

## AI-DING MEDICAL STUDENTS IN REGISTER-SWITCHING: CLAUDE-DESIGNED MATERIALS FOR MEDICAL REGISTER VARIATION

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**Abstract:** *Artificial Intelligence (AI) is increasingly present in various educational fields and it has already significantly influenced foreign language instruction. AI technologies enable interactive and personalized learning, which can have great benefits, particularly in teaching English for specific purposes. This case study examines how AI tools can be used to design materials and activities suitable for developing medical students' awareness of register-switching. A generative artificial intelligence chatbot Claude was prompted to produce pedagogically effective materials for teaching register variations. The activities include vocabulary development tasks, reading and writing assignments, listening comprehension exercises, speaking simulations and dialogues. The integration of AI can help teachers adapt teaching to contemporary demands, while students can develop a multi-faceted understanding of medical terminology, improve their communication skills and become more confident in their ability to interact effectively with patients and healthcare professionals. AI-assisted language learning can potentially bridge the gap between classroom instruction and real-world medical communication and better prepare future healthcare professionals for the linguistic challenges in their careers. The paper also discusses ethical considerations related to the development and implementation of AI-assisted activities, focusing on accuracy, transparency, data privacy and responsible use.*

Keywords: *medical English; AI; AI-assisted activities; register-switching; language proficiency;*

### 1. Introduction

Every profession has its own, specialized language: language used among fellow professionals to communicate. The professional field of medicine is no exception: both in their mother tongue and in English, which is observed as the lingua franca nowadays in the world, doctors and other healthcare providers use specific medical terms and expressions – the so-called “insider language”. Comprehension issues for outsiders in this type of specialized discourse can arise due to the unfamiliar conceptual content or lexis (Gotti 25). The terms of Latin and Greek origin are dynamically exchanged and understood within the healthcare professional circle. But what about the “outsiders”?

Bearing in mind the generally accepted fact that language barriers lead to miscommunication, misunderstandings and consequently negatively impact life quality in general, today in a globalized world, a correlation can be made with people moving abroad. Many of them have limited proficiency in the

language spoken in the country where they immigrated. To a certain extent, an average patient sometimes feels like a foreigner who does not speak the language, because the language of medicine is definitely a language of its own, with all the “big” words: medical terms of Latin and Greek origin. Unquestionably, effective doctor-patient communication has a fundamental clinical function in establishing a therapeutic relationship and is crucial for the provision of high-quality health care. Patients rely on healthcare providers to communicate important pieces of information about their state of health in a clear and understandable manner, to suggest treatment options and to clarify medication instructions to avoid potential adverse reactions. As medical education typically focuses on acquiring specialized medical terminology, the development of register-switching abilities necessary for effective communication with patients might be neglected. The communication gap between medical English-speaking healthcare providers and general English-speaking patients can potentially compromise the quality of patient treatment. Medical English educators, therefore have a decisive role in raising students’ awareness of register-switching since they can explicitly teach register variations and provide opportunities for meaningful practice. This paper examines how AI tools, specifically Claude, can be employed to develop a range of activities that help students adapt medical discourse for different audiences. By exploring AI capabilities in material design, this case study offers practical insights into the potential of artificial intelligence in specialized language instruction and attempts to motivate language teachers to consider how AI tools can be used to develop students’ register-switching competences.

## **2. Register-switching**

Although the concept of linguistic register is relatively straightforward, its role is also very significant as it acknowledges that our written and spoken language adapts to different types of situations (Halliday 32). This contextual variation is particularly important in the medical profession, where healthcare workers must balance technical precision in communication with colleagues and the clarity needed when talking to patients.

In their comprehensive cross-sectional study of the Minnesota population conducted in 2021, Allen et al. found that low health literacy awareness and inadequate register-switching affected doctors’ interaction patterns during patient consultations. Physicians were observed as lacking empathy (9%), demonstrating poor communication skills (13%), or attempting to assert their importance (10%) (Allen et al. 2). The most common explanation provided by participants (40%) was that doctors had become accustomed to using ‘doctor talk,’ making it difficult for them to adjust their

language when communicating with patients. Additionally, a significant percentage of respondents (29%) believed that doctors used jargon without realizing that their patients did not understand them. Only a small number of patients observed jargon use as a litmus test of their clinician's expertise, and therefore completely avoiding it could lead them to doubt a provider's competence. (Allen et al. 2-3).

