



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

CHATGPT: A GAME-CHANGER FOR MODERN ONLINE COURSES

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Canada

ONLINE COURSE CREATION

AT THE
METEOROLOGICAL
SERVICE OF CANADA



Creating, hosting and managing
online courses



Hosted on Moodle (~100 online
courses)



Different topics: NWP, Radar,
Software, etc.



Introduction to
meteorology

Mainly for technicians:
monitoring and ice observers
Mandatory for career
progression



COURSE REDESIGN WORKFLOW

1- ANALYSIS

2- DESIGN

3- DEVELOPMENT

4- DELIVERY AND TESTING





DECEMBER 2022

The rise of ChatGPT

CHATGPT 3.5 BASIC CAPABILITIES

ANSWERS TO VARIOUS QUESTIONS



General facts and encyclopedic knowledge



Recipes



Recommendations for purchases and outings



Analysis of works (literary, movies, etc.)

TEXTS

- Reword in plain language
- Generation (e.g. stories, poems, songs, warnings, forecasts)
- Translation
- Summary, analysis

A circular graphic with a thick, multi-layered border. The border features a color gradient from light green on the left to light blue on the right, with several concentric rings creating a sense of depth. In the center of the circle, the text "GOOD FIT!" is written in a bold, dark green, sans-serif font.

GOOD FIT!

CHATGPT TEAM TRIAL - PHASE 1



December 2022 -> February 2023 and beyond



Version 3.5



Open account with corporate email



Experiment with day-to-day aspect of his/her work



Weekly meeting to share results



CHATGPT 4+ TEAM TRIAL - PHASE 2



Late fall 2023 (ongoing)



Version 4 + pretrained with our documentation



ECCEC Innovation Hub, protected environment



Experiment with prompt engineering



Three team members



The background features a large, abstract graphic composed of several concentric, overlapping rings. The rings on the left are green, transitioning from a light green to a slightly darker shade. The rings on the right are blue, transitioning from a light blue to a slightly darker shade. The rings are not perfectly circular, creating a sense of movement and depth.

DURING THESE TRIALS,
HOW WAS CHATGPT USED
WITHIN OUR COURSE
DESIGN WORKFLOW?



1 ANALYSIS PHASE

- Initial Assessment
- **Literature review**
 - Helps sift through large amounts of current* information available on given topic
 - Can identify gaps in existing lesson
 - Can help with fact checking

*ChatGPT 3.5 is trained up until 2021.

2

DESIGN PHASE

- Refining learning objectives
- Building course structure
- **Writing technical script**
 - Plain language, adapted to audience
 - Swiftly generates **concise summaries** to make course content more accessible
- **Creating evaluations**
 - Quizzes, tests and knowledge checks
 - Generates **all types of questions**: multiple choices, true and false, open questions, and exercises
 - Produces **feedback** for learners on both correct and incorrect responses





3

DEVELOPMENT PHASE

- Supporting **accessibility**:
 - Alt text, image descriptions
- Other AI tools
 - Narration*
 - Translation**
 - Generating transcriptions***
 - Closed captions***

* Using Google text-to-speech (Wavenet)

** DeepL

*** Descript / Other



4

DELIVERY AND TESTING

- Feedback forms
 - Creating surveys
 - Analyzing results
 - Generating reports and summaries
- Communicating availability of course





FINDINGS



Very motivating and enriching as all team members brought interesting results and insights to the table.



