SUPPLEMENTARY MATERIAL

Large Language Models: Pioneering New Educational Frontiers in Childhood Myopia

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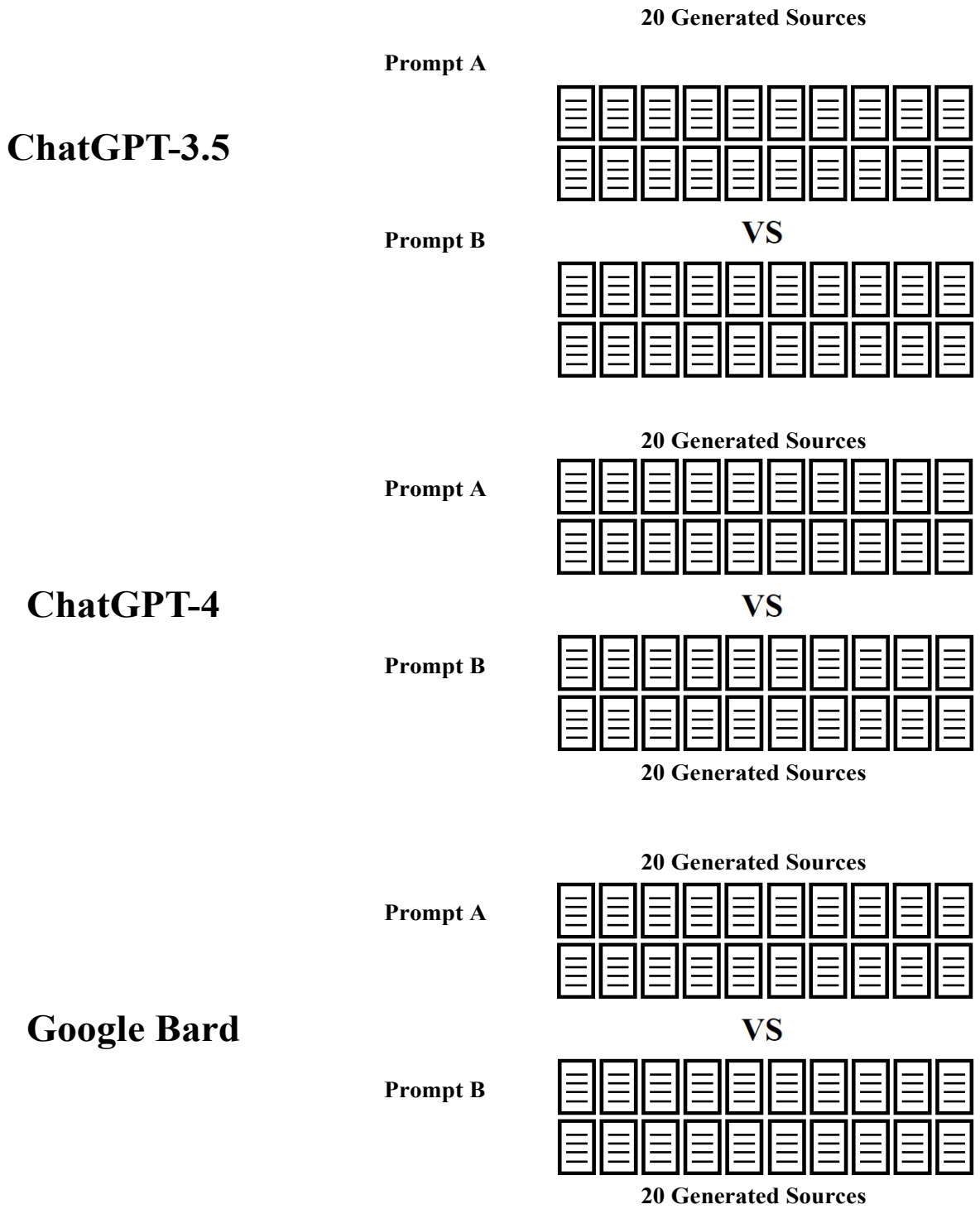
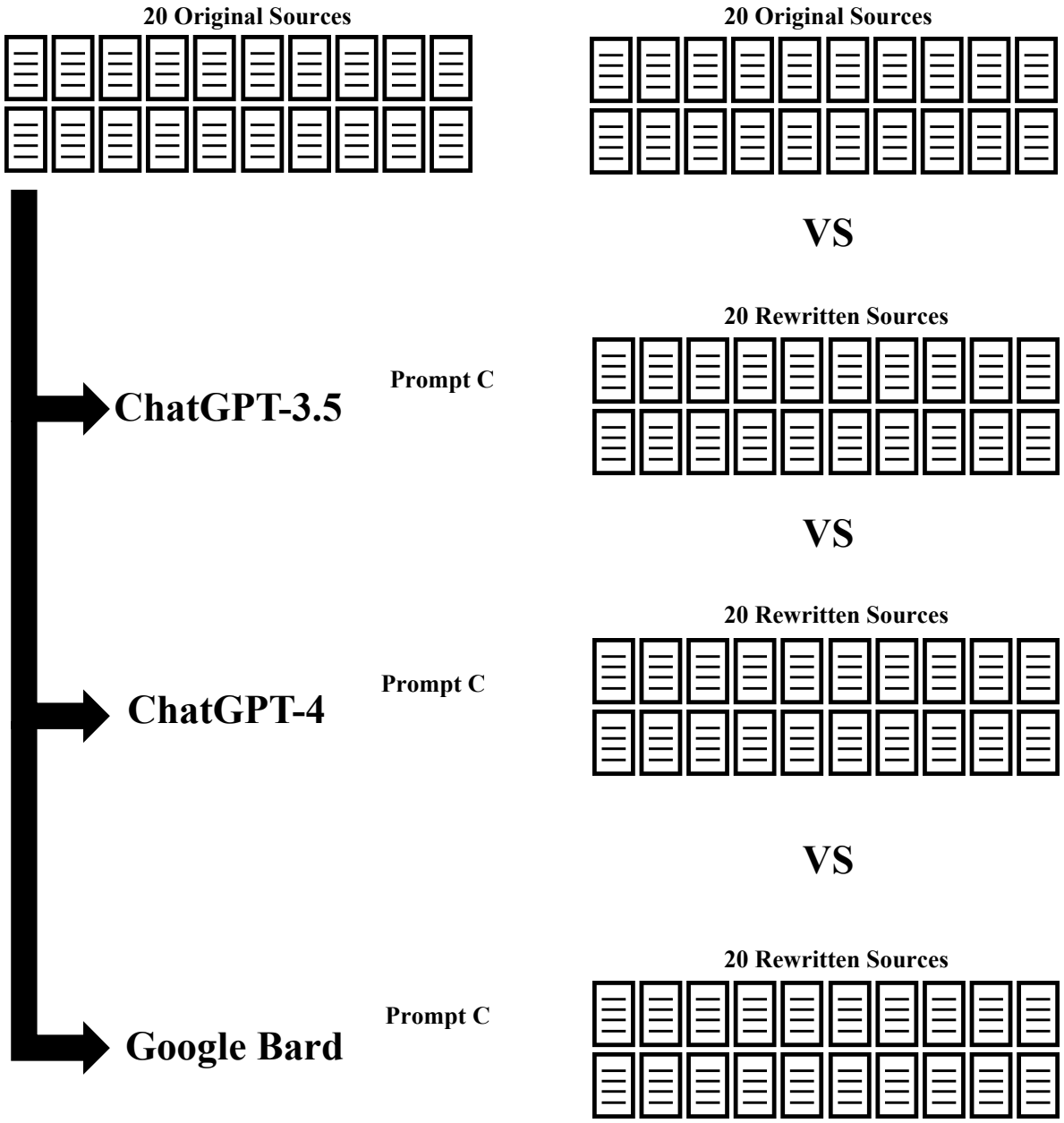
Supplemental 1:

