

FABLE: A Critical Thought Tutor

Fallacy Awareness and Bias Learning Environment

Landon Taylor


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We need to talk about critical thinking.

People make **huge** decisions
based on flawed reasoning.


Confirmation Bias

Should I quit my job?

 U.S. News
<https://money.usnews.com> > money > blogs > outside-voices-careers > articles > reasons-to-quit-y... ***

15 Good Reasons to Quit Your Job | Careers | U.S. News


Jun 18, 2024 · Life is too short to stay at a **job** that is not serving you anymore, but that does not mean you should **quit** without thinking things through. According to a Paychex survey of 825 employees who quit ...

 Indeed
<https://www.indeed.com> > career-advice > career-development > should-i-quit-my-job ***


Should I Quit My Job? 10 Common Reasons To Resign

Jan 28, 2025 · 10 good reasons to **quit your job** Quitting your **job** is a personal and potentially difficult decision. Whatever your reason, leaving a position is never a bad decision if it makes you feel happier, healthier or more aligned with your goals or values. **Here** are just a few common reasons **why** quitting...


▷ Videos




5 Signs You Should Quit Your Job ASAP!
267K views
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7 Signs You Should QUIT Your Job
97K views
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How To (Professionally) Quit Your Job
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I... QUIT
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 U.S. News
<https://money.usnews.com> › investing › articles › stocks-warren-buffett-just-bought ***

10 Stocks Warren Buffett Just Bought and Sold - U.S. News


Feb 19, 2025 · **Buffett** first invested in Bank of America back in 2011 during the European debt crisis, but he has exited or dialed back exposure to several bank **stocks** in recent years.

HEI \$0.01 per share on stocks & ETF trades, \$0.75 option contracts (\$1 for 1st...	ULTA \$0.01 per share on stocks & ETF trades, \$0.75 option contracts (\$1 for 1st...
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 24/7 Wall St.
<https://247wallst.com> › investing › 2025 › 04 › 03 › this-new-warren-buffett-stock-is-up-25 ***

This New Warren Buffett Stock is Up 25% - 24/7 Wall St.

7 days ago · **Warren Buffett** and Berkshire Hathaway (NYSE:BRK-B) have been quite notable sellers of **stocks** in recent quarters. With the **stock** market correcting for Spring and the potential for things to worsen ...

 The Motley Fool
<https://www.fool.com> › investing › 2025 › 03 › 29 › is-warren-buffett-buying-stocks-right-now-her... ***

Is Warren Buffett Buying Stocks Right Now? Here's What He Jus...

Mar 29, 2025 · When **Warren Buffett** is picking **stocks**, he says he's more focused on **buying** excellent businesses at fair prices than he is on getting bargains. Although **stock** prices have dropped in 2025 ...

Appeal to Authority
What stocks to buy?

Appeal to Emotion
Pet Adoption



"Keep rescuing animals.
You may lose your mind,
but you will surely
find your soul."

Precious kittens are at risk.
The stakes are too high.

Surely public schools are teaching critical thinking skills, right?

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WRONG!

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WRONG!

Well, mostly wrong.

Teaching approaches tend to focus on subject content rather than [Critical Thinking] development.¹

¹Nada J. Alsaleh. "Teaching Critical Thinking Skills: Literature Review". In: *Turkish Online Journal of Educational Technology - TOJET* 19.1 (Jan. 2020), pp. 21–39. URL: <https://eric.ed.gov/?id=EJ1239945> (visited on 04/10/2025).

There's got to be a decent ITS to teach critical thinking skills!

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WRONG!

It's mostly just textbooks and Quizlet,
and some *formal* reasoning tutors.

What's the problem with textbooks and Quizlet?

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What's the problem with textbooks and Quizlet?

They are boring as hell.

Students don't engage.

I looked to them for inspiration for my project
and I fell asleep at my desk.

You know what isn't boring?

You know what isn't boring?

Stories about saving our galaxy from evil space aliens.

Introducing: FABLE.

Fallacy

Awareness and

Bias

Learning

Environment

Please select or create a user profile.

