

Tzirides, Anastasia Olga (Olnancy), Gabriela Zapata, Akash Saini, Duane Sears Smith, Bill Cope, Mary Kalantzis, Vania Castro, Theodora Kourkoulou, John Jones, Rodrigo Abrantes da Silva, Jen Whiting and Nikoleta Polyxeni Kastania, "Generative AI: Implications and Applications for Education," *arXiv*, 2305.07605, 2023, doi: <https://doi.org/10.48550/arXiv.2305.07605>

Generative AI: Implications and Applications for Education

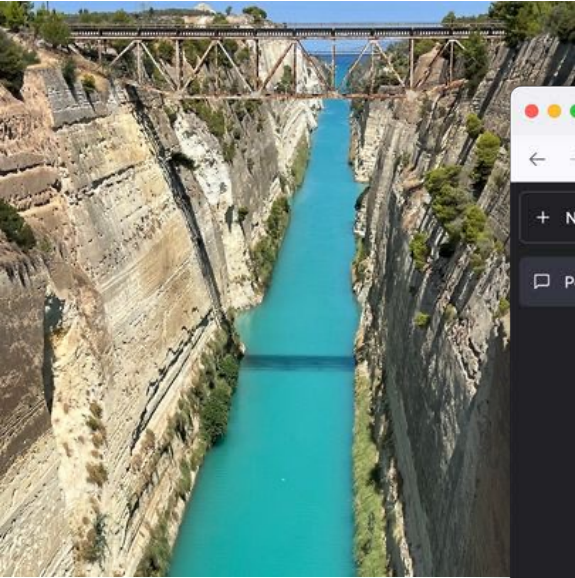
Bureau of Educational Research Webinar
May 15, 2023

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1. Generative Pre-trained Transformers Come to School

2. Putting GPTs to Work: A Case Study

3. Implications



Peloponnesian Railway Essay x +

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+ New chat

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Clear conversations

Upgrade to Plus **NEW**

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Write an essay on the history of the Peloponnesian Railway with References

The Peloponnesian Railway was a railway system that operated in the Peloponnese region of Greece from the late 19th century until the mid-20th century. It played an important role in the economic and social development of the region, connecting the cities and towns of the Peloponnese with each other and with the rest of the country.

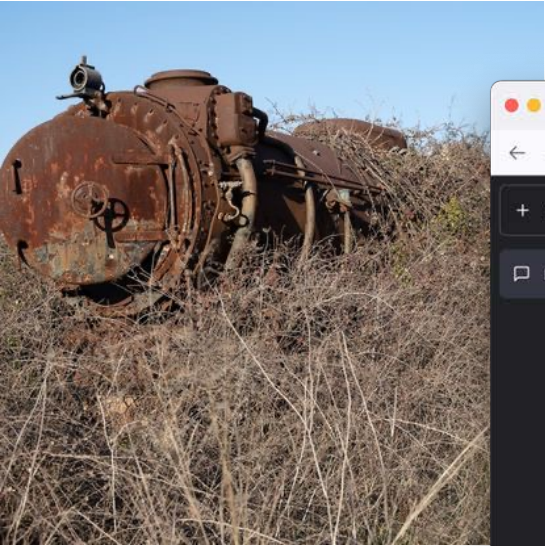
The idea of building a railway in the Peloponnese dates back to the 1860s, when the Greek government was considering ways to improve transportation in the country. At the time, the Peloponnese was one of the most isolated and underdeveloped regions of Greece, with poor roads and few means of communication. The government saw the construction of a railway as a way to promote economic growth, improve transportation, and connect the region with the rest of the country.

In 1869, the Greek government signed a contract with a French company, the Société du Chemin de Fer Ottoman de Salonique à Constantinople, to build a railway from Athens to Thessaloniki. This project was completed in 1895 and was a great success, leading the government to consider the construction of a railway in the Peloponnese.

