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Awesome prompts or prompting strategies? How adults with low literacy use generative AI

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Abstract

The technological advancement of AI-powered text generation models has opened new avenues of participation for adults with low literacy. Simultaneously, they exhibit a paucity of confidence in critical questioning. This deficiency engenders vulnerability to misinformation, algorithmic bias, and data collection by generative AI. This article analyses how adults with low literacy in Germany interact with ChatGPT to understand how they can use generative AI without prior knowledge of prompt strategies. Chat protocols and screen and audio recordings are used to demonstrate which topics adults with low literacy are interested in, how they handle information provided by generative AI and when they require assistance with prompting. The findings reveal intuitive competencies in prompting with some weaknesses that can be balanced by generative AI through short prompts. Finally, implications for practice and further research avenues are discussed to sustainably integrate generative AI into the education of adults with low literacy.

Keywords: basic education, low literacy, generative AI, literacy promptathon

Introduction

ChatGPT, known as the fastest-growing technology in the world (Ciampa et al., 2023), has become a commonly used tool that supports its users in many tasks. At the same time, the use of generative AI has also been negatively critiqued: it hallucinates, uses the data of its users, stereotypes and uses a lot of energy (Simon et al., 2024). Moreover, excessive use of generative AI in the form of cognitive offloading can also decrease critical thinking skills (Gerlich, 2025). However, the amount of research evaluating the impact of generative AI is increasing.

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ChatGPT creates texts on any topic and any terminology in a human-like language (Aydin & Karaarslan, 2023). This makes the tool useful for the educational sector (Baidoo-Anu & Owusu Ansah, 2023; Ciampa et al., 2023; Grassini, 2023; Kasneci et al., 2023; Lin, 2024; Sok & Heng, 2023); at the same time, concerns exist that reading proficiency will suffer from the increasing use of generative AI (Philipp, 2024). Adults with low literacy levels already suffer from low reading proficiency and often depend on support with their writing tasks, such as writing letters, completing official forms or performing written tasks at work (Ehmig et al., 2015; Riekmann et al., 2016). Technical devices, such as smartphones, are used quite often (Buddeberg & Grotlüschen, 2020), which is a prerequisite for using generative AI technology. As these technologies offer opportunities to generate texts with short inputs, there is hope that adults with low literacy can become more independent by using generative AI for assistance with their reading and writing tasks, despite the possibility of their shifting dependencies from other people to technology.

This article considers the competences of adults with low literacy in connection with daily writing requirements and the use of digital devices, followed by possible applications for ChatGPT in basic education. Data were collected through observation during Literacy Promptathon[1] workshops (Grotlüschen, Skowranek, & Buddeberg, 2023; Grotlüschen, Skowranek, Buddeberg, & Gillen 2023) in a public adult education centre in Hamburg, Germany. Throughout the workshops, adults with low literacy levels solved written language-based challenges with ChatGPT.

The article is structured as follows. First, the existing research on adults with low literacy and their usage of digital devices is explored. Second, the potential application of generative AI in educational settings is presented with a view to identifying ways in which it can support adults with low literacy. Third, the study's utilisation of screen and audio recordings to collect data and Grounded Theory (Corbin & Strauss, 2015) for analysis are demonstrated, providing insights into how generative AI can support adults with low literacy in their daily writing tasks. Finally, the findings are discussed within the broader context of adult education, highlighting implications for educators and strategies for integrating generative AI into learning environments based on the Literacy Promptathon.

Generative AI as a way to improve the participation of adults with low literacy

Adults with low literacy skills and daily writing tasks

According to the Programme for the International Assessment of Adult Competencies (PIAAC) 2023, 22% of the adult population aged 16 to 65 years in Germany are living with a low reading proficiency of level 1 or below (Rammstedt et al., 2024). This percentage has not changed significantly from 2012 (Rammstedt et al., 2024). These are adults who 'can understand single sentences and short, simple texts up to a length of one page and handle an easy task with one processing step' (Rammstedt et al., 2024, p. 52, translated by the author). However, the proportion of adults with low literacy within the total population masks changes affecting those with low literacy due to the high proficiency levels among adults with higher educational qualifications: Specifically, literacy has declined for those with low levels of education (Rammstedt et al., 2024), suggesting a greater need for support with everyday reading tasks.

Adults with low literacy frequently rely on assistance from friends, family and colleagues when undertaking writing tasks (Buddeberg, 2015; Ehmig et al., 2015;

Riekmann et al., 2016). Regardless of their reading and writing proficiency, the performance of writing tasks in households differs by gender (Beblo et al., 2023). Women tend to oversee the writing tasks related to children and family life, while men do the tasks related to finances and insurance (Beblo et al., 2023).

Based on data from the second German national Level One Survey LEO – Leben mit geringer Literalität [Living with Low Literacy] (LEO 2018), Buddeberg and Grotlüschen (2020) showed that 67.8% of adults with low literacy levels were using smartphones or tablets daily despite their lack of literacy proficiency. Research suggests that adults with low literacy often use voice messages to facilitate participation in the digital environment, bypassing the need for reading and writing (Buddeberg & Grell, 2023). When reading is unavoidable, generative AI can be used to simplify written language. For example, in the Netherlands, a GPT-4-based tool was developed to summarise official documents. These summaries made the documents more accessible and understandable for adults with low literacy levels, empowering them to use the information for action (Guo et al., 2024).

However, reading occasions also increased through digital media, such as texts, pictures, videos, or videogames that can be accessed through computers, tablets, or smartphones (Stiftung Lesen & Institut für Demoskopie Allensbach, 2020). The learning of adults with low literacy benefits from the regular use of digital media through a more intensive engagement with reading and writing on social media or when correcting text written by the voice assistant of the digital device (Wimmer, 2025).

Reflecting increased digitalisation, a cross-country analysis uncovered that training in computer and software skills is one of the more popular subjects (14% of adults ages 25-64) of non-formal job-related education (OECD, 2025). Despite the high proportion (70%) of low-skilled adults engaged in employment (OECD, 2024), training in foundational skills, such as reading and writing, may mostly occur in non-job-related settings (OECD, 2025). Adult education is a central provider of non-job-related training in many countries. In the following section, research results regarding the use of generative AI in education are presented to identify possible areas of application in adult learning and education.