As a rule, the concept of health literacy is an important determinant of health in general, strongly influencing the overall well-being of individuals and their families. Although low health literacy is commonly associated with marginalized populations, such as older adults, ethnic minorities, second-language speakers, and low-income families, according to Rowlands et al., low educational level also constitutes a significant contributing factor (e383); consequently, people who lack the skills and confidence to discuss their medical conditions: diagnosis, treatment options and effective use of medications, are rarely prepared to act if obstacles to health are identified. Additionally, according to the EU Health Literacy Survey (Doyle et al. 53), low health-literate patients seldom engage in health prevention activities; therefore, they tend to receive their potential diagnosis too late for an efficient treatment and positive disease outcome, resulting in higher mortality.

Nevertheless, not solely a low educational level contributes to health literacy. In their research on patient preferences concerning the terminology used during doctor consultations, Allen et al. stress the fact that over 40% of their participants found the jargon used by doctors perplexing, even in their highly educated sample population (>60% with a bachelor's degree or more compared to the national average of 35% (3). This confirms the findings of two other jargon understanding experiments in which accurate comprehension of medical language was not consistently correlated with the level of education (Gotlieb et al., Hause et al.).

In line with both global and national impacts it exhibits on economic growth, an important issue addressed by the Royal College of General Practitioners in their Report from 2014 (3) was that 43% of England's working-age population (*flywheel of economic growth*) had problems with understanding and using health information, therefore failing to receive the right care at the right time. Due to a significant discrepancy between health institutions' expectations and patients' literacy skills, patients' ability to make informed health choices is heavily impacted, resulting in poor treatment outcomes and sickness absence.

Inclusiveness for people with low health literacy cannot be achieved overnight; one must unfortunately accept the fact that the social and political injustice cannot be fixed employing a magic wand. However, what can be done to reduce health inequalities with a moderate financial input is to aim towards achieving health literacy awareness among healthcare providers,

particularly general physicians, who are the first line of interaction with low health-literate patients. By engaging in regular health literacy training as a form of lifelong learning, furthermore, by implementing jargon-free communication, “teach-back” techniques and using illustrations and 3D models, medical professionals could efficiently address a mismatch in communication, improve patient comprehension and remove barriers for shared decision-making (RCGP 10).

Since the ability of GPs and other healthcare professionals to clearly communicate complex information is extremely important, it is reasonable to conclude that successful code and register-switching skills can have significant implications for patient care and health outcomes. What is generally observed and concluded by many studies (Gotlieb et al., Allen et al., Pitt, Hendrickson) conducted on the topic of (mis)use of medical jargon in doctor-patient communication is the fact that patients who are recipients of the healthcare in a language and dialect they understand are more likely to strictly adhere to treatment plans, report uneventful treatment courses and better health outcomes, as well as account for higher levels of satisfaction with their doctor-patient relationship. Both register- and code-switching can help to promote equal opportunities of access to the healthcare system and fight disparities resulting in patients not receiving care that is timely and appropriate.

In addition to the previously mentioned studies, the following ones also highlighted the need for plain language in medicine in doctor-patient communication. Peckham examined patients' understanding of seemingly basic terms like "fracture" and "break," pointing out potential confusion even with common medical vocabulary. Similarly, Chapman et al. explored layperson understanding of medical terms specifically used during cancer consultation sessions and concluded that a substantial proportion of patients do not understand phrases commonly used by oncologists. Several studies have examined physician communication practices. Castro et al. investigated physicians' use of medical jargon when interacting with patients and concluded that many technical terms were used without further clarification. This trend was also observed by Farrell et al., who specifically studied pediatric residents' use of medical jargon during parent counseling about newborn genetic screening results. Howard et al. approached the issue from a solution-oriented perspective and investigated physicians' implementation of plain-language and teach-back communication techniques with patients. The patient comprehension was also studied by O'Connell et al., who assessed patients' understanding of standard medical terms commonly used by breast surgeons. LeBlanc et al. surveyed U.S. medical students and compared how first-year versus fourth-year students estimated patient comprehension of

medical jargon, revealing how medical education potentially influences perceptions of patient understanding.