Construction of the Peloponnesian Railway began in 1881, and the first section of the line, from Corinth to Kalamata, was opened in 1889. Over the next few decades, the railway was extended to other parts of the region, including the cities of Patras and Pyrgos. The railway had a total [Regenerate response] and included a number of

Send a message...

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Peloponnesian Railway Essay

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Peloponnesian Railwa

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The Peloponnesian Railway had a number of economic and social impacts on the region. It helped to stimulate economic growth by enabling the transport of goods and people and by attracting tourists to the region. It also helped to improve the quality of life of people living in the region by providing them with easier access to education, healthcare, and other services.

However, the Peloponnesian Railway also had some negative impacts. It contributed to the decline of traditional forms of transportation, such as animal-drawn carts and donkeys, which were replaced by trains. It also had an impact on the environment, as the construction of the railway required the cutting down of trees and the filling in of wetlands, which had negative impacts on local ecosystems.

In the mid-20th century, the Peloponnesian Railway began to decline in importance as the road network in the region improved and the use of automobiles and buses increased. The railway was eventually decommissioned in the 1970s, and the tracks were removed and the stations closed. Today, the Peloponnesian Railway is remembered as an important part of the region's history and an important contributor to its economic and social development.

References:

1. Doukas, D. I., & Kasimatis, K. G. (2002). Greek Railways: From 1869 to the Present. Livanis Publishing Organization.
2. Karakostas, V. (2015). From construction to operation of the railway network in Greece: A brief historical review. *Procedia-Social and Behavioral Sciences*, 175, 81-88.

Regenerate response

Send a message...

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The Immediate Solution



Generative AI: uniquely reconstituted digital artifacts—text, image, sound or in multimodal combination—created on the basis of patterns whose human meanings have been identified in sources through supervised and/or unsupervised machine learning.

C-LLMs are a kind of
Generative AI:
**Chatbots using Large
Language Models**

The Technology is Not-So-New (1)

```
ELIZA: Is something troubling you ?
YOU:   Men are all alike.
ELIZA: What is the connection, do you suppose ?
YOU:   They're always bugging us about something or other.
ELIZA: Can you think of a specific example ?
YOU:   Well, my boyfriend made me come here.
ELIZA: Is it important to you that your boyfriend made you come here ?
YOU:   He says I'm depressed much of the time.
ELIZA: I am sorry to hear that you are depressed.
YOU:   It's true. I am unhappy.
ELIZA: Can you explain what made you unhappy ?
YOU:
```

Weizenbaum, Joseph, "ELIZA—A Computer Program for the Study of Natural Language Communication Between Man and Machine," *Communications of the ACM*, 9(1):36-45, 1966.

The Technology is Not-So-New (2)

Church, Kenneth W. and Robert L. Mercer,
"Introduction to the Special Issue on
Computational Linguistics Using Large Corpora,"
Computational Linguistics, 19(1):1-24, 1993.