Possible applications of ChatGPT in adult basic education

To assess the benefits of the use of generative AI for adults with low literacy levels in adult basic education, the risks associated with its use must also be considered. Adults with low literacy levels are highly vulnerable to the three core dangers of generative AI: disinformation, algorithmic bias, and surveillance capitalism (Grotlüschen et al., 2024). Adults with low literacy levels find it difficult to categorise digital content in terms of its information and truth (Buddeberg & Grotlüschen, 2020). This makes them vulnerable to *disinformation* through so-called hallucinations (Alkaissi & McFarlane, 2023), which are a result of the token-based calculated outputs of generative AI (Aydin & Karaarslan, 2023; Zweig, 2023). Without critical evaluation, adults with low literacy are also at risk of utilising generated content that discriminates against certain groups of people – in the sense of an *algorithmic bias* (Grotlüschen et al., 2024). Discrimination against people with a migration background, women or people with low levels of education (Weitzel & Wilhelm, 2025) is the result of a reproduction of human-induced stereotypes and biases contained in the training material of generative AI (Gondwe, 2023; Workman & Dancy, 2023). In addition to the critical evaluation of the outputs of generative AI, entering personal data should also be handled sensitively because commercial providers collect data about usage behaviour and use prompts to improve their AI models (OpenAI, 2026),

which is a well-known problem described as *surveillance capitalism* in connection with the big internet platforms Meta, Alphabet (Google) and Amazon (Zuboff, 2019).

Apart from the risks associated with generative AI, recent research has begun to explore how it can be effectively integrated into learning environments. These studies provide valuable insights into the possible opportunities for employing such technologies in the context of reading and writing courses for adult learners.

In an exploratory study, Baidoo-Anu and Owusu Ansah (2023) found that students with difficulties in learning can benefit from using large language models (LLMs) like ChatGPT for tutoring. In the self-directed learning process among adult learners, ChatGPT can be used in three ways: 1) as an educated friend with the chat taking the form of a conversation between learning partners, 2) as a virtual tutor with the chat taking the form of a conversation between teacher and student and 3) as an access point for personalised learning materials (Lin, 2024). A literature review on the potential and consequences of generative AI in education showed that generative AI can respond to individual progress and learning styles, considering the individual abilities, requirements and interests of the learners (Grassini, 2023).

Ciampa et al. (2023) showed that generative AI has the potential to personalise learning and to support writing processes while promoting creativity, media proficiency and critical thinking in literacy education, extending beyond enhancing language or reading and writing skills. This is achieved by generative AI offering direct feedback to its users or generating ideas and exploring various topics. At the same time, the researchers suggested that literacy educators encourage their students to use generative AI as a complementary resource in their learning process and promote the ethically responsible use of generative AI without elaborating on this further (Ciampa et al., 2023).

Based on the possible applications of ChatGPT in education, adults with low levels of literacy assumedly could benefit from receiving feedback on their writing but also from conversations with generative AI in the form of tutoring or from developing their documents in several steps. This can be achieved through typing prompts or using the dictation function of mobile devices for prompting. These application possibilities can even be used outside of reading and writing courses to enhance reading and writing skills.

While some research exists about using ChatGPT in education in general (Baidoo-Anu & Owusu Ansah, 2023; Grassini, 2023; Kasneci et al., 2023; Sok & Heng, 2023) and about using ChatGPT in higher education (Gimpel et al., 2023; Sok & Heng, 2024), there are, as far as we know, few studies that examine the possible applications of ChatGPT in adult education (Lin, 2024) or, especially, in literacy education (Ciampa et al., 2023).

The Literacy Promptathon (Grotlüschen, Skowranek, & Buddeberg, 2023; Grotlüschen, Skowranek, Buddeberg, & Gillen, 2023) offered a low-threshold workshop format for learning how to handle generative AI. This study provides a qualitative examination of the implementation of this workshop format and offers insights into the experiences and challenges faced by adults with low literacy levels in dealing with generative AI.

To evaluate the data, employing prompting strategies as evaluation categories for the qualitative analysis seemed helpful. These are presented in the following section.

Prompting strategies

Generative AI makes possible the production of large amounts of written text from prompts containing only a few words. However, research shows that superficial prompting only leads to superficial outputs (Gondwe, 2023; Grotlüschen, Skowranek, Buddeberg, & Gillen, 2023). To achieve meaningful results with generative AI, using

prompting strategies and refining prompts in a process called prompt engineering could be helpful. The strategies presented here were used during the qualitative data analysis.

Several prompt patterns or prompting strategies exist to enhance prompt engineering (White et al., 2023). In essence, zero-shot prompting is distinguished from few-shot prompting (Tian et al., 2024). While zero-shot prompting describes a strategy where a direct task or question is given to a generative AI without any examples (Tian et al., 2024), the latter involves providing examples of the prompt's context (Wei et al., 2022). Few-shot prompting provides more accurate results (Tian et al., 2024).

The creation of few-shot prompts requires some practice; the CREATE framework (Barrett, 2023) helps to structure them and to give clear work instructions to the AI. Moreover, it provides a set of precise evaluation categories. This framework is a two-step tool. In the first step, the prompt is created with *clarity* (C), contains all *relevant information* (R), gives *examples* (E) and *avoids ambiguity* (A) by deleting every detail that does not focus on the key information (Barrett, 2023). The second step, which is a cycle of reviewing and editing the prompt, is to *tinker* (T) with the prompt and to *evaluate* (E) it until the output of the AI is satisfactory (Barrett, 2023).

Chain-of-thought prompting, which can be used to give generative AI precise work instructions by providing examples of solution steps in the prompt (Wei et al., 2022), can be used as a complementary prompting strategy to fill the 'R' or the 'E' section of the CREATE framework. A comparable result can be achieved by adding the instruction 'Let's think step by step' (Kojima et al., 2022, p. 2). Emotional stimuli can also improve the outputs of generative AI by increasing the articulation and ethical sensibility of the AI response (Li et al., 2023). Emotional prompting and chain-of-thought prompting are strategies that work with brief statements, are only applicable to a small part of a prompt and not in every prompting case. The CREATE framework was used for further analysis of the data.

In summary, adults with low literacy levels are already using internet-enabled devices and digital services. Despite the risk of exposure to the three core dangers, generative AI has the potential to support adults with low literacy skills with their daily writing tasks and in their learning. There are possible applications of generative AI in educational settings for adults with low literacy as learning buddies or tutors and for learning analytics. Moreover, prompting strategies are helpful to create meaningful outputs in generative AI. This leads to the research question:

To what extent are adults with low literacy levels able to prompt, and what strategies do they use intuitively?

Methods

During the Literacy Promptathon research project, which was funded under the Excellence Strategy of the Federal Government and the Länder in Germany, Literacy Promptathon workshops were organised in cooperation with a public adult education centre in reading and writing courses.

The Literacy Promptathon (Grotlüschen, Skowranek, & Buddeberg, 2023; Grotlüschen, Skowranek, Buddeberg, & Gillen, 2023) constitutes a workshop format that was developed to train teachers and learners in adult basic education on dealing with generative AI. This concept is based on the prompt-a-thon (Kučević et al., 2024; von Brackel-Schmidt et al., 2023), which is a hackathon[2] for prompt engineering (Kučević et al., 2024; von Brackel-Schmidt et al., 2023). During the Literacy Promptathon, small teams of two to four participants worked on written language-based challenges with

generative AI. The aim of the Literacy Promptathon was to critically evaluate the outputs of AI and to adapt prompts until the teams get to a solution with which they are satisfied.

