Teacher Students Interpret Poems with AI
On Potentials, Risks, & Disruptions in L1 Teacher Education

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Freie Universität Berlin

Content

Research Question

Research Design

Results

Concluding Remarks

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Research Question

?

What opportunities and risks are associated with the use of ChatGPT by students studying to become German teachers

a) when interpreting poems?
b) when formulating learning objectives?

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Research Design

4 classes of teacher training students at the University of Education Heidelberg
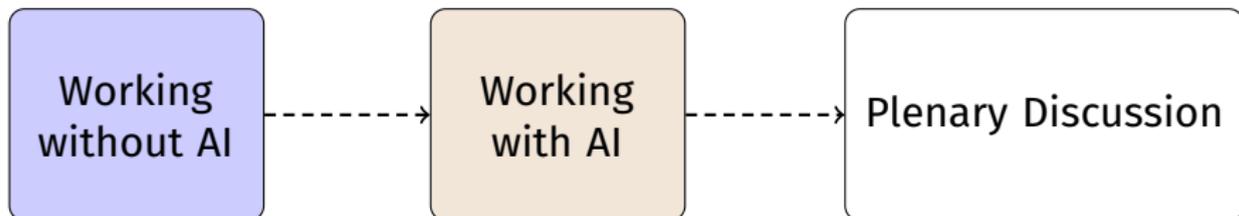
Working without AI	- - - →	Working with AI	- - - →	Plenary Discussion

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Literary Texts

- Jakob van Hoddis: Weltende
- Josef Guggenmos: Ein Riese warf einen Stein
- Jürg Schubiger: Der blaue Falke

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Literary Texts

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Weltende (1911)

Dem Bürger fliegt vom spitzen Kopf der Hut,
In allen Lüften hallt es wie Geschrei.
Dachdecker stürzen ab und gehn entzwei
Und an den Küsten – liest man – steigt die Flut.

Der Sturm ist da, die wilden Meere hupfen
An Land, um dicke Dämme zu zerdrücken.
Die meisten Menschen haben einen Schnupfen.
Die Eisenbahnen fallen von den Brücken.

World's End (1911)

The citizen's hat flies off his pointed head,
In all the air, it echoes like screams.
Roofers fall and break in two,
And on the coasts – one reads – the tide rises.

The storm is here, the wild seas leap
Onto land to crush thick dams.
Most people have a cold.
The trains fall from the bridges.

Two Interpretations by Teacher Training Students

The poem could suggest that a natural disaster is striking the world. It also shows how powerless people are against nature. It describes a catastrophic situation.

The poem tells us about the natural forces of the Earth that could lead to the world's end. Particularly prominent is the wind/storm, which causes both minor and major devastations. It is striking that some verses are depicted very dramatically (screams, trains falling from bridges, etc.), while others are almost ironic or humorous (just a cold). In relation to contemporary society, the poem could foreshadow climate change, although it was nearly impossible to foresee that at the time of its creation.

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Analysis of Data

- 4 categories for productive practices and 3 categories for problematic practices when using AI
- To gain a quantitative overview of the data, we differentiated for all categories whether each case can be coded 'predominantly,' 'partially,' or 'not at all' with each category

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Categories for Productive Practices

- Does the chat with the AI help students gain new perspectives on the text?
- Do students attempt to verify their interpretations during the chat with the AI?
- Do students ask targeted questions about text or interpretation elements?
- Do students engage in a dialogue with the AI?

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Categories for Problematic Practices

- Do students uncritically adopt learning objectives mentioned by the AI?
- Do students uncritically adopt interpretations mentioned by the AI?
- Do students only favor those interpretations mentioned by the AI, which align with their prior understanding?

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Productive and Problematic Practices

Categorie \ Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
New Perspectives	+	-	+	+	+	+	+	+	(+)	+	+	+	+	+	+	+	+	+	+	+	+
Verification of Plausibility	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	(+)	+	-	+
Targed Questions	-	-	-	-	-	-	-	-	-	+	+	-	-	+	+	-	-	+	+	+	+
Dialogue	-	-	-	+	+	-	-	-	-	+	+	+	+	+	+	-	+	+	+	+	+
Uncritical Adoption																					
… of Learning Objectives	+	-	-	+	+	+	+	+	-	-	-	(+)	-	?	-	-	-	+	+	?	-
… of Interpretations	+	+	+	-	+	(+)	(+)	(+)	+	+	-	-	-	-	-	(+)	(+)	-	+	+	-
only Confirmation	+	+	(+)	-	+	(+)	(+)	+	+	-	-	-	(+)	+	(+)	+	-	?	-	?	-

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Uncritical Adoptions

- Case 1: "All interpretations are meaningful."