What's Deeply Wrong About **C-LLMs** for Education

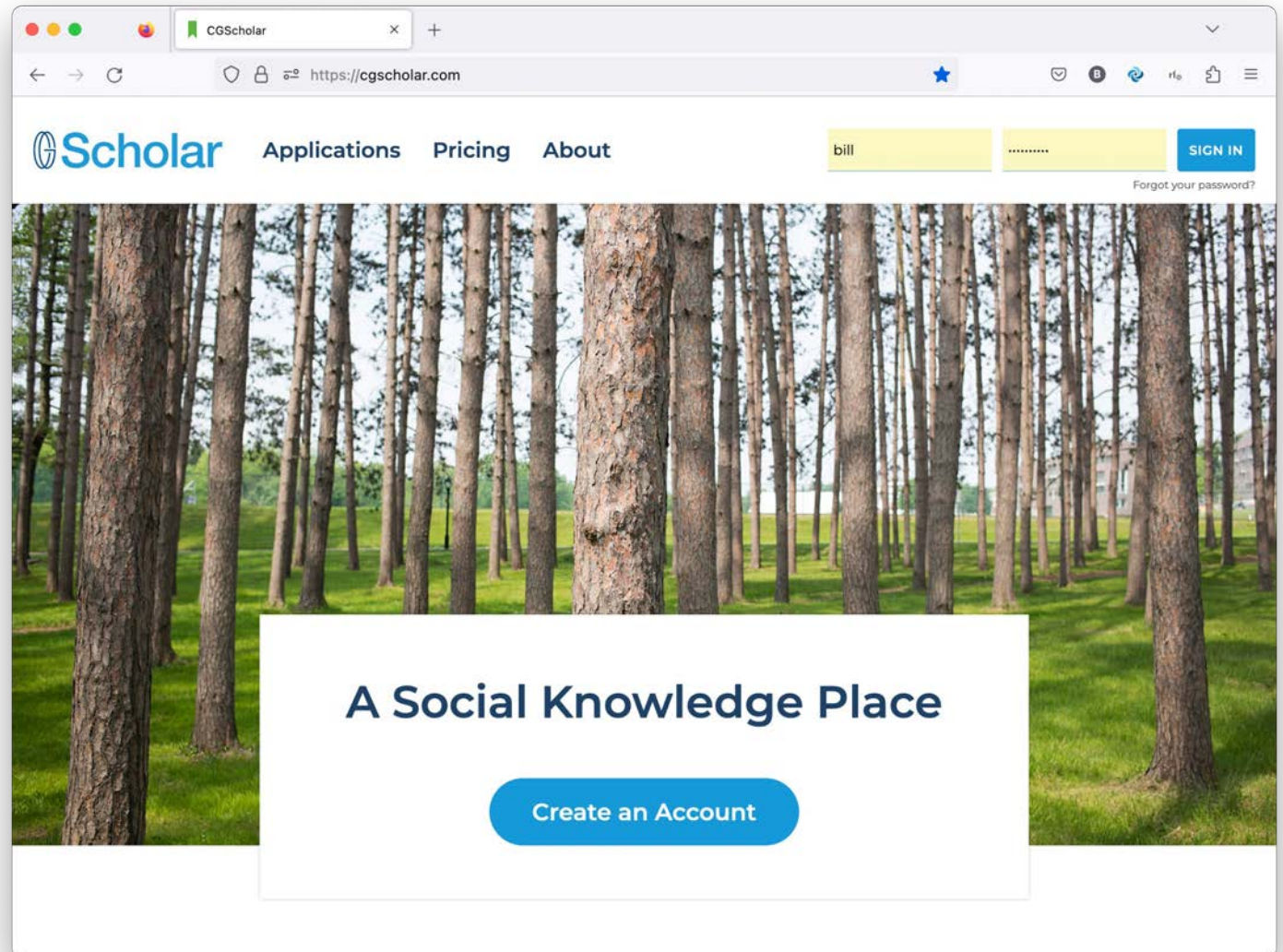
1. **Sourcing:** *The machine buries its sources.*
2. **Facts:** *The machine can have no notion of empirical truth.*
3. **Theory:** *The machine can have no conception of a theoretical frame or disciplinary practice.*
4. **Ethics:** *If the machine is socially well mannered, it is not because its sources are necessarily that.*
5. **Critical Dialogue:** *To appear a good interlocutor, the machine is skewed towards being uncritically affirmative.*