The Literacy Promptathon project sample was conducted in four workshops between the end of February and the beginning of March 2024. The first workshop for adults who regularly attend reading and writing courses was offered in addition to their regular courses, with participants from several courses across the city. In the second workshop, the participants remained in their course, and the workshop was part of their reading and writing course. The third and fourth workshop were held in the context of language courses for mothers. In these language courses, mothers with children in school learn the German language for the contexts of school, family, or nutrition based on teaching material of their children or letters to the parents from the schools. These courses are not part of integration courses for immigrants. During all four workshops, the participants were accompanied by their teachers. A brief overview of the data from all workshops revealed differences in the data between the workshops in the reading and writing courses and the workshops in the language courses for mothers in terms of the participants' proficiency in German, why only the data from the two workshops in the reading and writing courses is considered for this analysis. Thus, for the data analysis in this paper, the sample consisted of 19 participants in these two workshops in the context of reading and writing courses for adults with different reading and writing proficiencies on the letter level, the level of words, the level of sentences or on the level of texts with major writing errors. The first language of eight participants was German, and the other 11 participants had linguistic backgrounds from Eastern European, Arabic or African countries. In the workshops were six women and 13 men, ranging from 20 to 70 years old; the participants were mostly 35 to 60 years of age. During these workshops, 26 chat protocols and 13 screen and audio recordings with a total length of 90 minutes were collected. While the chat protocols were useful for the first analysis and for analysing the prompts, the screen and audio recordings were used to analyse what was discussed at different parts of the prompting and how the prompt was developed in the input line.

At the beginning of the workshops, the participants received instructions on how to use ChatGPT and what to consider in their prompting concerning the three core dangers of generative AI (Grotlüschen et al., 2024). An introduction into prompt strategies was not given at the beginning of the Literacy Promptathon to keep the complexity to a minimum. The participants formed working groups by themselves – called teams – that were mixed in terms of the participants' reading and writing skill levels. For the written language-based challenges that were to be resolved, the participants were asked to discuss their daily writing tasks in their teams and to solve them with the help of ChatGPT. During the workshops, the workshop facilitator made further suggestions on written language-based challenges only if the teams needed recommendations on what to work on. The term 'facilitator' is understood in the context of a broader understanding of teaching that provides the framework for self-directed work on challenges in the Literacy Promptathon (cf. Strauch & Pätzold, 2012). The researcher took on the role of the workshop facilitator. The participants were informed about this double-role as researcher and facilitator. During the workshops, focusing on the role as facilitator was possible due to the digital collection of data within each team.

The Literacy Promptathon workshops were conducted with iPads to ensure a low-threshold participation for adults with little or no experience with using a computer. iPads or tablets in general have the advantage of possessing a similar interface to smartphones. Through the software JAMF (Jamf Software Germany GmbH, 2026), the functionality of the iPads was restricted to only the website of the providers of the ChatGPT access to avoid confusion for new tablet users. The possible utilisation of the collection of data

gathered via screen recordings and audio recordings with the integrated microphones and associated software was another advantage of using the iPads. General Data Protection Regulation (GDPR)-compliant access to ChatGPT 3.5 on the iPads was secured using the German provider SchulKI (Schulverwalter GmbH, 2026), which enables the anonymous provisioning of ChatGPT in educational contexts but also saves anonymised chat protocols accessible only to the one person who set up the anonymous access points with their registration to the SchulKI service.

The systematic coding procedures and comparative methods offered by Grounded Theory (Corbin & Strauss, 2015; Strauss & Corbin, 1996) provided a robust and transparent strategy for structuring and interpreting the data, while the overarching research design was not grounded in the epistemological and methodological assumptions of Grounded Theory. The study did not follow the iterative cycles of theoretical sampling (Corbin & Strauss, 2015) due to the limited time available for data collection. Instead, selected analytical procedures from Grounded Theory were used to enhance the rigor and depth of the qualitative analysis.

First, an open coding – in the sense of Grounded Theory (Corbin & Strauss, 2015) – of the prompts in the chat protocols was conducted. This revealed three categories of prompting:

1. The *search requests* were characterised either by interrogatives like ‘what’, ‘which’ or ‘how’ or by a string of words used in the same way in search engines.
2. The *counselling requests* also included interrogatives, but these were accompanied by questions about what someone can do or how a situation can be improved.
3. The *writing requests* were characterised by the demand to write something or by naming a text type in the prompt.

Furthermore, the category of *writing requests* can also be broken down into subcategories with different text types. Further research at this point of analysis showed how prompt strategies could especially increase the quality of the results of writing tasks. The CREATE framework provided categories for further analysis of the writing requests category to detect weak points and learning potential in the prompting of adults with low literacy for their daily writing. However, breaking the prompts down into these categories also illuminated that the participants had some help in working on the prompts from adults with high literacy levels. Finally, the audio and screen recordings of the writing requests category were analysed for indications of the parts of the prompting during which the participants needed assistance.

Results

This section shows the kind of challenges the participants worked on in the workshops. First, this section highlights the kinds of requests in the form of prompts that were addressed to ChatGPT. Second, the quality of the prompts according to the criteria of the CREATE framework is shown for the category of writing requests. Third, this section reveals how the teams solved challenges and when they needed help in the prompting process, also for the writing requests category and based on an evaluation with the CREATE framework.

Prompting requests

Prompts were created not only to solve challenges based on writing tasks but also for simple search requests and counselling requests.

Search requests

Prompts that addressed search requests covered multiple topics, such as history, soccer, legal issues, cosmetics, food, music, different countries, stocks, religion, public holidays, sayings and rhyming words. They were characterised by a simple question prompt to ChatGPT and an answer from ChatGPT with an explanation of the topic. Exemplary excerpts of the data for search request prompts[3] are as follows:

> [Stadt] haven [Sehenswürdigkeit] geschichte (27_02_Blau03, p. 1) [History of [a landmark] in [city] harbour].

> was ist Ostern für einer der nicht an Cristos glaub (26_02_Blau08, p. 3) [What is Easter for someone who does not believe in Christ?]

> Wechte rechte hat mitarbeicter (27_02_Blau05, p. 2) [What rights do employees have?]

Despite the writing errors in the prompts, ChatGPT generated answers with plausible explanations for the topics.