These studies demonstrate that medical professionals might not be aware that patients often struggle to understand medical terminology, emphasizing the importance of using plain language to improve communication and patient understanding.

The first step towards receiving adequate treatment for a patient is timely seeking medical help/advice, but what if they didn't know they were ill? Similarly, as can be noted in almost all the research studies, medical doctors are very often unaware of the fact that there is a problem and that they need help with it. The term "jargon-oblivion", introduced by Pitt and Hendrickson, describes a two-way communication gap between healthcare providers who perceive themselves as clear communicators and patients who are not able to understand the highly professional medical terms. The authors point to the necessity of educating medical professionals to both recognize and avoid the overuse of jargon and in that way contribute significantly to the eradication of confusion and misunderstanding among patients (Pitt, Hendrickson 1864).

Even though research has shown that medical professionals are generally more comfortable using medical terminology in consultation with patients (Williams, Ogden 632), it is important to be aware that this can create barriers in understanding for patients without a medical background. Therefore, it is essential to include register-switching practice early in medical training. Medical students and doctors should be encouraged to make a conscious effort to adapt their language to meet patients at their level of understanding.

Since register-switching practice is a valuable remedy for improving doctor-patient communication, the foundations are laid during our introductory medical English classes. In that way, students are becoming aware of the potential problem that might appear both with L1-speaking patients and those who use English (nowadays, there is a significant number of foreign workers who use English as the language of communication in Croatia). As it happens, most medical terms in English have equivalents in the general English language, and healthcare professionals should be able to switch, basically to rephrase medical information using plain English with the purpose of enhancing doctor-patient communication. The first step in that direction begins with junior medical students: various tasks and exercises might be useful in addressing the issue – predominantly those stressing the correlation between the medical term in English and its general English equivalent. The task used during the initial course session for the 1st year medical students comprises an interest-provoking text, which provides an

account of an everyday family episode reported about using medical terminology (Žmegač Horvat):

Yesterday morning, I woke up with *cephalalgia* and an onset of *laryngitis*. I sent my daughter out to play, but soon she came back *lacrimating*, with *ambilateral abrasions* on her *patellae*, and a large *hematoma* on the *frontal portion of her cranium*.

Upon overcoming their initial surprise, the students easily recognize what has to be done for a layperson to understand the content. By acknowledging the necessity to shift between registers and use patient-friendly language, students are introduced to the foundations of successful physician-patient communication, which, consequently, leads to patient-focused and holistic healthcare provision.

Today, Artificial Intelligence can offer valuable support in this area and benefit both educators and learners. Studies (Bond et al. 27) indicate that the most important benefits of using AI in higher education are personalized learning, greater insight into student understanding and positive influence on learning outcomes. If AI is implemented at this level, it can also positively influence the transition into the clinical practice environment particularly in nursing and medical professions (Buchanan et al. 6).

From an educator's perspective, one of the most significant benefits of using AI is its ability to substantially reduce the planning and administration time that teachers spend creating a wide range of personalized and diverse tasks for students to practice switching between formal medical jargon and patient-friendly language. This paper presents how teachers can effectively use AI tools to create various activities that foster the development of this vital communication skill.

### 3. Prompt engineering

With the widespread adoption of AI in education, a new form of digital literacy, *AI literacy*, has become an essential skill. It includes the abilities necessary for the informed and meaningful use of AI tools (Long, Magerko 2). One of its key components is prompt engineering, a skill that is frequently overlooked by non-expert users. The prompt, the instruction we give to a model, is closely connected to the quality and comprehensiveness of an LLM's output. It plays a crucial role in users' interaction with AI models, requiring extensive trial and error due to the limitations of human communication approaches to AI context (Knoth et al. 3). Prompt engineering refers to the technique of creating precise, task-specific instructions and carefully including representative examples in the prompt (Bsharat et al. 1-2). Their study presents 26 guiding prompting principles classified into five groups: prompt structure and clarity, specificity and information, user interaction and