1. Generative Pre-trained Transformers Come to School

2. Putting GPTs to Work: A Case Study

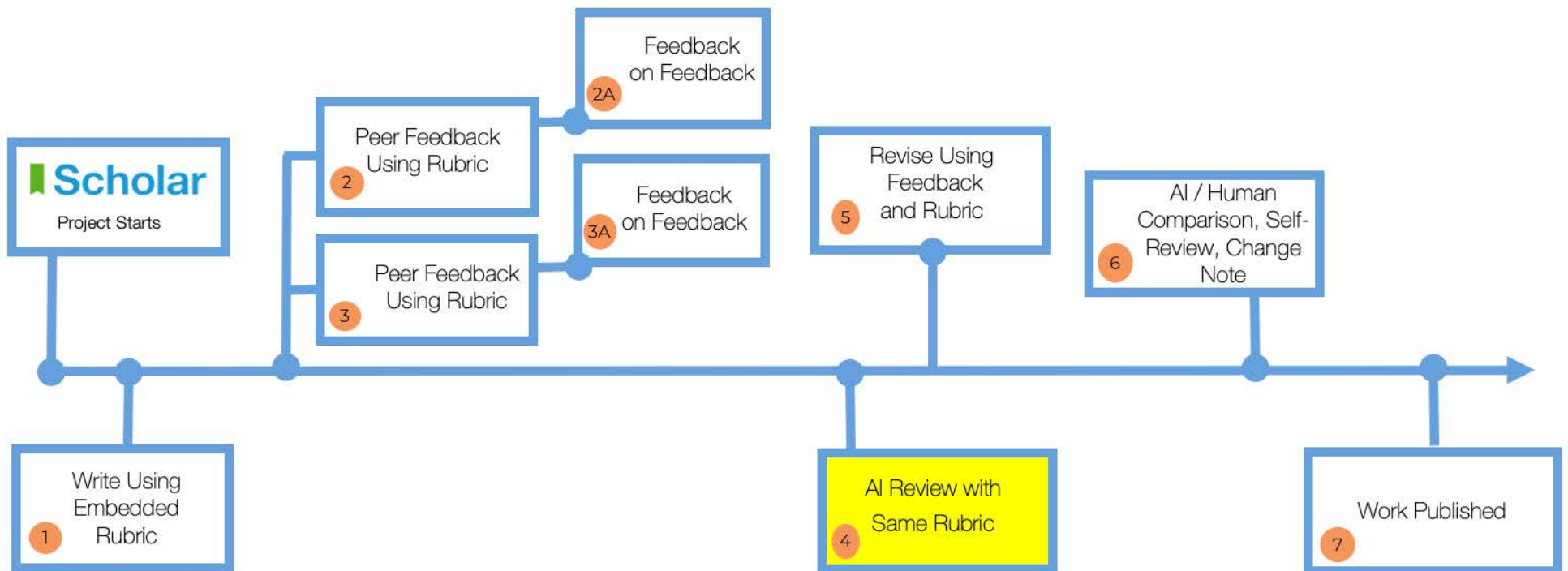
3. Implications

Practice: Recalibrating a C-LLM

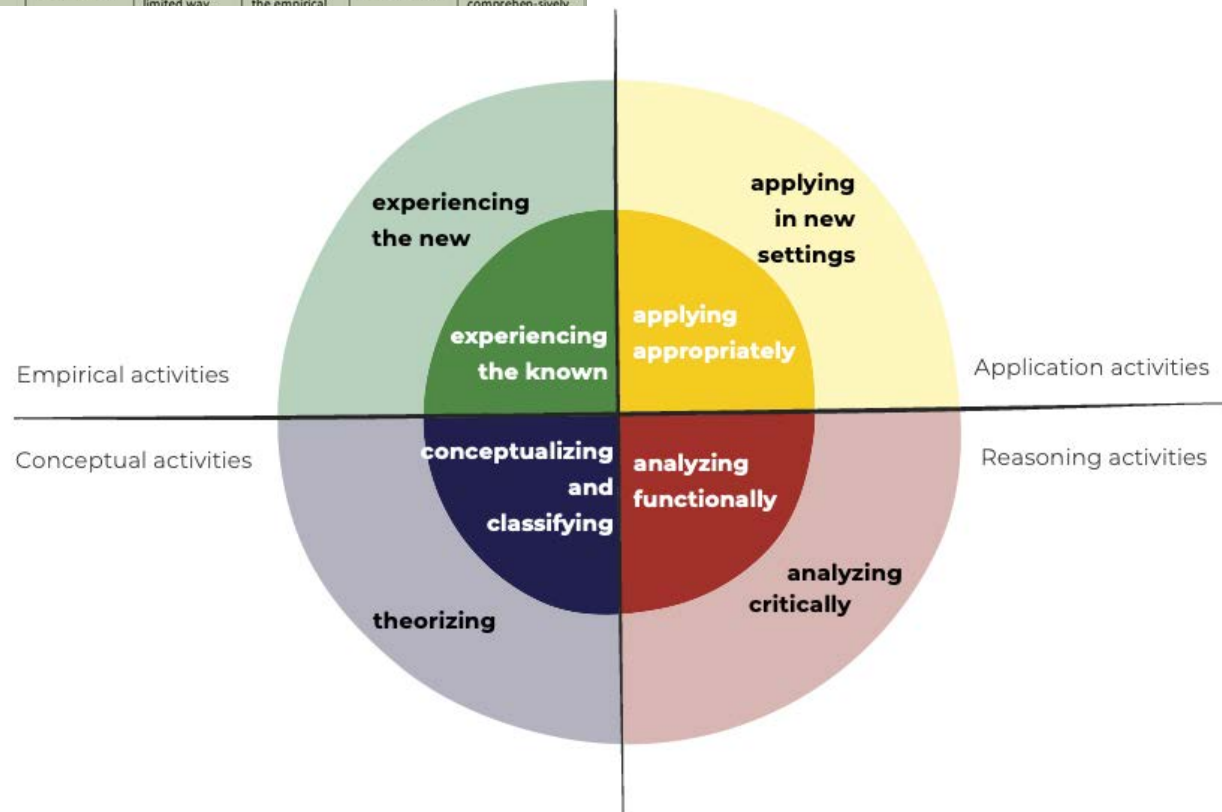


Peer and AI Review Workflow

62 Graduate Students in 2 Courses



Knowledge Processes	Annotation codes	Review Criteria	Marker Nouns (or their equivalent verbs)	0	1	2	3	4
EXPERIENCING Experience	EXP+ EXP- Personal or professional reflection	Clarity and effectiveness of this work as reflected in the connections between this work and the creator's own interests, motivation and experience. Reviewers: What more would you like to know about the creator's interest and motivation to explore this field or theory? Connect to your own experience—in what ways might the chosen area of inquiry be of interest or relevance?	experience, interest, motivation, background, belief, understanding, opinion, perspective	Experiential motivation is not explained.	Experiential basis is explained in limited way.	Good explanation of the experiential basis.	Experiential basis well explained.	Experiential basis explained comprehensively.
Evidence	EVI+ EVI- Empirical evidence	Effectiveness in addressing practical questions, sourceable information or citable data from empirical research in order to indicate the significance of this area of activity or inquiry. Reviewers: What other empirical material would you like to see? Do you have suggestions for additional research data or informational source material?	evidence, data, fact, demonstration, identification, observation, explorative documentation, source, in	Empirical basis not provided.	Empirical basis provided in limited way.	Good explanation of the empirical	Empirical basis well explained.	Empirical basis explained comprehensively.
CONCEPTUALIZING Concepts	NAM+ NAM- Concept naming.	Appropriateness and range of concepts to the case being made. Clear definitions. Reviewers: Suggest other concepts that may be required, and where or how definitions of concepts might be more clearly defined.	concept, definition, categorization, classification					
Theory	THE+ THE- Theory	Conceptual connections and coherence as a model of the world, and clarity of links between related concepts or important distinctions. Range of key theories and theorists in agreement or in disagreement. Reviewers: Suggest connections that might be made between concepts so the theory is clearer. Suggest other angles or theoretical perspectives that may be relevant.	theory, hypothesis, proposition, principle					
