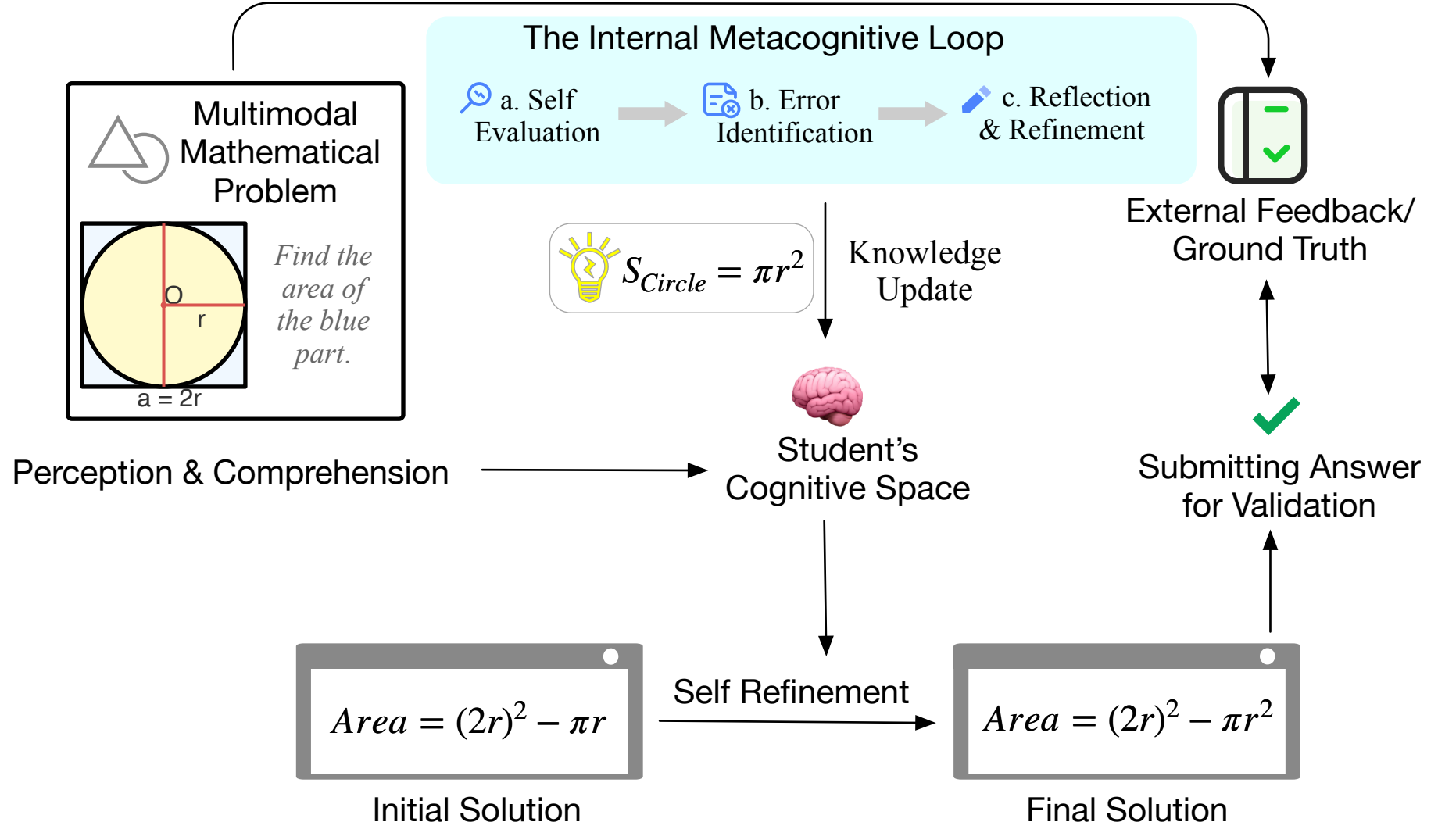
The Internal Metacognitive Loop
a. Self Evaluation
b. Error Identification
c. Reflection & Refinement
Multimodal Mathematical Problem
O
r
a = 2r
Find the area of the blue part.
External Feedback/ Ground Truth
$S_{Circle} = \pi r^2$
Knowledge Update
Perception & Comprehension
Student's Cognitive Space
Submitting Answer for Validation
$Area = (2r)^2 - \pi r$
Self Refinement
$Area = (2r)^2 - \pi r^2$
Initial Solution
Final Solution