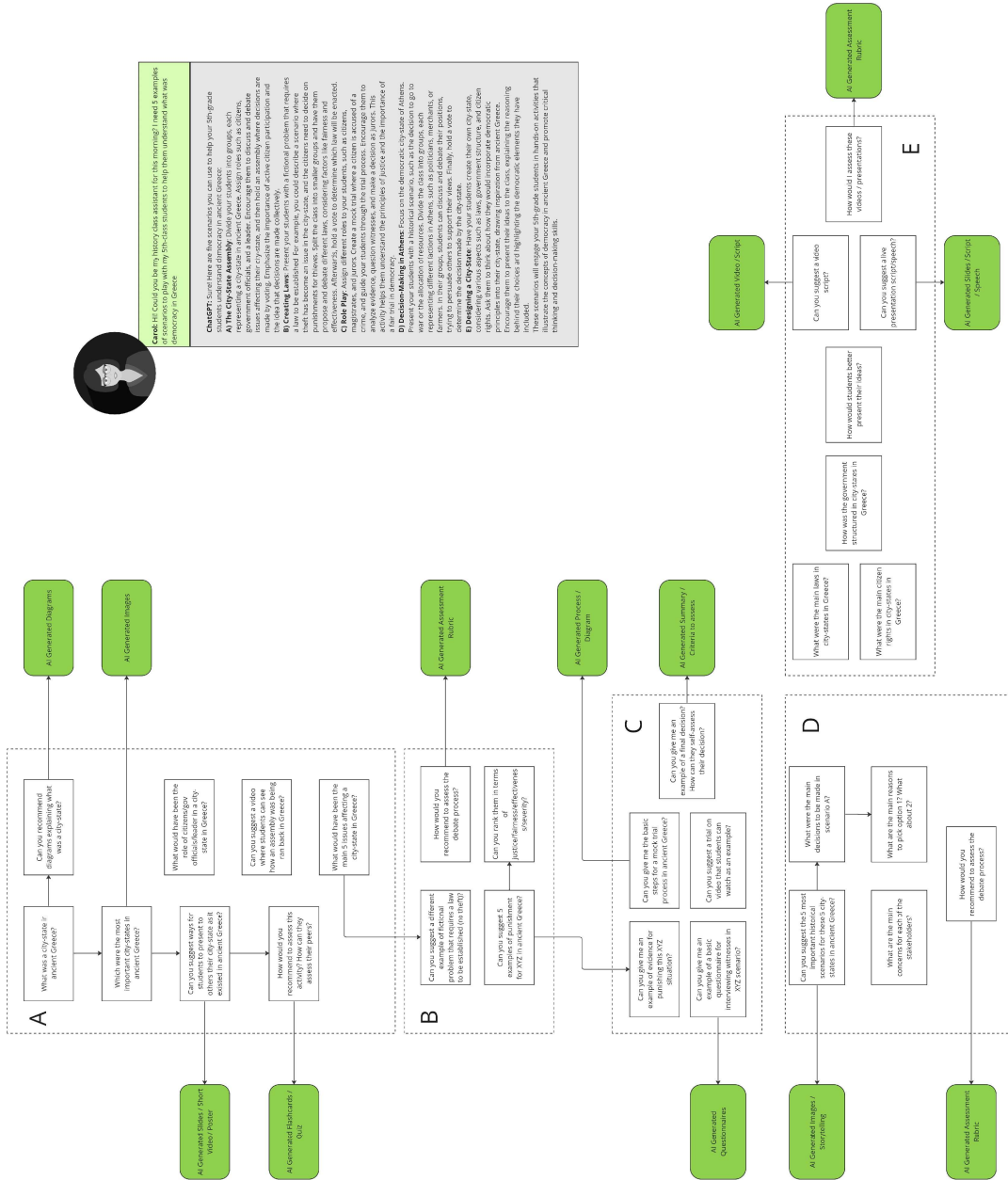


Figure 6: Full diagram with a plan to use ChatGPT and alternative AI tools