ANALYZING Reasoning	REA+ REA- Explanation and reasoning.	Effectiveness of the explanations of field, theory or practice under consideration. Reviewers: How sound is the reasoning? Suggest ways in which the reasoning could be more powerful and the explanations clearer.	reason, explanation, function, calculation, investigation, substantiation, justification, logic, pattern					
Critique	CRI+ CRI- Critical analysis	Awareness of critiques of the theory or practice, and the limits of its scope and applicability. Reviewers: What is the level of understanding of the limits of the creator's own choices? What other lines of critique spring to mind for you? Are there alternative, competing or conflicting theories or	criticism, misunderstanding, overlooked, neglected, disagreement, refutation					
APPLYING Application	APP+ APP- Appropriate application	Explanation of the ways in which ideas presented might translate into practice. Defense of the examples of application provided, gaps in knowledge, and potential for further application and possible measures of effectiveness. Reviewers: What else would you like to know about implementation and effectiveness?	application, implementation, practice, solution, verification					
Innovation	CRE+ CRE- Creative and innovative application	Actual or possible applications in different contexts that are innovative, or which demonstrate creative thinking or practice. Reviewers: Suggest gaps, innovative or creative potentials, such as lateral or hybrid applications, whether realistic or exciting but perhaps far-fetched possibilities.	innovation, transformation, change, invention, originality					possibilities explored.
PRESENTATION Communication	COM+ COM- Clarity of communication	Clear communication of the case, structuring of the work (for instance, using different heading levels in Scholar's structure tool). The quality, range and relevance of embedded media used in the presentation. Textual coherence, connecting media into the		Poor presentation, unclear structure, little	Presentation, structure and media needs improvement.	Good presentation, structure and use of media.	Very Good presentation, structure and use of media.	Excellent presentation, structure and use of media.




