

A Lesson Rubrics and Sample Learner-Sourced Responses

Giving Effective Praise Lesson Rubric Tutor responses have to align with the following research-based elements of effective praise, by acknowledging student's effort and the learning process over outcomes or ability. As stated, praise should be: 1) immediate, earned, and truthful, 2) specific by giving details on what the student did well, 3) genuine and not repeated often, such as saying solely "great job". Correct responses have to be encouraging, positive, and indicate acknowledgment of the student's focus on the learning process. Table 3 below highlights learner-sourced tutor responses to a struggling student from the lesson scenario.

Table 3: Sample learner-sourced tutor responses for the *Giving Effective Praise* lesson with coding rationale.

Tutor Response	Rationale
<i>You did a great job on that problem. Well done.</i>	Incorrect: The response is positive and sincere; however, the response does not focus on the process or give praise for specific student actions.
<i>It was difficult but you persevered and succeeded. Such grit is an important life skill and I'm proud of what you accomplished, and you should be proud, too.</i>	Correct: The response is positive, sincere, and praises the student for persevering. Acknowledgment of the student for working hard and the process of learning is evident.
<i>You have done a good job so far. It is normal to feel challenged at this stage. Keep going.</i>	Correct: This response is slightly nuanced in that there is little emphasis on positivity and uses the generic "good job" phrase. However, it focuses on persevering despite being challenged and for this reason is deemed a more-desired response.

Reacting to Errors Lesson Rubric Tutor responses have to align with the following research-shown elements of appropriate tutor reactions: 1) praising for the attempt or effort, 2) indirectly drawing the student’s attention to the mistake, and 3) guiding the student to self-correct. Any response explicitly pointing out the student’s error or telling the student what to do is considered incorrect. Table 4 below highlights learner-sourced tutor responses to a student who has recently made a math error in the lesson scenario, with an explanation of the rationale behind the coding of "correct" and "incorrect" responses.

Table 4: Sample learner-sourced tutor responses for the *Reacting to Errors* lesson with coding rationale.

Tutor Response	Rationale
<i>So what do you think you missed here?</i>	Correct: The response calls indirect attention to the error, although it is implying that an error was made. In this case, the math software indicated an error and the tutor was responding by guiding a student to self-correct.
<i>Let’s see. Yeah, how would you do this?</i>	Correct: The response prompts a calls indirect attention to the student’s error and prompts the student to self-correct.
<i>So can you explain to me why you got that one wrong?</i>	Incorrect: The responses directly calls attention to the student’s error.

Table 5: Complete prompt used for the task of assessing tutor moves related to giving effective praise containing a filter prompt (Did the tutor praise the student?) and subsequent, when relevant, evaluation prompt (If so, was it praising effort?). Both prompts ask GPT-4 to provide rationale for its reasoning.

GIVING EFFECTIVE PRAISE

`FILTER_PROMPT = ""`

Please score the following tutor-student transcript as follows:

-if the tutor praises the student, while engaging in a math problem, score the transcript with a 1

-if the tutor does not praise the student, score the transcript with a -1.

Transcript Start ---

"""

`FILTER_FORMAT_PROMPT = ""`

--- Transcript End.

Given the earlier transcript, please return a JSON string following the format, `{"Rationale\":"your reasoning here\","Score\":-1/1}`. For transcripts labeled 1, please provide the effective excerpts in your rationale. Your rationale must not exceed 100 words. Your JSON:"

"""

`EVALUATION_PROMPT = ""`

Please determine whether the following tutor-student transcript demonstrates that the tutor gave effective praise. Please score the following tutor-student transcript on how effective the tutor is in praising student effort, or work, by being focused on the learning process and not solely

ability. Effective tutor responses that acknowledge effort or the learning process, such as saying "I can tell you worked hard solving that problem and are learning. Good effort!" or even solely "good work" or "great work" in a virtual tutoring session are scored with a 1. Tutor responses such as solely "good job" or "perfect" that do not praise the student for specific actions toward learning or putting forth effort are scored with a 0.

If the tutor effectively praised a student for effort, return a 1; else, return 0.

Transcript Start ---

"""

`FORMAT_PROMPT =`

"--- Transcript End. Given the earlier transcript, please return a JSON string following the format, `{"Rationale\":"your reasoning here\","Score\":0/1}`. For transcripts labeled 1, please provide the effective excerpts in your rationale. Your rationale must not exceed 100 words. Your JSON:"

Table 6: Complete prompt used for the task of assessing tutor moves related to reacting to student’s errors containing a filter prompt (*Did the student make math error?*) and, subsequent, when relevant, evaluation prompt (Did the tutor provide indirect attention to the error?). The filter prompt performed better when not prompted to provide rationale.

REACTING TO ERRORS

`FILTER_PROMPT = ""`

Please score the following tutor-student transcript as follows:

-if the student makes an error while working together on a math problem, score the transcript with a 1

-if the student does not make an error while working together on a math problem, score the transcript with a -1.

Transcript Start ---
"""

`FILTER_FORMAT_PROMPT = ""`

--- Transcript End.

If the student made a math error, return a 1; else, return -1.

"""

`EVALUATION_PROMPT = ""`

Please score the following tutor-student transcript on how effective the tutor is in reacting to a middle school student who has made an error in a virtual tutoring session. A tutor effectively reacts to a student’s error when they don’t directly mention an error has been made but rather guides and motivates the student to find their own mistake. Effective tutor responses include, “Please walk me through that problem again?” and “Can you explain to me what you did here?” Ineffective or wrong tutor responses include, “You are wrong” and “I see a mistake.”

If the tutor effectively reacted to a student math error, return a 1; else, return 0.

Transcript Start ---

"""

`FORMAT_PROMPT = "--- Transcript End. Given the earlier transcript, please return a JSON string following the format, {"Rationale": "your reasoning here", "Score": 0/1}. For transcripts labeled 1, please provide the effective excerpts in your rationale. Your rationale must not exceed 100 words. Your JSON:"`



Fig. 2: A learner-sourced example from within the corpus of a tutor (left) *effectively* giving praise to a student (right) during a remote tutoring session.

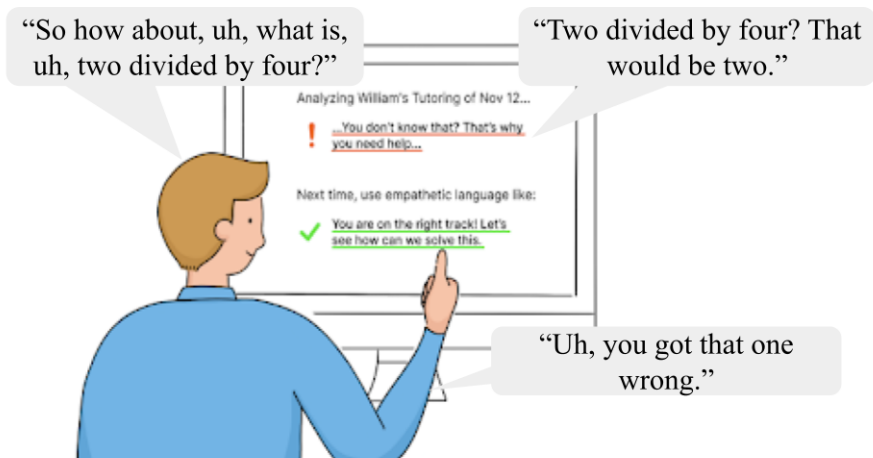


Fig. 3: A learner-sourced example within the corpus of a tutor (shown) *ineffectively* reacting to a student who has made an error during a remote tutoring session. The student is sharing their screen while engaging in a math learning software.