Our team quickly became a reference for colleagues



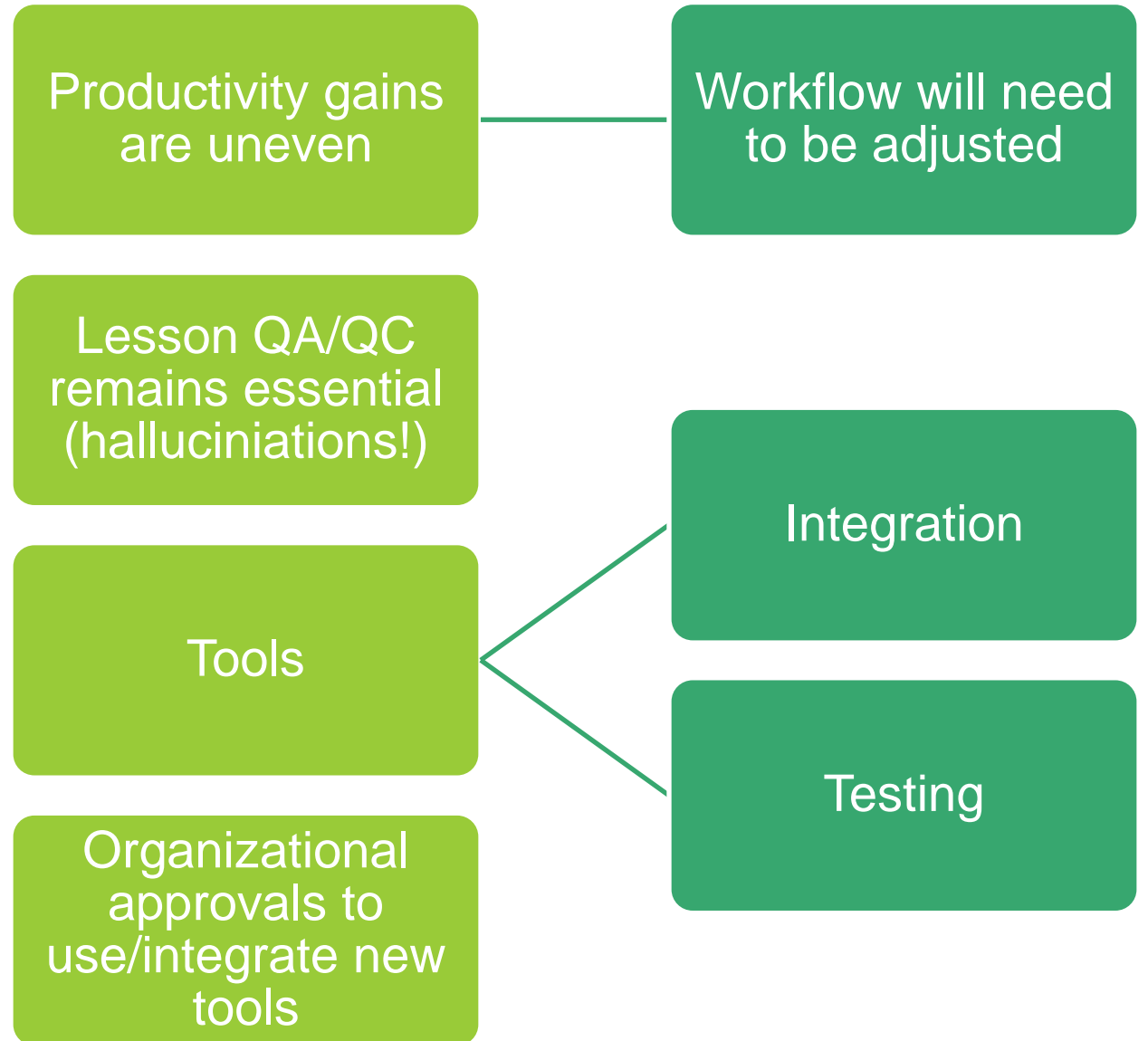
Powerful incentive to adopt AI tools and to continue to explore potential in other tasks.

PERFORMANCE INDICATORS

Topic	Improvement
Litterature review	6-12x
Learning objectives	2x
Summary	3-5x
Technical script writing	1.5x-4x
Evaluations and Feedback (Q&A)	2-30x
Vocabulary level	6-12x
Accessibility (alt text)	5x-7x
Translation	0x*
Survey report	10x

* Translation already AI-optimized with DeepL: 5x + less reliance on translation services

RISKS & CHALLENGES



CONCLUSION



Prompt engineering is an important skill to cultivate and prompt libraries can be built and shared within team to ensure more consistent results.



Ability to Ingest a lot more content than we were able to process before.



Impressive gains in efficiency in every phase of the course creation process.



Merci!

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SUMMARIZING

Paste text into edit box

The image shows a side-by-side comparison of a source document and its summarized version generated by ChatGPT-3.5.

Source Document (Left):