CGMap 2.0 William Cope Works Maps Assignments Select Clear Map Actions Sign Out

Main / Publishers / Pub Projects / Creator Projects / Versions Document Mapping

Map Name: EPOL 534 SP23 Review Review phase: OPEN

EPOL 534 SP23 / WORK PROJECT: EDUCATIONAL THEORY AND PRACTICE ANALYSIS
Creator Redacted

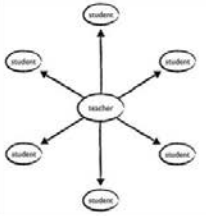
The Advantages of Peer Feedback: Background



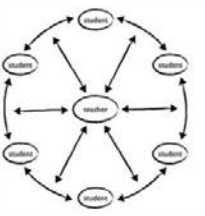
Media embedded February 12, 2023

Giving and receiving feedback is a common occurrence at the workplace, school, sports or other areas of life. However, as Heen points out in her TedX talk (3:45-6:30), many people consider feedback to be one of the most difficult types of exchanges to have. Feedback can also be difficult to process, as she notes, but those who receive and integrate it will see benefits to their career and work satisfaction. Giving and receiving feedback could therefore offer valuable benefits in professional training, allowing participants a chance to practice these soft skills while learning the relevant job skills.

Kalantzis and Cope pointed out in Artificial Intelligence for Education (2020) that the peer review process is beneficial for both the provider and the receiver - the provider gains experience with "the application of metacognition in terms of the disciplinary requirements of a domain as specified in a rubric" (p. 7).



Education 1.0



Education 2.0

(Kalantzis & Cope, 2019)

EXP- (Experience)

STR- (Structure)

Author: Reviewer Redacted

Source: General LDL Code Annotations

Additional comments: This is a good way of connecting the text to the video. I thought that it would be easier to understand the idea more if you have enumerated the reasons for why feedback or giving it is difficult.

STR- (Structure)

STR- (Structure)

LG- (Lexical & Grammar)

STR- (Structure)

Experience 1 (EXPERIENCING)

Concepts 3 (CONCEPTUALIZING)

Reasoning 4 (ANALYZING)

Critique 4 (ANALYZING)

Innovation 3 (APPLYING)

Communication 3 (PRESENTATION)

Referencing 4 (PRESENTATION)

Evidence 5 (EXPERIENCING)

Theory 5 (CONCEPTUALIZING)

Author: Reviewer Redacted

Source: PeerSelf Review 1, SA, DC LDL

Selected Text: WHOLE DOCUMENT

Your rating from 1-5 was 5: "Wide-ranging articulation of theory with comparisons and contrasts with related theories and extensive referencing." Comment below: You did a good job enumerating and explaining the relevant theories and concepts. I appreciate how in each discussion, you included a part on how each theory and concept relates to the idea of peer assessment. This makes it clear how they are used in peer assessment.