Visualization of Methods for Comparison of Generated Patient Education Materials



Visualization of Methods for Comparison of Rewritten Patient Education Materials



Supplemental -2

The control prompt (Prompt A), and a modifier statement + control prompt (Prompt B) used in the current study

Prompt A

" Write educational material on childhood myopia that the average American can easily understand."

Prompt B

Given the average American reads at a 6th-grade reading level, using the FKGL readability formula, could you write educational material on childhood myopia that the average American can easily understand.?

= Control Prompt

= Modifier Statement

Prompt C

Since Patient Education Materials (PEMs) are recommended to be written at a sixth grade reading level based on the FKGL readability formula, could you rewrite the following text to match this level? Insert the text (…).

Supplement-3A

DISCERN Instrument

Item #	Item	Response Options
1	Are the aims clear?	1=No, 3=Partially, 5=Yes
2	Does it achieve its aims?	1=No, 3=Partially, 5=Yes
3	Is it relevant?	1=No, 3=Partially, 5=Yes
4	Is it clear what sources of information were used to compile the publication (other than the author or the producer)?	1=No, 3=Partially, 5=Yes
5	Is it clear when the information used or reported in the publication was produced?	1=No, 3=Partially, 5=Yes
6	Is it balanced & unbiased?	1=No, 3=Partially, 5=Yes
7	Does it provide details of additional sources of support and information?	1=No, 3=Partially, 5=Yes
8	Does it refer to areas of uncertainty?	1=No, 3=Partially, 5=Yes
9	Does it describe how each treatment works?	1=No, 3=Partially, 5=Yes
10	Does it describe the benefit of each treatment?	1=No, 3=Partially, 5=Yes
11	Does it describe the risks of each treatment?	1=No, 3=Partially, 5=Yes
12	Does it describe what would happen if no treatment is used?	1=No, 3=Partially, 5=Yes
13	Does it describe how the treatment choices affect overall quality of life?	1=No, 3=Partially, 5=Yes
14	Is it clear that there may be more than one possible treatment choice?	1=No, 3=Partially, 5=Yes
15	Does it provide support for shared decision making?	1=No, 3=Partially, 5=Yes
16	Based on the answers to all of the above questions, rate the overall quality of the publication as a source of information about treatment choices	1=Low, 3=Moderate, 5=High

RATING THIS QUESTION:

Low **Moderate** **High**

Serious or not serious shortcomings | potentially important but shortcomings | Minimal extensive shortcomings

DISCERN: a questionnaire for judging the quality of written consumer health information

SECTION 1: IS THE PUBLICATION RELIABLE?

1. **Are the aims clear?**

RATING THIS QUESTION

No		Partially		Yes
1[+]	2	3	4	5

***Hint**: Look for a clear indication at the beginning of the publication of*

* *what it is about*
* *what it is meant to cover (and what topics are meant to be excluded)*
* *who might find it useful*

[+]Rating note: if the answer to Question 1 is No, go directly to Question 3.

2. **Does it achieve its aims?**

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

***Hint**: Consider whether the publication provides the information it aimed to as outlined in Question 1*

3. **Is it relevant?**

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

Hint: *Consider whether*

* *the publication addresses the questions that readers might ask*

* *recommendations and suggestions concerning treatment choices are realistic or appropriate*

4. **Is it clear what sources of information were used to compile the publication (other than the author or producer)?**

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

Hint:

* *check whether the main claims or statements made about treatment choices are accompanied by a reference to the sources used as evidence, e.g. a research study or expert opinion*

* *look for a means of checking the sources used such as a bibliography/reference list or the addresses of the experts or organisations quoted, or external links to the online sources*

Rating note: in order to score a full "5", the publication should fulfil both hints. Lists of additional sources of support and information (Question 7) are not necessarily sources of evidence for the current publication

5. **Is it clear when the information used or reported in the publication was produced?**

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

Hint: *Look for*

* *dates of the main sources of information used to compile the publication*

* *date of any revisions of the publication (but not dates of reprinting)*

* *date of publication (copyright date)*

Rating note: in order to score a full "5" the dates relating to the first hint should be found

6. Is it balanced and unbiased?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

***Hint**: look for:*

* *a clear indication of whether the publication is written from a personal or objective perspective*

* *evidence that a range of sources of information was used to compile the publication, e.g. more than one research study or expert*

* *evidence of an external assessment of the publication*

Be wary if:

* *the publication focuses on the advantages or disadvantages of one particular treatment choice without reference to other possible choices*

* *the publication relies primarily on evidence from single cases (which may not be typical of people with this condition or of responses to a particular treatment)*

* *the information is presented in a sensational, emotive or alarmist way*

7. Does it provide details of additional sources of support and information?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

***Hint**: Look for suggestions for further reading or for details of other organisations providing advice and information about the condition and treatment choices*

8. Does it refer to areas of uncertainty?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

Hint:

* *Look for discussion of the gaps in knowledge or differences in expert opinion concerning treatment choices*

* *Be wary if the publication implies that a treatment choice affects everyone in the same way, e.g. 100% success rate with a particular treatment*

SECTION 2: HOW GOOD IS THE QUALITY OF INFORMATION ON TREATMENT CHOICES?

N.B, The questions apply to the treatment (or treatments) described *in the publication*. Self-care is considered a form of treatment throughout this section.

