

Using AI to Ensure Alignment in Research Proposal

Author:
Chin Sook Fui

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What is Constructive Alignment?



Constructive Alignment in Education

Learning objectives

What should the student know or be able to do?



A principle in educational design based on the idea that students actively construct their understanding through activities designed to achieve specific learning goals, with assessments reflecting that understanding.

Assessment

How are knowledge and abilities measured?



Learning activities

How does the student reach the final level?



What are the components in Research Proposal (Chapter 1)?

- 1.1 Introduction
- 1.2 Research Background
- 1.3 Research Problems
- 1.4 Research Objectives
- 1.5 Research Questions
- 1.6 Research Hypotheses
- 1.7 Significance of the Study
- 1.8 Limitations of the Study
- 1.9 Definition of Terms
- 1.10 Conclusion

What are the **KEY components
that must be **aligned**?**

Constructive Alignment in Chapter 1

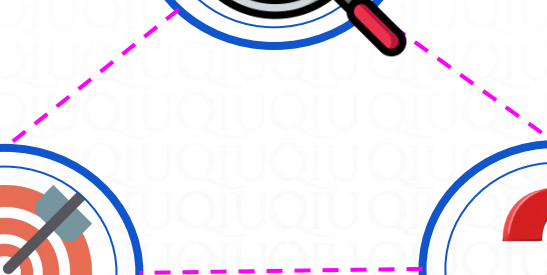
Research Problem



**Research
Objective**



**Research
Question**



No.	Research Problem	Research Objective	Research Question
1	Students in rural schools have low performance in <u>reading comprehension</u> .	To investigate the <u>factors</u> affecting <u>reading comprehension</u> in rural schools.	What are the <u>factors</u> influence reading comprehension among students in rural schools?
2	Many teachers <u>struggle</u> to use ICT tools effectively in the classroom.	To examine the <u>barriers</u> teachers faced in using ICT in classroom teaching.	What are the <u>major barriers</u> faced by teachers in using ICT in classroom teaching?
3	Students show <u>low motivation</u> in science subjects.	To identify the <u>factors</u> that influence student <u>motivation</u> in science subjects.	What are the <u>factors</u> influence students' motivation in science subjects?

NO.	Research Problem	Research Objective	Research Question	Misaligned Element
1	Many high school students are failing to meet national reading standards.	To explore students' motivation in English literature classes.	What factors influence student motivation in English literature?	<p>Problem</p> <p>– Focus is on <i>reading performance</i>, but the objective/question shift to <i>motivation</i>.</p>
2	Teachers face difficulties managing time during online instruction.	To examine student satisfaction with e-learning platforms.	What is the level of student satisfaction with current online platforms?	<p>Problem</p> <p>– Starts with <i>teacher challenges</i>, but rest focuses on <i>students</i>.</p>

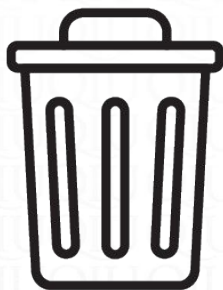
No.	Research Problem	Research Objective	Research Question	Misaligned Element
1	Student absenteeism is a growing issue in rural primary schools.	To assess teacher training programs on differentiated instruction.	How do teachers perceive training on differentiated instruction?	Objective – Does not address absenteeism at all.
2	Students show low interest in STEM subjects in senior high school.	To evaluate the effect of school leadership on teacher morale.	How does school leadership affect teacher morale in STEM departments?	Objective – Focused on <i>teachers</i> , not the original issue of <i>student interest</i> .

No.	Research Problem	Research Objective	Research Question	Misaligned Element
1	University students report low confidence in academic writing.	To explore strategies used by students to improve academic writing.	What is the effect of plagiarism-detection software on writing quality?	<p>Question – Focus is on software tools, not student strategies or confidence.</p>
2	Teachers face challenges in conducting formative assessments.	To investigate challenges faced by teachers in conducting formative assessments.	What are students' attitudes toward pop quizzes and ungraded tasks?	<p>Question – Switches focus to <i>students</i> rather than <i>teachers</i>.</p>

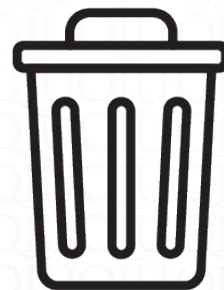
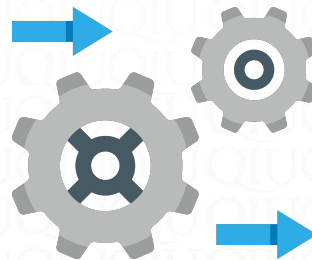
Three AI Chatbots You Must Have in Your Toolbox

1. [ChatGPT](#)
2. [Gemini](#)
3. [Perplexity](#)

Mastering Prompt Writing: **Avoid GIGO**



Garbage In



Garbage Out

ANATOMY OF CHATGPT PROMPT



WHO

Give ChatGPT a persona, i.e., a specific role to play.

- I want you to act as a tour guide.
- Act as an expert consultant
- Act as an experienced criminal lawyer
- Act as a wise philosopher
- Act as a copywriter



TASK

State the task clearly with action verbs

- Your task is to write a White Paper entitled...
- Your task is to advise the Board about...
- Your task is to help the manager to analyse...
- Your task is to create the best marketing plan...



CONTEXT

ChatGPT can generate a relevant answer with enough context for your question

- ...for a marketing team in a large corporate
- ...in Malaysia's higher educational institutions
- ...the importance of productivity for small businesses.