Application 4 (APPLYING)

CGMap 2.0 William Cope Works Maps Assignments Analyze Clear Map Actions Sign Out

Main / Publishers / Pub Projects / Creator Projects / Versions / Document Mapping

Map Name: AI Map by Bill

EPOL 534 SP23 / WORK PROJECT: EDUCATIONAL THEORY AND PRACTICE ANALYSIS

Reviewer Selected

The Advantages of Peer Feedback: Background

Media embedded February 12, 2023

Giving and receiving feedback is a common occurrence at the workplace, school, sports or other areas of life. However, as Heen points out in her TedX talk (3:45-6:30), many people consider feedback to be one of the most difficult types of exchanges to have. They often feel uncomfortable being honest with others about ways they can improve. Feedback can also be difficult to process, as she notes, but those who receive and integrate it well see benefits to their career and work satisfaction. Giving and receiving feedback could therefore offer valuable benefits in professional training, allowing participants a chance to practice these soft skills while learning the relevant job skills.

Peer review refers to the process of learners giving each other feedback on their work. For the purpose of this paper, Peer review, peer assessment and peer feedback are used interchangeably.

In my current position as a learning strategist, I'm designing a course that will use peer feedback. This will make the course more sustainable to conduct and give the learners other perspectives on their work. Kalantzis and Cope pointed out in *Artificial Intelligence for Education* (2020) that the peer review process is beneficial for both the provider and the receiver - the provider gains experience with "the application of metacognition in terms of the disciplinary requirements of a domain as specified in a rubric" (p. 7). That is, the learners will also think about the material covered in a different way.

Experiential Knowledge Processes 4

Author: OpenAI GPT3

Source: WHOLE DOCUMENT

Selected Text: Your rating from 1-5 was 4: "Does the learning module anticipate that learners will apply their learning? (Applying Appropriately)."

Comment below.

Conceptual Knowledge Processes 4

Author: OpenAI GPT3

Source: WHOLE DOCUMENT

Selected Text: Your rating from 1-5 was 4: "Does the learning module anticipate that learners will apply their learning? (Applying Appropriately)."

Comment below.

Analytical Knowledge Processes 4

Author: OpenAI GPT3

Source: WHOLE DOCUMENT

Selected Text: Your rating from 1-5 was 4: "Does the learning module anticipate that learners will apply their learning? (Applying Appropriately)."

Comment below.

Applied Knowledge Processes 5

Author: OpenAI GPT3

Source: WHOLE DOCUMENT

Selected Text: Your rating from 1-5 was 4: "Does the learning module anticipate that learners will apply their learning? (Applying Appropriately)."

Comment below.

Communication and Media 4

Author: OpenAI GPT3

Source: WHOLE DOCUMENT

Selected Text: Your rating from 1-5 was 4: "Does the learning module anticipate that learners will apply their learning? (Applying Appropriately)."

Comment below.

Conceptual Knowledge Processes 4

Author

OpenAI GPT3

Source

OpenAI Peer Review

Selected Text

WHOLE DOCUMENT

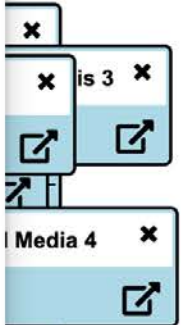
Your rating from 1-5 was 4: "How effectively does the learning module encourage learners to think conceptually about its focal area? Does it offer key concepts with definitions and examples? Or does it provide learners with a workable strategy to identify key concepts and define them for themselves? (Conceptualizing by Naming) ..." Comment below.

This is a well-written essay that effectively encourages learners to think conceptually about its focal area. The text provides key concepts with definitions and examples, and it also offers a workable strategy to identify key concepts and define them for themselves. It uses visualizations, concept relations in definitions, diagrams, and a conceptual model to help learners tie their concepts together into a theoretical whole.