engagement, content and language style and complex tasks and coding prompts (ibid 6). Furthermore, educators should consider deploying a framework and prompts designed specifically for educational settings (Fitzpatrick 8). He recommends using a PREP framework, which should result in a higher quality AI output. The acronym PREP refers to the four steps of query: starting with a prompt (*create a quiz*), assigning a role (*you are an English teacher*), being explicit (*include questions about a specific topic*) and setting the output parameters (*make multiple-choice questions and include the answers*). A wide array of ready-made prompts for educators can also be found on the GenAI Chatbot Prompt Library for Educators website, which covers various topics such as assessment, communication, lesson planning, social and emotional learning, etc. In order to successfully and meaningfully implement AI tools, educators should become familiar with prompt engineering and integrate these techniques into their teaching practice. Mastering prompt engineering can help teachers develop engaging and dynamic activities that are tailored to individual needs and bridge the gap between classroom instruction and real-world communication.

#### **4. Developing register-switching activities with AI**

All the activities presented in the paper were created by the large language model Claude. Claude is a family of large language models (LLMs) and a generative artificial intelligence chatbot developed by Anthropic (Belcic, Stryker). Besides answering questions, its capabilities include generating texts, summarizing documents, creating images, diagrams, animations, codes and more. Because of its versatility, this model was chosen to design a series of specialized language activities for first-year medical students enrolled in the Medical English course at the university. The primary objective of implementing these AI-generated activities was to raise students' awareness of register-switching in medical English and provide them with further practice opportunities, particularly in two distinct contexts: doctor-to-doctor communication and doctor-to-patient communication. The first step in accomplishing this goal was prompting Claude with the following instruction:

You are an English instructor teaching medical English to freshman students. Can you create two short texts describing the same medical condition, one using medical jargon and the other written in general English that patients can understand? Here is an example of a text using medical jargon: Yesterday morning, I woke up with cephalalgia and an onset of laryngitis. I sent my daughter out to play, but soon she came back lacrimating, with ambilateral abrasions on her patellae, and a large hematoma on the frontal portion of her cranium.

The prompt specified the role, context and the desired form of output. Also, in order to make the prompt more precise and clear, we included a sample of the text by Žmegač Horvat, which describes an everyday event in medical jargon. The medical condition was not specified in the prompt. The texts generated by Claude described nasal deviation, the main symptoms and treatment options.

Building on the initial prompt used only once and reference texts, the second step involved generating two distinct dialogues using Claude. The first dialogue simulated a professional exchange between two doctors discussing a patient with nasal deviation, using medical terminology. The second dialogue portrayed a doctor explaining the same condition to a patient using accessible, non-technical language. This deliberate contrast aimed to illustrate the most important register differences required in varied clinical communication contexts.

Additionally, we used Microsoft Copilot to generate an image of nasal deviation. Based on that image, Claude created two corresponding descriptions, one using medical terminology for medical students and another in patient-friendly language.

After analyzing the AI-generated texts and dialogues, the next phase was directing Claude to design targeted activities for vocabulary practice and writing skills, reinforcing students' understanding of register-switching. Finally, Claude was prompted to develop an engaging game to practice communication in different medical contexts. The suggested activity, titled "Translation Station," was designed to provide an interactive and practical way for students to differentiate and apply appropriate registers in medical communication.

## **5. The overview of AI-generated activities**

The activities were designed to demonstrate AI's capabilities in creating materials that could help students practice register-switching in medical English by focusing on the differences between medical and general language. The first step involved prompting AI to generate two texts describing a medical condition, its symptoms, and possible treatments. Claude produced satisfactory texts about nasal deviation in the first attempt, so no prompt refinement was needed. The first text was written in medical English and the other in general English, in which specialized medical terms were replaced with more accessible language for patients. These texts serve as a starting point for helping students become aware of the differences between professional medical discourse and everyday communication.