INFO

Provide adequate information

- I am a 26-year-old female looking to lose 6 kg in 3 months. Create a 1700 calories halal diet plan for two weeks. Do not give me non-vegetarian options.



EXAMPLE

Using examples in prompts can help you get the desired responses (in the format you want)

- Here is a book review of <example book>
"<example book review>"
Now write a similar book review for '<book name>'



REFINE

Ask ChatGPT to rewrite, elaborate, add new information

- Expand the write-up by adding (info, facts, data)
- Present in table format and add...
- Give 10 more examples

The 6-Step Prompt Checklist

- [task]** Clearly define your end goal
- [context]** Tailor your responses
- [examples]** Mimic style, structure, tone
- [persona]** Embody a specific expertise
- [format]** Bullet points, markdown, table
- [tone]** Add layer of emotional context

More important



Less important

Mastering Prompt Writing

Tip #1

CRAFT FORMULA

Writing Good AI Prompt



CONTEXT

What's the background or situation?

Example

I'm designing a short course for academic staff on using AI in classroom assessment.



ROLE

Who should the AI "be" or write as?

You're a training consultant .



ACTION

What do you want it to do?

Suggest a 2-hour workshop outline.



FORMAT

What should the output look like?

It should be in bullet points.



tone

What tone or style should it use?

Use a professional and formal style.

C

CONTEXT

What's the background or situation?

I'm drafting a research proposal. My research problem is: "Teachers face difficulties managing time during online instruction."

R

ROLE

Who should the AI "be" or write as?

The research objective is: "To examine student satisfaction with e-learning platforms."

The research question is: "What are teachers' attitudes toward pop quizzes and ungraded tasks?"

A

ACTION

What do you want it to do?

You are an educational research advisor. Check the constructive alignment.

F

FORMAT

What should the output look like?

Present your answer in bullet points with a brief explanation.

T

tone

What tone or style should it use?

Use an academic and concise tone.

How does the output look like?



Mastering Prompt Writing

Tip #2

Ask ChatGPT to Critique and Improve Your Prompt

If you don't want to strain yourself to write a comprehensive prompt, this is a handy trick.

- First, write the draft of your prompt casually.
- Next, ask ChatGPT to critique and suggest areas for improvement.
- Provide the information as suggested by ChatGPT (optional).
- Ask ChatGPT to write the improved version of the prompt.

Example

Act as a harsh critic. Scrutinise this prompt:

I'm drafting a research proposal. My research problem is: "Teachers face difficulties managing time during online instruction."

The research objective is: "To examine student satisfaction with e-learning platforms."

The research question is: "What are teachers' attitudes toward pop quizzes and ungraded tasks?" Check the constructive alignment.

Provide critiques and suggestions for improvement. Write an improved prompt by incorporating your suggestion.

Improved Prompt

You are an experienced educational research advisor and critic. I'm drafting a research proposal and need your help reviewing the internal coherence of its core elements.

- "Research Problem: "Teachers face difficulties managing time during online instruction.""
- "Research Objective: "To examine student satisfaction with e-learning platforms.""
- "Research Question: "What are teachers' attitudes toward pop quizzes and ungraded tasks?""

Please do the following:

1. "Critically evaluate each element (problem, objective, question) for clarity and relevance."
2. "Identify any misalignments between them and explain why they are problematic."
3. "Suggest improved, aligned versions of the objective and question based on the problem."
4. "Present your analysis and revisions in a clear, structured format (e.g., bullet points or table)."

Use a formal, academic tone and be direct in your critique.

Mastering Prompt Writing

Tip #3

Making ChatGPT's Output More Concise: Asking the Right Questions

ChatGPT thrives on information, right?

But how do you know when you've given it enough information?

ChatGPT will almost always assume that it has the requisite information that it needs to complete your request, *even if it doesn't*.

So, here's the catch—only ChatGPT knows what it doesn't know.

So why not ask it?

Remember this:

ChatGPT knows what it doesn't know.

You DON'T know what ChatGPT doesn't know because **it doesn't tell you.**

ChatGPT will output something that **seems** good, even if it doesn't have the information it needs.

So why not force it to gather info it doesn't know from the only person who does?

Yes, from YOU!

To use this strategy:

1. First, craft your prompt as usual (include the persona, task, context, and as much information as possible).

1. Then, add this part to your prompt:

“Before you start, please ask me any questions you have about this so I can give you more context. Be extremely comprehensive.”

Can you name me the THREE(3) Tips mentioned?

(1) **C**RRAFT Formula

(2) **C**ritique

(3) **Q**uestion



Activity

Write a prompt to check the alignment of YOUR research problem(s), research objective(s) and research question(s) by using:

- (1) CRAFT Formula
- (2) Critique
- (3) Question

**What have we
LEARNED?**



Moving forwards

Research Title

Research
Background

ALIGNMENT

Significance of
the Study

Research
Instrument

Research
Methodology



- Draft a revised Chapter 1/ Research Proposal based on **alignment** principles.
- How will you ensure the **alignment** among the key components?
- How to check the **alignment** with or without AI support?

Moving Forward

Apply learning in real-world contexts.

What Have We Learned?

Consolidate learning and make meaning.

Activity: Check the Alignment

To extend learning through application.



Kath Murdoch (2020)

What is Constructive Alignment?

To spark curiosity and activate prior knowledge.

Constructive Alignment in Teaching & Chapter 1 of Research Proposal

To build understanding and explore the big ideas.

Mastering AI Prompts (3 Tips)

To deepen understanding and organize ideas.

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