At the beginning of every Literacy Promptathon workshop, the participants were notified about ChatGPT's possible hallucinations (Alkaissi & McFarlane, 2023). To counter the core danger of receiving misinformation through generative AI, they were instructed to perform search requests regarding topics about which they felt well informed with the aim of critically evaluating ChatGPT's results. Despite sharing this information at the beginning, during the workshop, requests were also made regarding topics the participants were interested in for their own information but about which they had little or no knowledge, for example, the rights of an employee. This can be sensitive information when brought into the work environment and should be discussed with the participants as a follow-up after the Literacy Promptathon. In the following case, the participant discovered misinformation from ChatGPT by asking about a topic with which the program is very familiar in a kind of fact-checking manner:

> P[4]: wie heist die orinal verson von surfen usa (26_02_Blau01, p. 2) [What is the name of the original version of 'Surfin' USA?]
>
> ChatGPT: Die Originalversion des Songs 'Surfin' USA' stammt von der Band The Beach Boys. Der Song wurde 1963 veröffentlicht und ist seitdem zu einem Klassiker des Surf-Rock-Genres geworden (26_02_Blau01, p. 2). [The original version of the song 'Surfin' USA' is from the band the Beach Boys. The song was published in 1963 and since then has become a classic of the surf-rock-genre.]

After getting the answer, the participant told the generative AI that its answer about this song was not true, and ChatGPT provided the right answer in this second step.

> P: Das szümt nicht (26_02_Blau01, p. 2) [This is not right.]
>
> ChatGPT: Entschuldigung für das Missverständnis. Tatsächlich ist ‚Surfin' USA' von The Beach Boys eine Weiterentwicklung des Liedes ‚Sweet Little Sixteen' von Chuck Berry und enthält ähnliche Melodien. Aufgrund eines rechtlichen Streits wurden später Berry und sein Co-Autor Brian Wilson bei den Credits von 'Surfin' USA' genannt. (26_02_Blau01,

> p. 2) [Sorry for the misunderstanding. Actually, 'Surfin' USA' from The Beach Boys is a further development of the song 'Sweet Little Sixteen' from Chuck Berry and contains similar melodies. Due to a legal dispute, Berry and his co-author Brian Wilson were mentioned in the credits later.]

Search requests led to results that were only evaluated critically by the participants when they felt well informed on the corresponding topic. However, when informed, they scrutinised the results. This leads to the danger of receiving misinformation through hallucinations when generative AI is used as a universal information medium. This danger not only occurs in search requests but also in counselling requests when AI provides information, for example, in response to health-related requests.

Counselling requests

Prompts representing themselves as counselling requests were characterised by simple questions that are similar to search requests but have more complicated answers. ChatGPT answers these prompts usually with different possibilities in the form of a numbered list. These numbered lists can then be used to ask more detailed questions about the sub-items of the topic in question. Prompts with counselling requests covered the topics of financial information, social law, migration, damage to the home, improving one's own reading and writing skills, family issues, working situation, health and nutrition. Exemplary excerpts of the data for prompts with counselling requests are as follows:

> Kannst mir sagen was mann tun kann wärn ein Wasser schaden imm bad (26_02_xxx_01, p. 1) [Can you tell me what to do when there is water damage in the bathroom?]

> Wenn man hoch bludtdruck hat was kann man machen (26_02_Blau05, p. 3) [What can I do if I have high blood pressure?]

> Wie kannt ich meine arbet verbes (26_02_Blau12, p. 2) [How can I improve my work?]

To get satisfying answers to the personal situations of the respective participants, it would have been necessary to give further instructions to ChatGPT on the topics in the form of prompt engineering, which the participants did not do. With these kinds of prompts, the participants read the answers or had them read to them with the read-aloud function and then changed the topic in the chat.

Writing requests

Prompts dealing with writing requests were characterised by participants asking the generative AI to write a text. Text categories were usually named in the prompt but, especially with participants having reading and writing skills only at the level of words, not in every case. During the workshops, writing tasks – such as short messages, thank you messages, congratulatory messages, invitations, stories, poems, factual texts, letters of apology, formal letters and job applications – were realised through prompting with ChatGPT. These kinds of prompts are described in the following section about prompting quality.

Prompting quality

Prompts addressing writing requests were the kind of prompts adults with low literacy could benefit the most from in their daily lives because the prompt engineering knowledge regarding these kinds of prompts enables the adults to solve their written language-based tasks on their own and could increase their participation in society. Search requests and counselling requests provide information that can be new for adults with low literacy levels and are difficult for them to scrutinise critically. However, the results of the generative AI for the writing requests were usually filled with information given by the participants in their prompts to the generative AI. As prompt strategies can increase the quality of the prompts, in this section, analysis of the writing requests with the CREATE framework as categories is presented.

The way the participants built their prompts or adapted the information given to ChatGPT during the prompt engineering process without getting an introduction into prompting strategies in advance was interesting. In the following example (Figure 1), the participant prompted, 'You are a tenant, your heating system is defective, and you have to write a letter to your landlord' (26_02_Blau08, p. 1). According to the CREATE framework, *clarity* was given by prompting 'write a letter'. The *relevant information* in the prompt was the request to ChatGPT to put itself in the role of a tenant whose heating system was defective. It was also *relevant information* that the letter should be directed to the landlord. There were no *examples* given, *ambiguity* was avoided and the prompt was not reviewed or edited.

Figure 1. Letter to the landlord (source: author's own figure)

P: Du bist ein Mieter, deine Heizung ist defekt und du muss einen Brief an den vermiter schreiben (26_02_Blau08, S. 1)

C	Write a letter
R	You are a tennant. Your heating system is defective. To the landlord.
E	---
A	✔
T	---
E	---

Another example involved an informative text about the sugar feast, an important Islamic holiday at the end of Ramadan, for the newspaper of a local support group for adults with low literacy (Figure 2). The participant prompted 'Write a text for me about the sugar feast'. In this prompt *clarity* was only given by the statement 'write a text'. No specification about the type of text was made. In the case of drafting a text for the newspaper, the information 'text for a newspaper' or 'article' would have been *relevant* in this section. The only *relevant information* given was 'about the sugar feast'. No *examples* were made, *ambiguity* was avoided and the prompt was not reviewed or edited.

Figure 2. Text about sugar feast (source: author's own figure)

P: Schreib mir einen Text über das zuckerfest (26_02_Blau04, p. 2)

C	Write a text.
R	About sugar feast
E	---
A	✔
T	---
E	---

These prompts were created alone or in teams with no assistance from the workshop facilitator. Participants who could create these prompts on their own could already read and write at least at the level of sentences, but with a few errors in their spelling. However, their prompts were characterised by not being reviewed or edited, and they did not contain *examples* for ChatGPT according to which the results should be generated. Nevertheless, these prompts led to usable results.