? Your response: █

> Tasouva

Yocirei

Create New

[↑: to move, enter to select, type to filter]

Progress Report for Tasouva:

Unit	Mastery
100% Introduction	
100% Logic: Logical Operations	
100% Logic: Boolean Algebra	
100% Fallacy: Formal: Propositional Fallacy	
100% Fallacy: Formal: Probabilistic Fallacy	
33% Fallacy: Formal: Syllogistic Fallacy	
67% Fallacy: Formal: Quantificational Fallacy	
67% Fallacy: Informal: Post Hoc Ergo Propter Hoc	
67% Fallacy: Informal: Slippery Slope	
67% Fallacy: Informal: Texas Sharpshooter	
67% Fallacy: Informal: Hasty Generalization	
67% Fallacy: Informal: Over Generalization	
50% Fallacy: Informal: No True Scotsman	
67% Fallacy: Informal: Quoting Out Of Context	
50% Fallacy: Informal: Ad Hominem	
67% Fallacy: Informal: Tu Quoque	
50% Fallacy: Informal: Bandwagon	
67% Fallacy: Informal: Straw Man	
100% Fallacy: Informal: Ad Ignorantiam	
50% Fallacy: Informal: Special Pleading	
50% Fallacy: Informal: Begging The Question	
33% Bias: Confirmation Bias	
67% Bias: The Halo Effect	
33% Bias: Fundamental Attribution Error	
67% Bias: In Group Bias	
33% Bias: Dunning Kruger Effect	
67% Bias: Barnum Effect	
75% Appraisal: Conversion to Propositional	
67% Appraisal: Counter Argument	

Press enter to continue

Welcome to the Galactic Academy

Press enter to continue

Greetings, Cadet! Welcome to the Galactic Academy. As you know, our galaxy is in grave danger. We need brave souls like you to help us navigate the cosmos and communicate with alien species. Your training begins now!

Press enter to continue

We have been stuck in space for a long time, and we need to learn how to communicate with aliens. You see, they are capable of extremely precise logical thinking, and we need intergalactic diplomats who can reason with them. This is where you come in!

Press enter to continue

Two-Loop Model

FABLE follows a 2-loop model. The outer loop selects “units” (i.e., single fallacies, biases, or techniques), and the inner loop guides a student through lesson content, including reading (1 paragraph at a time) and quiz questions.

Greetings, human! What is the answer to the ultimate question of life, the universe, and everything?
(You can get a hint if you need it)

? Your response: █

> 42
To boldly go where no one has gone before
To explore the mysteries of the universe
Get hint

[↑: to move, enter to select, type to filter]

Scaffolding

- Levels of hints to support learners
 - 1 Re-phrase something in the question
 - 2 Remind of previous knowledge
 - 3 Bottom-out with the answer, re-attempt the unit later
- Question types increase in complexity during learning
 - 1 Multiple-Choice Questions
 - 2 Multi-Select Questions
 - 3 Free Response (one-word answers)

How many fingers does the 9-Fingered Space Badger have?

? Please provide your input: █

Please try the question again. Here's a hint: Its name is the 9-Fingered Space Badger.

Press enter to continue

AI Techniques

- GPT generates a template for course content (text, quizzes, etc.)
 - Human verifies correctness of generated content
 - AI reduces the burden of course creation
- During learning, simple Bayesian Knowledge Tracing tracks progress
 - Students keep trying until they consistently answer questions correctly

Affective Support

- Learning Critical Thinking skills can be boring
 - Excessive theming provides small “brain breaks” to avoid fatigue
 - Interesting and realistic questions keep student attention
 - Short description followed by a quiz-based learning approach keeps students actively engaged.

The president of Planet Zog has to keep her population safe and happy. She has a lot of decisions to make, and she needs to use logical operations to help her. For example, if the weather is nice AND the streets are clean, people can go to work. If the weather is NOT nice OR the streets are covered in slime, everyone should stay home.

Press enter to continue

User Study

“It’s so dorky, I lowkey love it.”

User Study

“It’s so dorky, I lowkey love it.”
— My Wife

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“It’s so dorky, I lowkey love it.”
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“I may not actively seek it out,
but if I want to learn critical thinking,
it is better than a textbook”

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Out of 1 student, 100% reported positive learning outcomes.

Future Work

- Integrate SAT solving to automatically generate logically sound/fallacious text
- Deeper integration with the story component (i.e. use GPT for story and theme only)
- Development of an online GUI (for accessibility)

In Conclusion

- Learning Critical Thinking skills need not be boring
- FABLE uses AI techniques to help students learn and keep them engaged