Text 1 (Medical English):



The patient presents with septal deviation, exhibiting significant nasal obstruction and chronic rhinitis. Anterior rhinoscopy reveals marked leftward displacement of the osseo-cartilaginous septum, resulting in ipsilateral airway stenosis. The contralateral turbinates show compensatory hypertrophy. Associated symptoms include intermittent epistaxis and nocturnal dyspnea. Treatment options encompass topical corticosteroids for mucosal edema and potential septoplasty for structural correction.

Text 2 (General English for patients):

You have a crooked wall inside your nose, which we call a deviated septum. This means the piece separating your two nostrils is off-center, making one side of your nose narrower than the other. This can cause trouble breathing, especially through one side of your nose, and lead to frequent stuffy noses. You might also experience occasional nosebleeds and difficulty breathing at night. To help, we can try nasal sprays to reduce swelling. If that doesn't work well enough, we might consider a minor surgery to straighten the wall in your nose. (Claude.ai, September 13, 2025)

Based on these texts, Claude was prompted to generate two dialogues: one between two doctors discussing a patient with nasal deviation and another in which a doctor explains the condition to a patient. These dialogues offer a versatile foundation for a number of activities. For example, students can expand the conversation by introducing additional symptoms and complications, leading to more diverse treatment scenarios. Also, patient profiles can be modified, requiring doctors to adjust their language based on the patient's level of medical knowledge. Furthermore, students can add more patient questions to make the dialogues more interactive or incorporate additional medical terms with corresponding layman explanations to reinforce switching from medical to general English.

Sample of Dialogue 1 - A doctor talking to a doctor

Dr. Smith: Good morning, Dr. Johnson. I wanted to consult with you about a patient I saw yesterday.

Dr. Johnson: Of course, what's the case?

Dr. Smith: It's a 35-year-old male presenting with chronic nasal congestion, frequent nosebleeds, and difficulty breathing, especially at night.

Dr. Johnson: Interesting. Did you perform a nasal examination?

Dr. Smith: Yes, I did. The external exam showed a slight nasal asymmetry, and the internal exam revealed a significant septal deviation to the right.

Dr. Johnson: I see. Any history of nasal trauma or previous surgeries?  
Dr. Smith: No trauma or surgeries, but he mentioned having these symptoms for several years, gradually worsening.

Sample of Dialogue 2 - A doctor talking to a patient

Doctor: Good morning, [Patient Name]. I've reviewed your scans, and it appears you have a condition called nasal deviation. Do you have any questions before I explain what this means?

Patient: Yes, doctor. What exactly is nasal deviation?

Doctor: Nasal deviation, also known as a deviated septum, is when the thin wall between your nasal passages - called the nasal septum - is displaced to one side. This can cause one nasal passage to be smaller than the other.

Patient: I see. What are the symptoms I should be aware of?

Doctor: The most common symptoms include:

1. Difficulty breathing through one or both sides of your nose
2. Frequent nosebleeds
3. Facial pain or pressure, especially on one side
4. Noisy breathing during sleep
5. Preference for sleeping on a particular side

Do any of these sound familiar to you?

(Claude.ai, September 13, 2025)

Another variation of this activity included an AI-generated image of nasal deviation. The image was generated using Microsoft Copilot, since the version of Claude used in this case study did not include image generation features. The AI-generated image presents two cross-sectional views of nasal anatomy. The left side displays what appears to be normal nasal anatomy with symmetrical passages and a straight nasal septum, while the right side illustrates a deviated septum with a visible asymmetry. A suggested activity using this image would include asking students to analyze the visual and describe the condition in two different contexts: first to a group of medical student colleagues and then to a patient. Sample texts could be provided as reference models to help them better understand the differences between the registers.

These texts and dialogues were used to further prompt Claude to generate vocabulary practice and writing activities. The output included a set of diverse exercises, including gap-fill tasks, word formation exercises, word-definition matching, acronym explanations, synonym matching and a crossword puzzle. This part also included a writing task focused on case summary practice, adding perfectly to senior students' practice in creating oral presentations of the medical case reports. The proposed activity is to ask

students to read the dialogue between doctors and write a concise patient case summary using the SOAP (Subjective, Objective, Assessment, Plan) format. To support this task, Claude generated a sample summary that students could use as a reference for comparison.