Using assistive technology and requiring help

Participants of all reading and writing skill levels needed support at various stages of prompting in all three prompt categories – search requests, counselling requests and writing requests – during the workshops. This section shows the required help for the writing requests based on the analysis with the CREATE framework.

One participant wrote a letter of application with the help of ChatGPT (Figure 3). The participant tried on their own to review and edit their prompt many times. At one point, according to the audio recordings, the participant got frustrated because the generative AI provided no information or did not ask about information needed for a letter of application. At this point, the participant got the hint from the workshop facilitator to ask about five criteria for a good cover letter and afterwards provide this kind of information to ChatGPT for the letter of application. This participant worked through a long prompt engineering process, every time avoiding *ambiguity*. The participant never gave any *examples* in the prompts to show how the letter of application should be formulated in the result.

Figure 3. Letter of application for a position as an occupational therapist (source: author's own figure)

P1: Schreiben erstellen lassen zum ergotherapeut (26_02_Blau09, p. 1)

P2: Ein Bewerbungsschreiben (26_02_Blau09, p. 1)

P3: in den Text einfliessen lassen das ich 40 bin und aus Gana stamme (26_02_Blau09, p. 2)

P4: Mach. Daraus seine Bewerbung für Ausbildung (26_02_Blau09, p. 2)

P5: Frage mich 5 Kriterien, die für eine Bewerbung wichtig sind und erstelle daraus ein Bewerbungsschreiben (26_02_Blau09, p. 3)

P6: 1. zu Haubtschulabschluß und ein abgeschlosse Ausbildung (26_02_Blau09, p. 4)

P7: 2. in ein haus der Jugend mit Jungen Schühlern gekocht (26_02_Blau09, p. 4)

P8: 3. Einfühlsam Teamfahig Kummunikatiosfreundlich (26_02_Blau09, p. 5)

P9: Noch mal zum bewerbungsschreiben. Schreibe netter (26_02_Blau09, p. 6)

C	P1: Have a writing created. P2: A letter of application. P3: --- P4: --- P5: --- P6: --- P7: --- P8: --- P9: Write more nicely.
R	P1: As an occupational therapist. P2: --- P3: 40 years old, from Ghana. P4: For an apprenticeship. P5: --- P6: Secondary school leaving certificate and completed training. P7: Cooked with young pupils. P8: Empathetic, team player, good communication skills. P9: ---
E	P1: --- P2: --- P3: --- P4: --- P5: --- P6: --- P7: --- P8: --- P9: ---
A	✔
T	P2: The type of writing is specified. P3: Providing information. P4: Providing information. P5: Chain-of-thought-prompting: Asking ChatGPT for criteria of a good cover letter for better results. P6: Providing information. P7: Providing information. P8: Providing information. P9: Request to change the tone of the wording.
E	P1: An information text was written instead of a letter of application. P2: The result is not concrete enough. P3: The letter of application should be for an apprenticeship. P4: What information is needed for a good cover letter? P5: --- P6: --- P7: --- P8: The tone of the wording did not please.

Other participants needed help in writing the prompt. This kind of help ranged from spelling single words to writing down words for the participants.

In the following example (Figure 4), the workshop facilitator helped one participant to write a short prompt for a letter of congratulations: ‘Write for a birthday’ (27_02_Blau03, p. 2). The first result was too long. The participant was, according to the audio recordings, not able to read or understand the result on their own. A shorter result was needed. This was achieved by prompting the word ‘shorter’ (27_02_Blau03, p. 2). As a result, ChatGPT generated: ‘Happy birthday! May your new year be full of joy and success! Celebrate this special day to the fullest!’ (27_02_Blau03, p. 2). This result was understandable for the participant and could be used in a personal birthday card. Despite achieving this by only using short words and sentences, according to the CREATE framework, in the *clarity* segment, the fact that ChatGPT should write something without describing the type of text is the only information stated. The *relevant information* given to ChatGPT is ‘for a birthday’. No *examples* were provided. *Ambiguity* was avoided by using only short words and a short sentence. Filler words, such as adjectives and adverbs, were omitted, but there was a short prompt engineering process in this example. The first result was evaluated as too long, which is why ChatGPT was asked to write it ‘shorter’.

Figure 4. Letter of congratulations (source: author's own figure)

P1: Schreibe zum gfburstag (27_02_Blau03, p. 2)

P2: Kürzer (27_02_Blau03, p. 2)

ChatGPT: Alles Gute zum Geburtstag! Möge dein neues Lebensjahr voller Freude und Erfolg sein! Feiere diesen besonderen Tag in vollen Zügen! (27_02_Blau03, p. 2)

C	Write
R	For a birthday
E	---
A	✔
T	P2: Request to make the result shorter.
E	P1: The result is too long. P2: The text is short but contains all the relevant information.

Following the rules of the CREATE framework, there were a lot of blanks in the prompt, which were handed over to ChatGPT's algorithm to generate a letter of congratulations or a factual text about birthdays. In this case, the participant got lucky, and ChatGPT generated a usable text for a birthday card; on the other hand, it is more likely for humans to write letters of congratulations than factual texts about birthdays.

SchulKI provided assistive technology, for example, reading the ChatGPT results to the users. The audio recordings show that this function was used frequently by the participants for two purposes: 1) to have long text passages read aloud to them or 2) to support their reading skill development by having the text read aloud as they tried to read the text themselves at the same time.

The analysis with the CREATE framework showed that the participants used prompt strategies intuitively, even when their prompts and their prompt engineering did not fill every category of this framework. Examples were not given in the prompt. Nevertheless, the results of the prompts were usable. The prompts were only evaluated and edited with help from the workshop facilitator. Prompts and results created by the participants alone were taken as is and not revised further.

Discussion of findings, limitations, and implications

This article aimed to answer the questions: To what extent are adults with low literacy levels able to prompt generative AI, and what strategies do they use intuitively?

The results from prompts with search or counselling requests were not questioned by the participants. Smartphones were not used for fact-checking. Audio recordings show that results were classified as useful and informative. Only in cases of testing the truthfulness of ChatGPT did the participants question the results of the generative AI and tell the program that it was wrong or verify its answer. Following the three core dangers of generative AI (Grotlüschen et al., 2024), this could lead to misinformation. Lack of questioning or lack of prompt engineering in counselling requests led to superficial answers, which did not reflect the individual situations of the participants, also leading to their receiving misinformation or no information on sensitive topics. It is crucial in Literacy Promptathon workshops that participants are reminded that generative AI tends to hallucinate (Alkaissi & McFarlane, 2023) wrong information and stereotypes. Since men from Western countries with an advanced formal education and a high socioeconomic status were not disadvantaged by generative AI (Weitzel & Wilhelm,

2025), the much more diverse learning groups in reading and writing courses corresponded to social categories such as gender, migration background and class. This could lead to intersectional discrimination (Walgenbach, 2012) for adults with low literacy by generative AI. Further investigation of this issue is required in future research.

