

Workforce Instructor Chatbox



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INSTRUCTORS NEED ADMINISTRATIVE SUPPORT

on a Daily Basis

assessing our participants



Time Drains

Workforce instructors spend a lot of prep time grading students' assignments. After doing so, we rarely have the energy to apply metacognitive techniques and heuristics to these artifacts so to develop effective individualized learning pathways ("ILPs").

Process Frustrations

Often, students either don't know or are afraid to disclose learning obstacles. This makes it difficult to assess and offer solutions. Instructors lose the first few weeks of a class simply compiling authentic data from which to effect ILPs.

Unmet Needs

Without rich data on our class participants, we cannot expect to offer viable learning pathways for our students.

Lost Information

The **1,944** data points described next will be lost when our participants migrate to other classes we offer.

Workforce Instructors spend too much time grading student work, and too little time benefiting from the data.



Example of the Problem

- In a recent trades math class, 1,944 data points (= 24 students × 81 questions) were executed from 6 homework assigned during its first two weeks. (See Appendix A.)
- After producing an assessment database for this cohort, little time remained for the instructor to take advantage of the artifact, so to create individualized learning pathways (“ILPs”).
- Program managers could also benefit from such artifacts:
 - reaching out for explanation of poor attendance
 - referring a student for social services interventions
 - passing on a student’s evaluation to future classes the participant matriculates into at CWE, or a CWE sponsored program
 - Diverting exceptional students to higher level courses

Why no current solution exists

- Teachers require meaningful PD sessions on AI before we have the capacity to selectively and efficiently train cognitive agents to offer support developing ILPs.
- Adding additional responsibilities to already overworked and underpaid instructors and administrators is a non-starter.
- Our learning communities are alternative ecosystems to traditional youth based “academic” schools, and therefore receive less attention by researchers, instructional designers and computer experts to identify deficiencies and propose solutions.



Well designed cognitive agents offer instructors opportunities to quickly generate ILPs



What AI Tool?

The cognitive agent prompts will be iterated upon in an OpenAI account. The 3-tier assessment templates described next and instructor access to the respective cognitive agents will reside in CWE's Microsoft.



How Will It Work?

Instructors can pour student assessments from our personal computers into CWE's 3-tier templates, interact with a cognitive agent, download generative metacognitive analysis based upon predefined personal heuristics, and then sever the connection.



Why This Solution?

I have an OpenAI account, CWE a Microsoft license, so the only significant financial investment should CWE paying our instructors for PD and training the cognitive agents.

Planning for UFT-CWE Symposium 2026



First Steps

- ✓ Make a motion for an additional item on our next CWE-UFT chapter meeting agenda: sharing student evaluations with CWE's Microsoft. Without consensus by our chapter on making cognitive agents prototypes, the solution proposed here cannot move forward.
- Surveys and needs assessments across CWE's intranet, leading to meetings consisting of mixed groups of program managers, instructors and other stakeholders, so to
 - Develop a 3-tier assessment template that will reside on CWE's Microsoft:
 - 1 hard quantitative,
 - 2 qualitative, and
 - 3 multi-modal.

Time Frame: This year's over. Every year starts slow.
So maybe by April Fool's Day.

Build Momentum

- Build cognitive agent prototypes for the 3 tiers. CWE will pay for 10-20 hours for our Chapter's most digitally savvy members to train them.
- CWE will pay any instructor 3-6 hours for PD to become proficient chatting with the cognitive agents, using excerpts of our assessments pasted into one of the assessment templates.

Time Frame: Completed no later than Memorial Day.

Scale & Sustain

Hard launch: UFT-CWE Symposium 2026, a day of PD the third Saturday of June, 06/20/26.

2025

2024

All CWE employees are welcome to participate in using the cognitive agents to reveal nuances from anonymized student data.

A pre-assessment and post-assessment that day will be the basis of a *postmortem* meeting by the end of June, with representatives from all CWE constituencies. At that meeting, next steps, and how to measure them will be agreed upon.

Creativity and Innovation Will Sustain our Leading Position in NYC Workforce Development



- If our instructors agree to develop cognitive agent prototypes for the 3-tier assessments (see Appendix B), we can train them to offer us quicker ways to develop ILPs that benefit our students, instructors and program managers (see Appendix C).
- These cognitive agents can be launched at our UFT-CWE Symposium 2026 in June. All CWE employees are welcome to attend.
- How to measure the cognitive agents' usage and future milestones will be determined at a *postmortem* at the end of June.