#### Sample SOAP Note:

##### S (Subjective):

35-year-old male presents with chronic nasal congestion, frequent nosebleeds, and difficulty breathing, especially at night. Symptoms have been present for several years, gradually worsening. No history of nasal trauma or previous surgeries.

##### O (Objective):

External exam shows slight nasal asymmetry. Internal exam reveals significant septal deviation to the right, with approximately 70% obstruction of the right nasal passage.

##### A (Assessment):

Severe nasal septal deviation causing chronic nasal obstruction and associated symptoms.

##### P (Plan):

1. Initiate conservative management with nasal corticosteroids and saline rinses for 4-6 weeks.
2. Order CT scan of sinuses to rule out other contributing factors.
3. If no significant improvement with conservative management, consider septoplasty.
4. Counsel patient on treatment options, potential complications, and recovery time for septoplasty.
5. Follow-up in 4-6 weeks to assess response to conservative treatment and discuss further management.

(Claude.ai, September 13, 2025)

As the final activity, Claude generated an interactive game called “Translation Station”. The aim of the game was to engage students in practicing register-switching in a dynamic and competitive way. First, the teacher prepares scenario cards with different medical conditions and divides the students into two teams. To determine which register will be used, the teacher flips a coin, heads means the response must be in medical English, while tails requires a patient-friendly explanation. The first team then has 30 seconds to describe the condition using the assigned register. The opposing team listens carefully and evaluates the explanation for accuracy and appropriateness. If the response is correct, the first team earns a point. If not, the other team has a chance to improve the explanation and claim the point.

For the final round, each team selects its best translator, who is given a complex medical report written entirely in jargon. They have three minutes to rewrite it into a clear, patient-friendly summary. Once both teams present their versions, the class votes on which explanation is the clearest and most suitable for a patient audience. This activity not only reinforces students' ability to switch between registers but also makes the learning process interactive, competitive and engaging.

## **6. Ethical considerations of using AI models in education**

Even though the integration of AI models into education offers numerous opportunities for teachers and learners, it also raises significant ethical considerations. Educators should be aware that LLMs are usually trained on unmonitored data available online, which may include mistakes, fabricated or prejudiced data therefore it is essential to carefully evaluate the generated output (Huschens et al. 3). Similarly, one of the studies on proper use of AI in education (Tang, Su 8) has identified five ethical implications: algorithmic bias and discrimination, data privacy issues, lack of transparency, decreased autonomy and academic misconduct.

In order to ensure ethical and responsible AI use, educators and students can rely on the checklist proposed by Google for Education. The first step is reviewing the generated content and verifying its accuracy. This includes fact-checking the information using reliable sources and editing it. We should also consider whether we have the appropriate knowledge necessary to determine if the output is correct. AI use should also be disclosed in accordance with the educational institution's policy or guidelines. Moreover, these guidelines should be followed with regard to privacy and security concerns, bearing in mind what type of information we input. It is also advisable to read the documents that explain how the model was trained, as well as the terms and conditions. Addressing these concerns requires a proactive approach from all those involved in the educational process. Both students and educators should be trained on how to use AI tools responsibly in order to mitigate ethical risks.

## **7. Conclusion**

In our experience, using AI tools in material development seems to be an effective method for designing engaging activities for practicing register-switching and improving students' communication skills. Another significant benefit is AI's ability to substantially reduce lesson planning time for teachers while still providing a diverse range of activities that can be easily adapted to learners' individual needs.

The findings of this study have several important implications for teaching medical English. AI tools offer possibilities to quickly generate contextually appropriate materials for register-switching so teachers can help students overcome a gap in medical training, which often provides them with substantial medical terminology, but lacks practice on adapting their communication to different audiences. Additionally, AI tools could be used to design practice activities for other challenging aspects of medical communication, such as breaking bad news or discussing informed consent, effectively preparing students for internships and residency.

