Tab 1

Reacting to Errors Rubric

Learning Objectives:

- Explain how to effectively respond to a student who has just made an error.
- Apply recommended strategies, for responding to students when they make an error, that increase motivation and engagement.

Research Recommendation(s)

Studies have shown that the way tutors intervene or respond when students make mistakes or show misconceptions in their learning can affect the student's motivation to learn. Asking students to try and correct their own mistakes before you help them is a great practice. For this reason, on Question 2, the most desired response or correct answer is:

> "I appreciate your effort. Let's try solving the problem together. Can you tell me what you did first?"

In addition, it is best to respond indirectly and not to explicitly point out the student's mistake by asking leading questions such as, "Can you tell me what you did first?" Having students find their own mistakes is a powerful approach for three reasons:

- It helps students recognize "easy mistakes" on their own, such as making a typo or doing basic math operations incorrectly. Oftentimes, once a student looks at their work again, they will find the obvious error themselves. A student's ability to recognize their own errors increases their motivation to learn.
- It helps students to develop critical thinking skills. The ability to recognize their own errors fosters independent learning skills.
- It involves students in the learning process and gives students ownership of their learning.

(Vega, 2017)

It is important to note that you do not want students to get too frustrated. Sometimes students may not have the prior knowledge or ability to find their own mistakes. When a student tries and fails to find their own mistake, tutors should be more explicit by giving the correct answer and support behind it.

When responding to students making mistakes or errors it is important to praise the student for putting forth the effort, also called praising for effort. Praising for effort gives students positive emotions even after making a mistake or getting a problem wrong. Praising students for effort and encouraging them to continue trying builds resilience and increases their motivation to learn.

(Master, 2015)

Experts believe that the best approach to question 10 is:

"Jedidah, it makes me happy to see your effort. Can you show me how you started solving the problem?"

This approach entails tutors asking leading questions and not directly calling attention to the error. This encourages students to be critical thinkers and gives them ownership of their learning.

PREDICT RESPONSES:

Criteria
Effective tutoring responses on reacting to student errors should:
- Avoid using direct words about the student's error (e.g., "it is incorrect", "I saw an issue in your attempt")
- Implicitly clear up the misconception (e.g., "we have another way of doing the math problem")
- Use effective praise to motivate student's learning. (praise on student effort)

*If a tutor praises a student for effort, despite making an error, that is a correct way to respond. However, the absence of a tutor praising for effort, despite being incorrect, does not necessarily mean the tutor response is incorrect.

Correct (1): Tutor praises the student's effort, implicitly guiding the student to correct errors. They avoid directly pointing out errors and instead use prompts to encourage the student to reflect and explore alternative methods.

Incorrect (0): Tutor explicitly points out the student's errors.

Tutor response	**Reasoning**	**Correct (1) or Incorrect (0)?**
Good effort! You got most of the addition right but there is a small problem at the start. What was your first step when you solved this problem?	Though it is praising the student's effort and asking them to walk through the steps, it still uses the word "mistake" which may be frustrating.	0
Great effort so far, can you explain to me how you approached this problem?	Praising a student's effort and asking them to explain how they attempted to solve the problem will aid the students in finding their mistake.	1

Everyone finds it easy to make mistakes with arithmetic, let's look at some ways that you can work methodically and check your work as you go along.	Stating that everyone is struggling with the same thing may not be encouraging to the student.	0
Lucy, very well, but I have to point that we have another way of doing the math problem, we can repeat the math together, what do you think?	A good way to rephrase the mistake.	1
This is very close! I see one issue, can you walk me through the how you worked through the problem?	Include both parts, i.e. praising the effort and asking the student to walk through their solution, but still used the word "issue"	0
Thank you for writing the problem and your answer so I can see your work. Let me show you some examples that show how to add numbers that add up to a number greater then 10.	Giving the student more examples without clearing up the misconception may not be helpful.	0

EXPLAIN RESPONSES:
Explained responses for reacting to errors
Key: Tutor response should demonstrate an understanding of the importance of helping students to understand their errors on their own (Keywords: reviewing, revisiting, rethinking, going through the problem again and etc.)

Correct (1): The tutor focuses on the benefits of the student independently discovering their mistake.

Incorrect (0): The tutor suggests directly telling the student what is wrong or fails to emphasize student self-discovery of errors.

Tutor response	**Correct (1) or Incorrect (0)?**

She has the numbers aligned properly. This gives me a baseline to see where she is making mistakes. She will be motivated because she has the first step in the process-focused coaching correct. At this point, I think Lucy never learned how to carry over numbers from one place value to another e.g. units, tens, hundreds……..	0
Start with a positive statement and then offer to do it together, fostering a team feeling. Go through the steps to see if she can find the error herself.	1
Stays positive. They need to feel like they solved it.	0
Starting with praising the student's effort and work put in begins the session on a positive note, and uses ability-focused praise (from the previous survey) to encourage the student to keep working on the problem. Suggesting solving the problem "together" would help Lucy feel like she and the tutor are on the same side and encourage trust to try the problem again.	0
Recognizing her effort is important. Plus, encouraging her to work together in identify where the error is will boost her self confidence.	1
It points where he may have gone wrong.	0
This way, I can see where he went wrong with the problem, and address the mistake without telling him what to do.	0

Tab 2