THE+: The essay provides a good overview of the components of the Science of Reading, and does a great job of discussing how incorporating this into differentiated instruction positively impacts student growth.

THE-: The essay could be strengthened by exploring how language and cognition are involved when children are learning to read and spell. Additionally, providing examples of how to incorporate Sounds-Write into daily instruction would be beneficial.

Rating: 3



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Results (some startling!)

- 1. Length of Reviews: 336 words per peer review; 1335 words per AI review.*
- 2. Academic Language Level: 7.8 in peer reviews, 16.25 in AI reviews.*
- 3. Rating: 3.82 by peers, 3.18 by AI; broad agreement about relative performance.*
- 4. Sentiment Analysis: Human slightly more positive (0.32) than that of AI reviews (0.22).*
- 5. Human/AI comparison: Different kinds of feedback, both helpful, AI “uncanny valley”*
- 6. Survey: Most found the AI feedback a helpful supplement to peer feedback*

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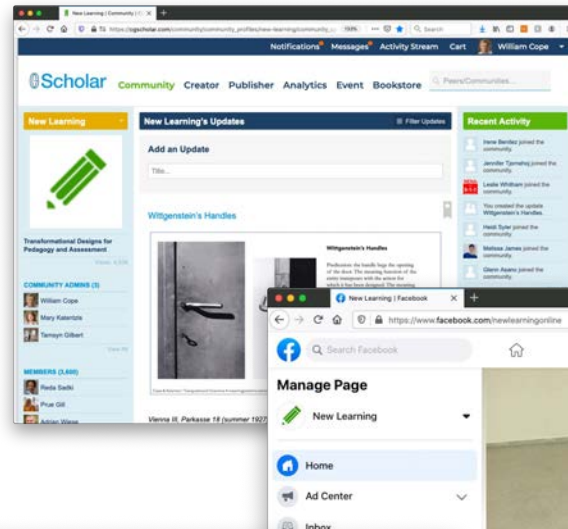
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Making the Most of **C-LLMs** in Education: Recalibration with **Prompt Engineering**

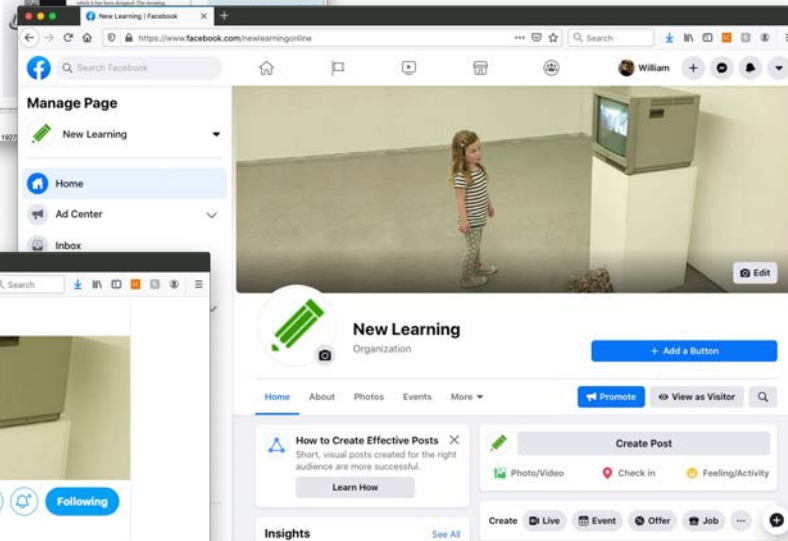
- 1. An Epistemic Frame: prompt the machine to offer students feedback on the basis of a theory of knowledge applicable to their learning.*
- 2. An Empirical Frame: require the learners to bring verifiable facts to the machine.*
- 3. An Ontological Frame: bring the theoretical frames of disciplines to the machine; fine-tune with well-vetted specialized corpora.*

CGScholar: New Learning

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Facebook: New Learning



Twitter: neolearning