Even though AI technologies can be quite beneficial, their implementation requires acquiring new skills such as prompt engineering and careful ethical considerations. Educators interested in implementing similar AI-assisted approaches should become familiar with basic prompting strategies and gradually experiment with more complex instructions. Furthermore, it is crucial to evaluate AI-generated content and cooperate with medical experts to ensure relevance and accuracy. Institutions should also consider offering professional development programs that would familiarize teachers with the technical aspects of using AI and pedagogical considerations for integrating AI tools in the existing curriculum.

Besides general students' experiences and attitudes to using AI-generated activities for learning and practicing English, future research should address other specific areas. The comparison of different AI models (Claude, Chat GPT, Gemini) in generating pedagogical materials could provide insight into optimal tool selection. Research could also focus on examining students' register-switching abilities before and after engaging in targeted AI-generated activities and in that way examine empirical evidence of learning outcomes.

One limitation of our study is that only one language model was used to generate activities, so no comparison could be made with other models. However, our primary focus was on gaining insight into AI's general capabilities for designing activities based on specific prompts rather than model comparison. Moreover, since we concentrated on the activities themselves, we did not collect empirical data on students' outcomes in this research, which represents an important area for future research.

### **Works Cited**

- Allen, Katherine A. et al. "Jargon Be Gone – Patient Preference in Doctor Communication." *Journal of Patient Experience* 10, (2023): 1-5. <https://doi.org/10.1177/23743735231158942>.
- Belcic, Ivan, Cole Stryker. "Claude AI." *Ibm.com*, 24 Sept. 2024, [www.ibm.com/think/topics/claude-ai](http://www.ibm.com/think/topics/claude-ai). Accessed 17 Apr. 2025.

- Bond, Melissa et al. “A Meta Systematic Review of Artificial Intelligence in Higher Education: A Call for Increased Ethics, Collaboration, and Rigour.” *International Journal of Educational Technology in Higher Education* 21(4), (2024): 1-41.
- Bsharat, Sondos Mahmud, Aidar Myrzakhan, Zhiqiang Shen. “Principled Instructions Are All You Need for Questioning Llama-1/2, Gpt-3.5/4.” *ArXiv*. (2023): 1-26. <https://arxiv.org/abs/2312.16171>
- Buchanan, Christine et al. “Predicted Influences of Artificial Intelligence on Nursing Education: Scoping Review.” *JMIR Nursing* 4(1), (2021). e23933. <https://doi.org/10.2196/23933>
- Castro, Cesar M et al. “Babel Babble: Physicians' Use of Unclearified Medical Jargon with Patients.” *American Journal of Health Behavior* 31(1), (2007): 85-95. <https://doi.org/10.5555/ajhb.2007.31.suppl.S85>
- Chapman, Kristina et al. “Lay Understanding of Terms Used in Cancer Consultations.” *Psycho-oncology* 12(6), (2003): 557-566. <https://doi.org/10.1002/pon.673>
- Doyle, Gerardine, et al. “The European Health Literacy Survey: Results from Ireland.” *ResearchGate*, unknown, Apr. 2012. [www.researchgate.net/publication/281629581\\_The\\_European\\_Health\\_Literacy\\_Survey\\_Results\\_from\\_Ireland](http://www.researchgate.net/publication/281629581_The_European_Health_Literacy_Survey_Results_from_Ireland). Accessed 10 Apr. 2025.
- Farrell, Michael et al. “Pediatric Residents' Use of Jargon During Counseling About Newborn Genetic Screening Results.” *Pediatrics* 122(2), (2008): 243-249. <https://doi.org/10.1542/peds.2007-2160>
- Fitzpatrick, Daniel. “40 Proven Prompts for AI Educators (third edition).” 2023. [https://issuu.com/theaieducator/docs/13\\_ways\\_chatgpt\\_can\\_reduce\\_teacher\\_workload\\_1](https://issuu.com/theaieducator/docs/13_ways_chatgpt_can_reduce_teacher_workload_1). Accessed 10 Apr. 2025
- Google for Education. *Responsibility Checklist*, 2024, <https://drive.google.com/file/d1wnp4wlmfi9S84-3fgV60gsFdb9QSVjh/view>. Accessed 17 Apr. 2025
- Gotti, Maurizio. *Investigating Specialized Discourse*. Berlin: Peter Lang, 2011.
- Gotlieb, Rachael et al. “Accuracy in Patient Understanding of Common Medical Phrases.” *JAMA Network Open* 5(11), (2022), e2242972.
- Halliday, Michael A. K. *Language as Social Semiotic*. London: Edward Arnold Ltd. 1978.
- Hause, Emily et al. “What's in a Name? Laypeople's Understanding of Medical Roles and Titles.” *Journal of Hospital Medicine* 17(12), (2022): 956-960. <https://doi.org/10.1002/jhm.12971>
- Howard, Tera et al. “Doctor Talk: Physicians' Use of Clear Verbal Communication.” *Journal of Health Communication* 18(8), (2013): 991-1001. <https://doi.org/10.1080/10810730.2012.75739>