Intuitive competencies in prompting

Even though the participants received no introduction to prompting strategies, the analysis with the CREATE framework made clear that adults with low literacy levels used strategies in their prompting intuitively. Due to their difficulties in writing long and complicated sentences, they usually prompted in a short and clear manner, avoiding *ambiguity*. *Examples* were never given in their prompts, which had no negative impact on the results of ChatGPT for the required application scenarios of adults with low literacy. Despite this fact, some training in chain-of-thought prompting by instructing ChatGPT to think step-by-step (Kojima et al., 2022) or to give some *examples* about a topic and use them in the results could increase the quality of the generated texts. For the segment *clarity* from the CREATE framework, text types were not articulated clearly in every prompt. This is possibly due to a lack of knowledge about different text types. To avoid wrong results, like an information text instead of a letter of application, it could be helpful to name the audience of the generated text or what the text should be written for (birthday card, newspaper) in the prompt when the type of text is not known. Evaluation and editing of the prompts (the segments *tinker* and *evaluate* in the CREATE framework) were performed by participants with reading and writing skills at least at the level of sentences. Other participants used evaluation and editing after it was pointed out to them by the workshop facilitator.

Limitations

The Literacy Promptathon workshops were carried out with ChatGPT 3.5, which only used training data and could not access actual data. The results of this study are, therefore, based on the functions of ChatGPT 3.5 and could differ with newer versions of ChatGPT or other applications using generative AI.

The workshops were conducted with a group of participants with different reading and writing proficiencies. They were not seated by the facilitator for the workshops; instead, they could choose their place, the iPad and the team to work with on their own. Thus, it was not clear for the facilitator which proficiency levels worked on which iPads. Due to anonymity, the skill levels from the participants only became clear in the analysis through the prompting skills, errors made in writing and requiring help for prompting.

The dictation function of the iPads was deactivated for the workshops because of uncertainty regarding data protection. However, during the challenges, several teams talked about how they used the dictation function of their smartphones for search requests to Google or in WhatsApp. Presumedly, activating the dictation function would have reduced the amount of help required during the prompting process.

During the analysis of the screen recordings regarding the need for help in the prompting process, the autocorrection and the displaying of errors on the iPads irritated some participants in their writing. Although they were told at the beginning of the Literacy Promptathon that errors are allowed and that ChatGPT can generate texts from prompts despite errors, they tried to correct their writing when the iPads showed mistakes. For further Literacy Promptathons in basic education, this function should be deactivated.

The screen recordings also showed that the workshop facilitator and the teachers of the participants who accompanied the Literacy Promptathon tended to step in when the writing of the participants came to a halt. This could have influenced the working process of the participants during the Literacy Promptathon and needs further research.

Implications

Using the Literacy Promptathon or similar approaches to teach the use of generative AI in basic education needs detailed preparation of the participants regarding the three core dangers of generative AI. The results of generative AI should always be critically reflected on with the participants afterwards because they do not necessarily evaluate the AI-generated results.

With the fast development of generative AI, the training of adults with low literacy levels on how to handle it is crucial. Both Google (Kühl, 2023) and Apple (Apple, 2026) have already integrated generative AI into their current smartphones. Adults with low literacy who use smartphones for everyday activities are already being confronted with generative AI in their daily lives, possibly without even realising it.

Therefore, providing guidance and training in the use of generative AI in adult education settings remains important. The workshops implemented in the context of the Literacy Promptathon can be used to train reading and writing skills in a setting that differs from usual non-formal adult educational settings due to its peer learning character. While having enormous potential to support the learning of reading and writing skills through generative AI, the latter needs to be used with critical reflection and evaluation.

Notes

1 The Literacy Prompathon Project was funded under the Excellence Strategy of the Federal Government and the Länder in Germany.

2 A hackathon is a problem-solving format known in the field of informatics. The word is made up of the words ‘hacking’ and ‘marathon’. The aim of a hackathon is to find (software-)solutions to a given problem during a fixed time window (Briscoe & Mulligan, 2014).

3 In the following, the original prompts in German are presented because everyone is unique with their writing errors. Along with every original prompt is an English translation by the author.

4 There are some data presented where the prompt and ChatGPT’s answer are shown or where more than one prompt is shown. In these cases, ‘prompt’ is abbreviated to ‘P’.

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References

Alkaissi, H., & McFarlane, S. I. (2023). Artificial Hallucinations in ChatGPT: Implications in Scientific Writing. *Cureus*, *15*(2), e35179. https://doi.org/10.7759/cureus.35179

Apple. (2026). *Benutzerhandbuch: ChatGPT auf dem iPhone aktivieren* [User guide: Activate ChatGPT on the iPhone]. Apple Support. https://support.apple.com/de-de/guide/iphone/iph00fd3c8c2/ios

Aydin, Ö., & Karaarslan, E. (2023). Is ChatGPT Leading Generative AI? What is Beyond Expectations? *Academic Platform Journal of Engineering and Smart Systems*, *11*(3), 118-134. https://doi.org/10.21541/apjess.1293702

Baidoo-Anu, D., & Owusu Ansah, L. (2023). Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning. *Journal of AI*, *7*(1), 52-62. https://dx.doi.org/10.2139/ssrn.4337484

Barrett, T. (2023, February 6). *Uplevel your prompt craft in ChatGPT with the CREATE framework*. https://edte.ch/blog/create-framework/?v=3a1ed7090bfa

Beblo, M., Becker, D., & Grotlüschen, A. (2023). Wer macht den Papierkram? Die Rolle von Literalität, finanzieller Kompetenz und Geschlecht bei der administrativen Aufgabenteilung im Haushalt [Who does the paperwork? The role of literacy, financial competence and gender in the division of domestic chores]. In A. Grotlüschen, K. Buddeberg, & H. Solga (Eds.), *Interdisziplinäre Analysen zur LEO – Studie 2018 – Leben mit geringer Literalität: Vertiefende Erkenntnisse zur Rolle des Lesens und Schreibens im Erwachsenenalter* (pp. 93-118). Springer VS. https://doi.org/10.1007/978-3-658-38873-7_5

Briscoe, G., & Mulligan, C. (2014). *Digital Innovation: The Hackathon Phenomenon*. http://qmro.qmul.ac.uk/handle/123456789/11418

Buddeberg, K. (2015). Das mitwissende Umfeld funktionaler Analphabetinnen und Analphabeten: Ergebnisse der quantitativen Teilstudie [The supportive environment of people with functional illiteracy: Results from the quantitative sub-study]. In A. Grotlüschen & D. Zimper (Eds.), *Literalitäts- und Grundlagenforschung* (pp. 135-156). Waxmann.