Cognitive agents can support our instructors applying metacognitive analyses and heuristics to our students' artifacts, allowing us to become more creative developing ILPs for our students.

Appendix A – 1,944 Data points of Trades Math Assessments

Homework #1 (“fi1”)

Total Scores

| ID | total | % |
|-----|-------|-----|
| 101 | 0 | 0% |
| 102 | 52.06 | 84% |
| 103 | 56.52 | 91% |
| 104 | 53.4 | 86% |
| 105 | 59.85 | 97% |
| 106 | 31.48 | 51% |
| 107 | 0 | 0% |
| 108 | 60.35 | 97% |
| 109 | 8.66 | 14% |
| 110 | 54.21 | 87% |
| 111 | 57.87 | 93% |
| 112 | 56.86 | 92% |
| 113 | 57.38 | 93% |
| 114 | 42.34 | 68% |
| 115 | 61.51 | 99% |
| 116 | 54.37 | 88% |
| 117 | 59.53 | 96% |
| 118 | 3.5 | 6% |
| 119 | 25.37 | 41% |
| 120 | 49.9 | 80% |
| 121 | 33.29 | 54% |
| 122 | 56.87 | 92% |
| 123 | 59.2 | 95% |
| 124 | 56.7 | 91% |

| | | 9.5 | 10 | 10.5 | 10.5 | 9.5 | 8.5 | 10.5 | 10 | 10.5 | 10.5 | 10 | 10 | 10 | 10 | 10 | 10 | 10.5 |
|-----|-----|-----|-----|------|------|-----|-----|------|-----|------|------|-----|-----|-----|-----|-----|-----|------|
| sID | tot | F1 | I1 | F2 | I2 | F3 | I3 | F4 | I4 | F5 | I5 | F6 | I6 | F7 | I7 | F8 | I8 | |
| 101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102 | 7.5 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 103 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 104 | 6.5 | 0.5 | 0.5 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 105 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 106 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 108 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 109 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 110 | 6 | 0 | 0 | 0.5 | 0.5 | 0 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 111 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 112 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 113 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 114 | 6.5 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0.5 | 0.5 | 0.5 | 0.5 |
| 115 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 116 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 117 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 118 | 3 | 0.5 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 119 | 7 | 0.5 | 0 | 0.5 | 0.5 | 0.5 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 120 | 6.5 | 0.5 | 0.5 | 0.5 | 0 | 0.5 | 0 | 0.5 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 121 | 7 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0.5 | 0.5 |
| 122 | 6.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 123 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 124 | 8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

Appendix B – gpt-4o model prompt via OpenAI

You are a data analyst reviewing an attached Excel spreadsheet containing student homework data to assist an instructor in developing individualized learning paths.

Complete the following tasks using the spreadsheet data:

- On the 'total' tab:

1. Group and list each student into one of the following categories based on their percentage completed:

- "No-shows" (0%)

- "Dropouts" (>0% but <10%)

- "Struggling" (10%-60%)

- "Exceptional" (>90%)

2. For each group:

- List each student in the group.

- Offer targeted advice on how to support these students:

- For "no-shows" and "dropouts": Recommend specific follow-up to the program manager (e.g., contacting student to inquire about attendance or withdrawal).

- For "struggling": Reference homework scores from other tabs to infer possible needs and suggest tailored interventions.

- For "exceptional": Recommend enrichment or advancement opportunities, such as diversion into more advanced classes offered.

- For all other worksheet tabs:

1. Refer to the top row of the spreadsheet (number of students who got each item correct).

2. Identify questions where most students performed poorly.

3. For each question identified in step 2:

- First, explain the reasoning, e.g., "in tab fi3, most students got F11 wrong, suggesting a learning gap or unclear instructions".

- Then, specify and describe the reteaching opportunity for the teacher.

Format your output as an organized multi-page rich text format report with the following structure:

- First page: From the data in the "total" tab, list each group, with indented entries for each student.

- Following pages: For each worksheet tab (homework assignments), list questions with poor student performance, followed by reasoning, then the reteaching opportunity recommendation.