- Huschens, Martin, Martin Briesch, Dominik Sobania, Franz Rothlauf. “Do You Trust ChatGPT? – Perceived Credibility of Human and AI-Generated Content.” arXiv:2309.02524, arXiv, 5 Sept. 2023. *arXiv.org*, <https://doi.org/10.48550/arXiv.2309.02524>.
- Knoth, Nils, Antonia Tolzin, Andreas Janson, Jan Marco Leimeister. “AI Literacy and Its Implications for Prompt Engineering Strategies.” *Computers and Education: Artificial Intelligence* 6(100225), (2024). <https://doi.org/10.1016/j.caeai.2024.100225>
- LeBlanc, Thomas W. et al. “Patient Understanding of Medical Jargon: a Survey Study of U.S. Medical Students.” *Patient Education and Counseling* 95(2), (2014): 238-42. <https://doi.org/10.1016/j.pec.2014.01.014>
- Long, Duri, Brian Magerko. “What is AI Literacy? Competencies and Design Considerations” *CHI 2020 proceedings*. Eds. Regina Bernhaupt et al., (2020): 1-16.
- O’Connell, Rachel L. et al. “Patients’ Understanding of Medical Terminology Used in the Breast Clinic.” *The Breast* 22(5), (2013): 836-838. <https://doi.org/10.1016/j.breast.2013.02.019>.
- Peckham, T. J. “Doctor, Have I Got a Fracture or a Break?” *Injury* 25(4), (1994): 221-222. [https://doi.org/10.1016/0020-1383\(94\)90065-5](https://doi.org/10.1016/0020-1383(94)90065-5).
- Pitt, Michael B., Marissa A. Hendrickson. “Eradicating Jargon-Oblivion –A Proposed Classification System of Medical Jargon.” *Journal of general internal medicine* 35(6), (2019): 1861-1864. <https://doi.org/10.1007/s11606-019-05526-1>
- “Prompt Library.” *AI for Education*, [www.aiforeducation.io/prompt-library](http://www.aiforeducation.io/prompt-library). Accessed 2 Apr. 2025.
- Royal College of General Practitioners. Health Literacy Report from an RCGP-Led Health Literacy Workshop. 2014.
- Rowlands, Gillian et al. “A Mismatch between Population Health Literacy and the Complexity of Health Information: An Observational Study.” *British Journal of General Practice* 65(635), (2015): 379-386. <https://doi.org/10.3399/bjgp15X685285>
- Tang, Lin, Yu-Sheng Su. “Ethical Implications and Principles of Using Artificial Intelligence Models in the Classroom: A Systematic Literature Review.” *International Journal of Interactive Multimedia and Artificial Intelligence* 8(5), (2024). <https://doi.org/10.9781/ijimai.2024.02.010>.
- Williams, Nigel, Jane Ogden. “The Impact of Matching the Patient’s Vocabulary: A Randomized Control Trial.” *Family Practice* 21(6), (2004): 630-635. <https://doi.org/10.1093/fampra/cmh610>

Žmegač Horvat, Aleksandra. Information in a letter to the author from  
Aleksandra Žmegač Horvat, senior lecturer (Medical English),  
University of Zagreb, School of Medicine. April 10, 2010.

AI Sources

Claude, <https://claude.ai/new>

Microsoft Copilot,

<https://copilot.microsoft.com/chats/4L9TfF5EkCr98HW3RDYSi>