Buddeberg, K., & Grell, P. (2023). Audiovisuelle digitale Praktiken als Erweiterung kommunikativer und informativer Handlungsfähigkeit [Audio-visual digital practices as an extension of communicative and informational action competence]. In A. Grotlüschen, K. Buddeberg, & H. Solga (Eds.), *Interdisziplinäre Analysen zur LEO – Studie 2018 – Leben mit geringer Literalität: Vertiefende Erkenntnisse zur Rolle des Lesens und Schreibens im Erwachsenenalter* (pp. 37-63). Springer VS. https://doi.org/10.1007/978-3-658-38873-7_3

Buddeberg, K., & Grotlüschen, A. (2020). Literalität, digitale Praktiken und Grundkompetenzen [Literacy, digital practices and basic competencies]. In A. Grotlüschen & K. Buddeberg (Eds.), *LEO 2018 – Leben mit geringer Literalität* (pp. 197-225). wbv.

Ciampa, K., Wolfe, Z. M., & Bronstein, B. (2023). ChatGPT in education: Transforming digital literacy practices. *Journal of Adolescent & Adult Literacy*, *67*(3), 186-195. https://doi.org/10.1002/jaal.1310

Corbin, J. M., & Strauss, A. L. (2015). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (4th ed.). SAGE.

Ehmig, S. C., Heymann, L., & Seelmann, C. (2015). *Alphabetisierung und Grundbildung am Arbeitsplatz: Sichtweisen im beruflichen Umfeld und ihre Potenziale* [Literacy and basic education in the workplace: Perspectives within the professional environment and their potential]. Stiftung Lesen.

Gerlich, M. (2025). AI Tools in Society: Impacts on Cognitive Offloading and the Future of Critical Thinking. *Societies*, *15*(1), 6. https://doi.org/10.3390/soc15010006

Gimpel, H., Hall, K., Decker, S., Eymann, T., Lämmermann, L., Mädche, A., Röglinger, M., Ruiner, C., Schoch, M., Schoop, M., Urbach, N., & Vandirk, S. (2023). *Unlocking the Power of Generative AI Models and Systems such as GPT-4 and ChatGPT for Higher Education: A Guide for Students and Lecturers*. University of Hohenheim. https://hohpublica.uni-hohenheim.de/handle/123456789/6825

Gondwe, G. (2023). CHATGPT and the Global South: How are journalists in sub-Saharan Africa engaging with generative AI? *Online Media and Global Communication*, *2*(2), 228-249. https://doi.org/10.1515/omgc-2023-0023

Grassini, S. (2023). Shaping the Future of Education: Exploring the Potential and Consequences of AI and ChatGPT in Educational Settings. *Education Sciences*, *13*(7), 692. https://doi.org/10.3390/educsci13070692

Grotlüschen, A., Dutz, G., & Skowranek, K. (2024). Writing with Artificial Intelligence? Ad-hoc-Survey findings raise awareness for critical literacy at the International Literacy Day. *International Journal of Lifelong Education*, *43*(4), 371-384. https://doi.org/10.1080/02601370.2024.2349657

Grotlüschen, A., Skowranek, K., & Buddeberg, K. (2023). Literacy Promptathon: Prompten lernen und kritisches Lesen trotz Lese-Schwierigkeiten?: Wie lässt sich mit künstlicher Intelligenz die Alphabetisierung voranbringen? [Literacy Prompathon: Learning prompting and critical reading despite reading and writing difficulties? How can artificial intelligence be used to promote literacy?] *Dis.Kurs*, *1*, 40-42.

Grotlüschen, A., Skowranek, K., Buddeberg, K., & Gillen, L. (2023). Der Literacy Promptathon: Chance für die Grundbildung, Integration und Alphabetisierung [The Literacy Promptathon: A chance for basic education, integration and literacy]. *Weiterbildung*, *6*, 28-30. https://leo.blogs.uni-hamburg.de/wp-content/uploads/2024/03/2023_Grotlueschen-et-al._Literacy-Promptathon-in-WB.pdf

Guo, S., Leborgne, F., Hu, J., & Baets, W. (2024). Can AI Bridge the Literacy Gap? Developing a GPT-4 Summarization Tool for Low Literacy. In J. Hu & J. Khan (Eds.), *From User to Human: Usinet Alumni Event 2024* (pp. 52-65). Eindhoven University of Technology.

Jamf Software Germany GmbH. (2026). *Jamf*. https://www.jamf.com/de/

Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., … Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, *103*, 102274. https://doi.org/10.1016/j.lindif.2023.102274

Kojima, T., Gu, S. S., Reid, M., Matsuo, Y., & Iwasawa, Y. (2022). Large Language Models are Zero-Shot Reasoners. In *Advances in Neural Information Processing Systems* (Vol. 35, pp. 22199-22213). Neural Information Processing Systems Foundation. https://doi.org/10.52202/068431-1613

Kučević, E., von Brackel-Schmidt, C., Lewandowski, T., Leible, S., Memmert, L., & Böhmann, T. (2024). The Prompt-a-thon: Designing a Format for Value Co-Creation with Generative AI for Research and Practice. In T. X. Bui (Ed.), *Proceedings of the 57th Hawaii International Conference on System Sciences* (pp. 1586-1595). Institute of Electrical and Electronics Engineers. https://doi.org/10.24251/HICSS.2024.200

Kühl, E. (2023, October 11). Google Pixel 8: Viel KI mit bisschen Smartphone [Google Pixel 8: Much AI with a little bit of smartphone]. *Die Zeit*. https://www.zeit.de/digital/mobil/2023-10/google-pixel-8-smartphone-kuenstliche-intelligenz-fotografie-test/seite-3

Li, C., Wang, J., Zhang, Y., Zhu, K., Hou, W., Lian, J., Luo, F., Yang, Q., & Xie, X. (2023). *Large Language Models Understand and Can be Enhanced by Emotional Stimuli*. http://arxiv.org/pdf/2307.11760v7

Lin, X. (2024). Exploring the Role of ChatGPT as a Facilitator for Motivating Self-Directed Learning Among Adult Learners. *Adult Learning*, *35*(3), 156-166. https://doi.org/10.1177/10451595231184928

OECD. (2024). *Do Adults Have the Skills They Need to Thrive in a Changing World? Survey of Adult Skills 2023*. OECD Publishing. https://doi.org/10.1787/b263dc5d-en

OECD. (2025). *Trends in Adult Learning: New Data from the 2023 Survey of Adult Skills*. OECD Publishing. https://doi.org/10.1787/ec0624a6-en

OpenAI. (2026, February 6). *Datenschutzrichtlinie* [Privacy policy]. https://openai.com/de-DE/policies/row-privacy-policy/

Philipp, M. (2024). »Nun sag', KI, wie hast du's mit der Wahrheit?« Über die Lesekompetenz in Zeiten der Künstlichen Intelligenz [‚So tell me, AI, what's your take with the truth?': About reading proficiency in times of artificial intelligence]. *ide, 48*(2), 42-51.