Appendix B – gpt-4o model prompt via OpenAI

(cont'd)

Examples:

First page (Total tab):

No-shows

- 101

- 107

Dropouts

- 118

Struggling

- 121 (Did well on most homework assignments, but not rul3a.)

Exceptional

- 115

Second page example (other tabs):

- In homework assignment fi3, question F11 was answered incorrectly by most students.

Reasoning: A significant portion of the class struggled with this question, pointing to a potential misunderstanding of the underlying math technique, a possible error in instructions, or answer key alignment issues. Reteaching opportunity: Review the math concept underlying F11, check for possible worksheet or answer key errors, and reteach as needed.

Edge Cases & Important Considerations:

- Students with 60–90% completion are not reported.
- Use actual student IDs and data for each section.
- For homework questions, specify both the tab and question (e.g., fi3, F11).
- Do not output code blocks—use rich text and indentation as illustrated above.

****Reminder:**** The main goals are to classify students from the 'total' tab (with targeted advice) and to identify reteach opportunities from homework tabs by first providing reasoning, then recommendations. Output should be a multi-page rich text format report, grouping entries and explanations as described.

Appendix C – Output Report via CoPilot

Page 1: Student Grouping from “total” Tab

No-shows (0%)

- 101
- 107

Dropouts (>0% but <10%)

- 118

Struggling (10%–60%)

- 102 (Did well on rul1 and rul3b, but weaker on fi2 and fi3)
- 103 (Strong on rul3a and rul3b, but fi2 shows gaps)
- 104 (Consistent effort, but fi2 and fi3 need reinforcement)
- 106 (Very low on rul3a, needs foundational review)
- 109 (No progress on fi2 and fi3, but some rul2 engagement)
- 110 (Moderate performance, but rul3a shows gaps)
- 114 (Weak on fi3 and rul3a, needs targeted reteaching)
- 119 (Low scores on fi3 and rul3a, needs structured support)
- 120 (Struggles with fi3 and rul3a, but some rul2 progress)
- 121 (Very low on rul3a, needs intensive help)

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Exceptional (>90%)

- 105
- 108
- 111
- 112
- 113
- 115
- 116
- 117
- 122
- 123
- 124

Targeted Advice:

- No-shows & Dropouts:

Recommend immediate follow-up by program manager. Contact students to confirm enrollment status and address barriers to participation.

- Struggling:

- Students like 106 and 121 need foundational reteaching (rul3a shows severe gaps).

- Others (102, 103, 104) show partial mastery; focus on fi2 and fi3 concepts.

- Use small-group sessions and scaffolded practice.

- Exceptional:

Offer enrichment opportunities such as advanced modules or peer tutoring roles. Consider placement in accelerated tracks.

Appendix C – Output Report via CoPilot

(cont'd)

Page 2+: Homework Tabs Analysis

fi1

- Most students missed F1 and F2 (low scores across IDs).

Reasoning: Indicates difficulty with initial concepts or unclear instructions.

Reteaching Opportunity: Revisit foundational steps for F1 and F2, provide worked examples, and clarify instructions.

fi2

- F2 and F3 frequently incorrect.

Reasoning: These items involve intermediate reasoning; widespread errors suggest conceptual misunderstanding.

Reteaching Opportunity: Use visual aids and guided practice to reinforce these concepts.

fi3

- **F11 stands out (almost all students missed it).**

Reasoning: High error rate suggests either complexity or misalignment in answer key.

Reteaching Opportunity: Review underlying concept, validate answer key, and provide alternative problem-solving strategies.

rul1

- Minimal issues; most students scored consistently.

Reteaching Opportunity: No major reteach needed; maintain current approach.

rul2

- I4 and I5 show occasional gaps.

Reasoning: Errors cluster around mid-sequence items, possibly due to fatigue or complexity.

Reteaching Opportunity: Break down multi-step problems and reinforce sequence logic.

rul3a

- **Significant gaps across multiple items** for struggling students (e.g., 106, 121).

Reasoning: Indicates lack of mastery in advanced rule application.

Reteaching Opportunity: Provide targeted drills and conceptual reviews for these students.

rul3b

- Most students performed well; no major reteach needed.

Reteaching Opportunity: Offer optional enrichment for exceptional students.

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Rogers' Diffusion of Innovations