- Case 4: "The AI's learning objectives are definitely more detailed, and the AI builds upon the previous question. It covers various areas and doesn't just provide a single answer to the question. There are no limits."

- Case 7: "The recommended learning objectives are very accurate and precisely formulated."

- Case 19: "The AI greatly assists in formulating more precise terms."

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Case 2—Selective Adoption of Wrong Interpretations

This poem could suggest that the world is facing its end or an impending catastrophe. → before World War I

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Case 2—Selective Adoption of Wrong Interpretations

History teacher c.AI

One of the first poems criticizing World War I and its consequences on the human. It shows the fears and the anxiety many people felt at this time.

> **Task 1b)** Please comment on the interpretation of the AI. Evaluate which interpretations of the AI are more text-appropriate that others.
>
> **Student:** History teacher → text-appropriate

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Case 10—Overwriting Adoption

The poem tells us about the natural forces of the Earth that could lead to the world's end. Particularly prominent is the wind/storm, which causes both minor and major devastations. It is striking that some verses are depicted very dramatically (screams, trains falling from bridges, etc.), while others are almost ironic or humorous (just a cold). In relation to contemporary society, the poem could foreshadow climate change, although it was nearly impossible to foresee that at the time of its creation.

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Case 10—Overwriting Adoption

Student: Please interprete this poem in different ways: World's End (1911) …
AI: This poem written in 1911 by *Kurt Tucholsky* kann by interpreted in various ways, for example:

1. Natural Disaster […]

2. War […]

3. End Time […]

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Productive and Problematic Practices

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Targed Questions	-	-	-	-	-	-	-	-	-	+	+	-	-	+	+	-	-	+	+	+	+
Dialogue	-	-	-	+	+	-	-	-	-	+	+	+	+	+	+	-	+	+	+	+	+
Uncritical Adoption																					
… of Learning Objectives	+	-	-	+	+	+	+	+	-	-	-	(+)	-	?	-	-	-	+	+	?	-
… of Interpretations	+	+	+	-	+	(+)	(+)	(+)	+	+	-	-	-	-	(+)	(+)	-	+	+	-	-
only Confirmation	+	+	(+)	-	+	(+)	(+)	+	+	-	-	-	(+)	+	(+)	+	-	?	-	?	-

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Magirius & Scherf (2023)

> ⚠️ **Observation from Exploratory Study**
>
> Problematic practices are more frequent when the text already caused comprehension issues while working without AI.

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Reduction and Increase of Complexity

- AI can assist students in being a competent reader
  $\rightarrow$ reduction of complexity

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Reduction and Increase of Complexity

- AI can assist students in being a competent reader
  $\rightarrow$ reduction of complexity

However:

- The quality of the students' prompts largely depends on their own initial understanding of the text.

- The quality of the students' prompts determines the quality of the AI output.
  $\rightarrow$ Matthew effect

- Students must also process a larger amount of text and, consequently, integrate additional elements of understanding and relate them to each other.
  $\rightarrow$ increase of complexity

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Model by Winkler (2015, 160, simplified)
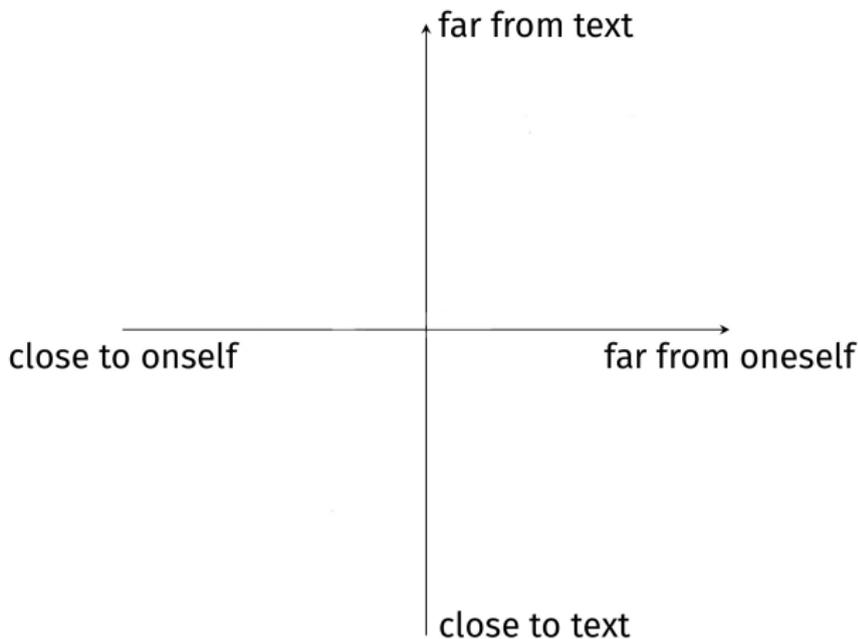
far from text

close to onself

far from oneself

close to text

Expansion by
Magirius, Hesse, Helm, & Scherf (in prep.)