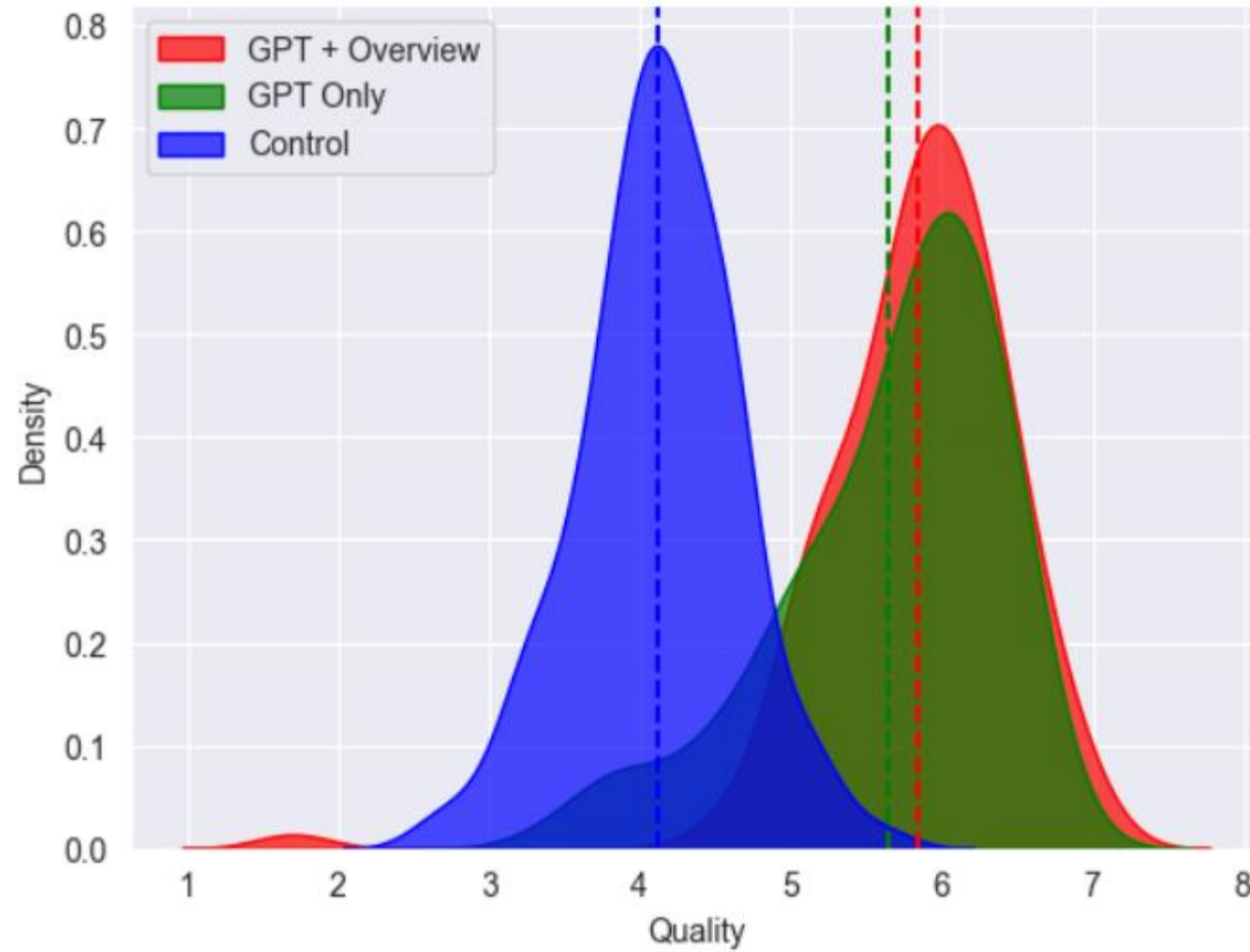
- Section Header:** Surface and Air Temperature
- Text:** This chapter focuses on **air temperature**—that is, the temperature of the air as observed at 1.2 m (4 ft) above the ground surface. Air temperature conditions many aspects of human life, from the clothing we wear to the fuel costs we pay. Air temperature and air temperature cycles also act to select the plants and animals that make up the biological landscape of a region. And air temperature, along with precipitation, is a key determinant of climate, which we will explore in more depth in Chapter 7.
- Text:** Five important factors influence air temperature (Figure 3.2):
- 1. Latitude.** Daily and annual cycles of insolation vary systematically with latitude, causing air temperatures and air temperature cycles to vary as well. Yearly insolation decreases toward the poles, so less energy is available to heat the air. But because the seasonal cycle of insolation becomes more intense with latitude, high latitudes experience a much greater range in air temperatures throughout the year.
- 2. Surface type.** Urban air temperatures are generally higher than rural temperatures. City surface materials— asphalt, roofing shingles, stone, brick—hold little water, compared to the moist soil surfaces of rural areas and forests, so there is little cooling through evaporation. Urban materials are also darker and

ChatGPT Interface (Right):

- Model:** GPT-3.5
- Header:** ChatGPT
- Buttons:** Proposez des concepts pour un jeu d'arcade de style rétro, Expliquez les supraconducteurs comme si j'avais cinq ans, Élaborez une stratégie de contenu pour une newsletter présentant des événements..., Écrivez un texte invitant mes voisins à un barbecue.
- Input Field:** Surface and Air Temperature
This chapter focuses on air temperature —that is, the temperature of the air as observed at 1.2 m (4 ft) above the ground surface. Air temperature conditions many aspects of human life, from the clothing we wear to the fuel costs we pay. Air temperature and air temperature cycles also act to select the plants and animals that
- Output Field:** (Empty)

A red arrow points from the text box in the source document to the input field in the ChatGPT interface, indicating the text being pasted for summarization.

Figure 2: Performance Distribution - Inside the Frontier



Notes: This figure displays the full distribution of performance in the experimental task inside the frontier for subjects in the three experimental groups (red for subjects in the GPT+Overview condition; green for subjects in the GPT Only condition; blue for subjects in the control condition).

FUTURE?



Content-specific chatbots to support students.



Course generation from simple storyboards (Powerpoint's «designer» tool but better!)



AI-fueled interactions with learners such as simulations.



Develop personalized learning plans based on individual training needs.