9. Does it describe how each treatment works?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

Hint: *Look for a description of how a treatment acts on the body to achieve its effect*

10. Does it describe the benefits of each treatment?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

Hint: *Benefits can include controlling or getting rid of symptoms, preventing recurrence of the condition and eliminating the condition, both short-term and long-term*

11. Does it describe the risks of each treatment?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

Hint: *Risks can include side-effects, complications and adverse reactions to treatment both short-term and long-term*

12. Does it describe what would happen if no treatment is used?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

***Hint**: Look for a description of the risks and benefits of postponing treatment, of watchful waiting (i.e. monitoring how the condition progresses without treatment) or of permanently forgoing treatment*

13. Does it describe how the treatment choices affect overall quality of life?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

***Hint**: Look for*

* *description of the effects of the treatment choices on day-to-day activity*
* *description of the effects of the treatment choices on relationships with family, friends and carers*

14. Is it clear that there may be more than one possible treatment choice?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

***Hint**: Look for:*

* *a description of who is most likely to benefit from each treatment choice mentioned, and under what circumstances*

* *suggestions of alternatives to consider or investigate further (including choices not fully described in the publication) before deciding whether to select or reject a particular treatment choice*

15. Does it provide support for shared decision-making?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

***Hint**: look for suggestions of things to discuss with family, friends, doctors or other health professionals concerning treatment choices*

SECTION 3 OVERALL RATING OF THE PUBLICATION

16. Based on the answers to all of the above questions, rate the overall quality of the publication as a source of information about treatment choices:

RATING THIS QUESTION

Low	Moderate	High
Serious or extensive shortcomings	Potentially important but not serious shortcomings	Minimal shortcomings

1 2 3 4 5

Disclaimer

DISCERN is a general, educational tool designed primarily to enable patients (or health consumers), their carers and advisers to select and use written information on treatment choices as part of good quality healthcare. The DISCERN instrument and any information selected using DISCERN is not intended to be and must not be used as a substitute for advice from a qualified health professional. The individuals, organisations and publishers involved in DISCERN accept no responsibility whatsoever for any claims, loss, damage or injury resulting from its improper use, including use in substitution for advice from a qualified health professional.

Supplemental-3B

PEMAT Question Items

PEMAT: Understandability		
Item #	Item	Response Options
Topic: Content		
1	The material makes its purpose completely evident.	Disagree=0, Agree=1
2	The material does not include information or content that distracts from its purpose.	Disagree=0, Agree=1
Topic: Word Choice & Style		
3	The material uses common, everyday language.	Disagree=0, Agree=1
4	Medical terms are used only to familiarize audience with the terms. When used, medical terms are defined.	Disagree=0, Agree=1
5	The material uses the active voice.	Disagree=0, Agree=1
Topic: Use of Numbers		
6	Numbers appearing in the material are clear and easy to understand.	Disagree=0, Agree=1, No numbers=N/A
7	The material does not expect the user to perform calculations.	Disagree=0, Agree=1
Topic: Organization		
8	The material breaks or "chunks" information into short sections.	Disagree=0, Agree=1, Very short material=N/A
9	The material's sections have informative headers.	Disagree=0, Agree=1, Very short material=N/A
10	The material presents information in a logical sequence.	Disagree=0, Agree=1
11	The material provides a summary.	Disagree=0, Agree=1, Very short material=N/A
Topic: Layout & Design		
12	The material uses visual cues (e.g., arrows, boxes, bullets, bold, larger font, highlighting) to draw attention to key points.	Disagree=0, Agree=1, Video=N/A
Topic: Use of Visual Aids		
15	The material uses visual aids whenever they could make content more easily understood (e.g., illustration of healthy portion size).	Disagree=0, Agree=1
16	The material's visual aids reinforce rather than distract from the content.	Disagree=0, Agree=1, No visual aids=N/A
17	The material's visual aids have clear titles or captions.	Disagree=0, Agree=1, No visual aids=N/A
18	The material uses illustrations and photographs that are clear and uncluttered.	Disagree=0, Agree=1, No visual aids=N/A
19	The material uses simple tables with short and clear row and column headings.	Disagree=0, Agree=1, No tables=N/A
PEMAT: Actionability		
Item #	Item	Response Options
20	The material clearly identifies at least one action the user can take.	Disagree=0, Agree=1
21	The material addresses the user directly when describing actions.	Disagree=0, Agree=1
22	The material breaks down any action into manageable, explicit steps.	Disagree=0, Agree=1
23	The material provides a tangible tool (e.g., menu planners, checklists) whenever it could help the user take action.	Disagree=0, Agree=1
24	The material provides simple instructions or examples of how to perform calculations.	Disagree=0, Agree=1, No calculations=N/A
25	The material explains how to use the charts, graphs, tables, or diagrams to take actions.	Disagree=0, Agree=1, No charts, graphs, tables, or diagrams=N/A
26	The material uses visual aids whenever they could make it easier to act on the instructions.	Disagree=0, Agree=1

PEMAT = Patient Education Materials Assessment Tool.

Source: https://www.ahrq.gov/health-literacy/patient-education/pemat.html