far from text

far from AI

close to onself   far from oneself

close to AI

close to text
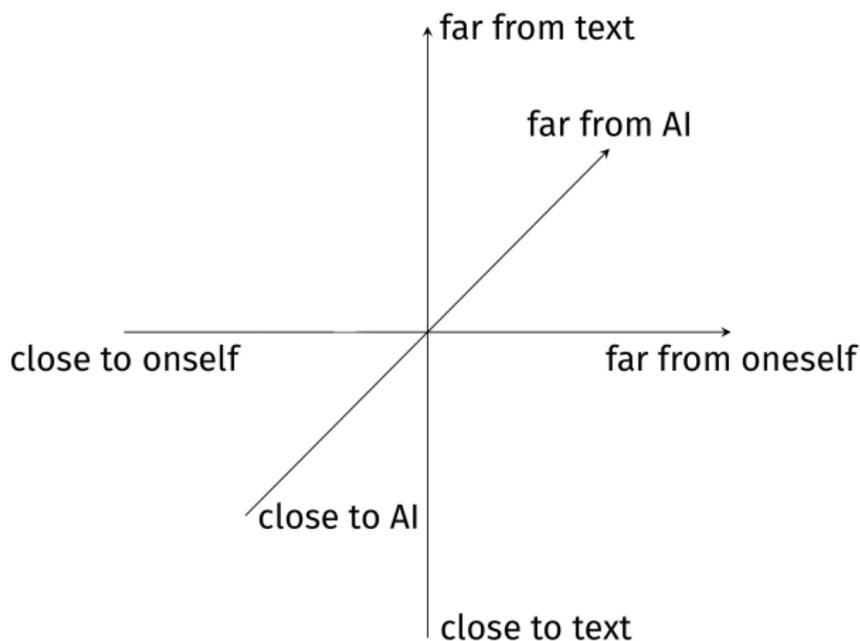
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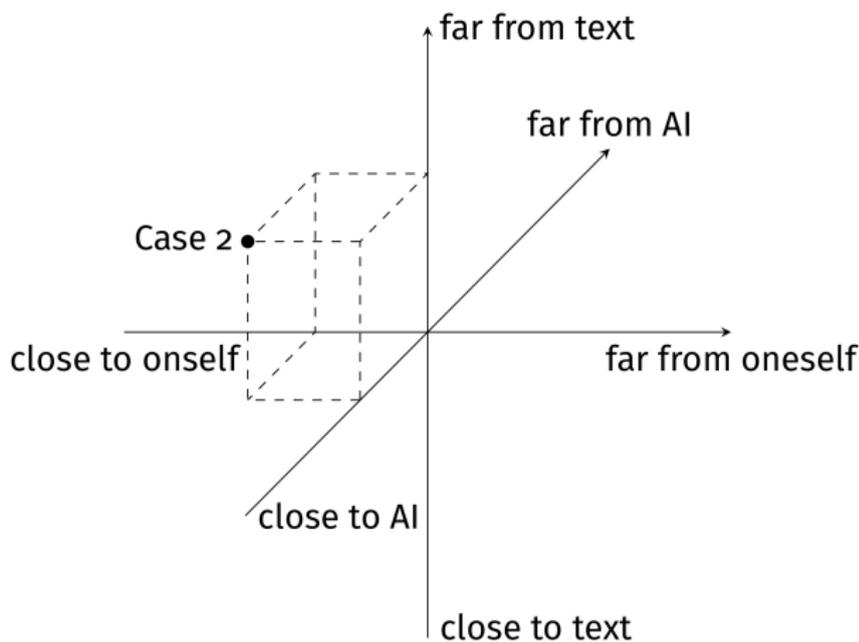
Conclusion

"Learners, who are overwhelmed by a task, react with 'wild complexity reduction' (cf. Köster/Lindauer 2008, 153), for which chatbots are ideal catalysts. When encountering a difficult literary text, there is a danger that the aesthetic object, which is not immediately accessible, will then be unlocked not by oneself, but by the push of a button. Such shortcuts could prove to be a wrong path if the entanglement with the subject, necessary for sustainable text engagement (Zabka 2015), fails to occur or if moments of irritation (Lessing-Sattari/Freudenberg 2020) trigger not reflective pause but an escape to immediately available AI outputs." (Magirius, Hesse, Helm, & Scherf, in prep.)

→ We might need controlled, supported Learning Designs which ensure that the epistemic function of the written dialogue is not lost.

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Thank you for your attention!

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The slides can be found at
www.marcomagirius.de and here:

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