Rammstedt, B., Gauly, B., Kapidzic, S., Maehler, D. B., Martin, S., Massing, N., Schneider, S. L., & Zabal, A. (2024). *PIAAC 2023: Grundlegende Kompetenzen Erwachsener im internationalen Vergleich* [PIAAC 2023: Basic adult competences in an international comparison]. Waxmann. https://doi.org/10.31244/9783830999652

Riekmann, W., Buddeberg, K., & Grotlüschen, A. (Eds.). (2016). *Das mitwissende Umfeld von Erwachsenen mit geringen Lese- und Schreibkompetenzen: Ergebnisse aus der Umfeldstudie* [The supportive environment of adults with low reading and writing proficiency: Results from the environment study]. Waxmann.

Schulverwalter GmbH. (2026). *schulKI*. https://schulki.de/

Simon, J., Spiecker gen. Döhmann, I., & von Luxburg, U. (2024). *Generative KI – jenseits von Euphorie und einfachen Lösungen* [Generative AI – beyond euphoria and simple solutions] (Diskussion No.

34). Nationale Akademie der Wissenschaften Leopoldina. https://doi.org/10.26164/leopoldina_03_01226

Sok, S., & Heng, K. (2023). ChatGPT for Education and Research: A Review of Benefits and Risks. *Cambodian Journal of Educational Research, 3*(1), 110-121. https://doi.org/10.62037/cjer.2023.03.01.06

Sok, S., & Heng, K. (2024). Opportunities, challenges, and strategies for using ChatGPT in higher education: A literature review. *Journal of Digital Educational Technology*, *4*(1), ep2401. https://doi.org/10.30935/jdet/14027

Stiftung Lesen, & Institut für Demoskopie Allensbach. (2020). *Lesen im digitalen Wandel - Ergebnisse einer repräsentativen Bevölkerungsbefragung im Winter 2020* [Reading in the age of digital transformation – Results from a representative population survey in winter 2020] [IfD-Umfrage 12028]. https://www.stiftunglesen.de/fileadmin/Ueber_uns/Forschung/Studien/Lesen_im_digitalen_Wandel_Bevoelkerungsbefragung_Stiftung_Lesen_2020.pdf

Strauch, A., & Pätzold, H. (2012). Professionalisierung mit Profil? Theoretische und empirische Entwicklungen von Kompetenzrahmen und -profilen in der Weiterbildungsprofessionalisierung im Kontext der Europäischen Union [Professionalisation with a profile? Theoretical and empirical developments in competence frameworks and profiles in the professionalization of continuing education within the context of the European Union]. In I. Sgier & S. Lattke (Eds.), *Professionalisierungsstrategien der Erwachsenenbildung in Europa: Entwicklungen und Ergebnisse aus Forschungsprojekten* (pp. 67-86). wbv.

Strauss, A. L., & Corbin, J. (1996). *Grounded theory: Grundlagen qualitativer Sozialforschung* [Grounded theory: Basics of qualitative research]. Beltz, PsychologieVerlagsUnion.

Tian, X., Mannekote, A., Solomon, C. E., Song, Y., Wise, C. F., Mcklin, T., Barrett, J., Boyer, K. E., & Israel, M. (2024). Examining LLM Prompting Strategies for Automatic Evaluation of Learner-Created Computational Artifacts. In B. Paaßen & C. Demmans Epp (Eds.), *Proceedings of the 17th International Conference on Educational Data Mining* (pp. 698-706). International Educational Data Mining Society. https://doi.org/10.5281/zenodo.12729922

von Brackel-Schmidt, C., Kučević, E., Memmert, L., Tavanapour, N., Cvetkovic, I., Bittner, E. A. C., & Böhmann, T. (2023). A User-centric Taxonomy for Conversational Generative Language Models. *ICIS 2023 Proceedings.* Association for Information Systems. https://aisel.aisnet.org/icis2023/generalis/generalis/1/

Walgenbach, K. (2012). *Intersektionalität – eine Einführung* [Intersectionality – an introduction]. Portal Intersektionalität. http://ressources.portal-intersektionalitaet.de/Walgenbach,%20Katharina_Intersektionalität%20-%20eine%20Einführung_.pdf

Wei, J., Wang, X., Schuurmans, D., Bosma, M., Ichter, B., Xia, F., Chi, E. H., Le, Q. V., & Zhou, D. (2022). Chain-of-Thought Prompting Elicits Reasoning in Large Language Models. In *Advances in Neural Information Processing Systems* (Vol. 35, pp. 24824-24837). Neural Information Processing Systems Foundation. https://doi.org/10.52202/068431-1800

Weitzel, H., & Wilhelm, J. (2025). AI & Generative AI in Adult Education. Terminology, discourses and the need of a (Gen)AI Basic Education. In F. Bellinger, R. Bolten-Bühler, & M. Rohs (Eds.), *Adult education research on digitalisation: Concepts – Scopes – Understandings* (pp. 189-208). wbv.

White, J., Fu, Q., Hays, S., Sandborn, M., Olea, C., Gilbert, H., Elnashar, A., Spencer-Smith, J., & Schmidt, D. C. (2023). A Prompt Pattern Catalog to Enhance Prompt Engineering with ChatGPT. In *Proceedings of the 30th Conference on Pattern Languages of Programs* (PLoP 2023) (pp. 1-31). ACM. https://doi.org/10.64346/PLoP2023p05

Wimmer, C. (2025). Digitale Grundbildung: Chancen für eine bessere Lebensweltorientierung in der Alphabetisierung [Digital basic education: Chances for a greater focus on real-life contexts in literacy teaching]. *Hessische Blätter für Volksbildung*, *75*(1), 98-109. https://doi.org/10.3278/HBV2501W016

Workman, D., & Dancy, C. L. (2023). Identifying Potential Inlets of Man in the Artificial Intelligence Development Process: Man and Antiblackness in AI Development. In C. Fiesler, L. Terveen, M. Ames, S. Fussell, E. Gilbert, V. Liao, X. Ma, X. Page, M. Rouncefield, V. Singh, & P. Wisniewski (Eds.), *Computer Supported Cooperative Work and Social Computing* (pp. 348-353). ACM. https://doi.org/10.1145/3584931.3606981

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. Profile Books.

Zweig, K. A. (2023). *Die KI war's!: Von absurd bis tödlich: Die Tücken der künstlichen Intelligenz* [It was the AI!: From the absurd to the deadly: The pitfalls of artificial intelligence]. Heyne.