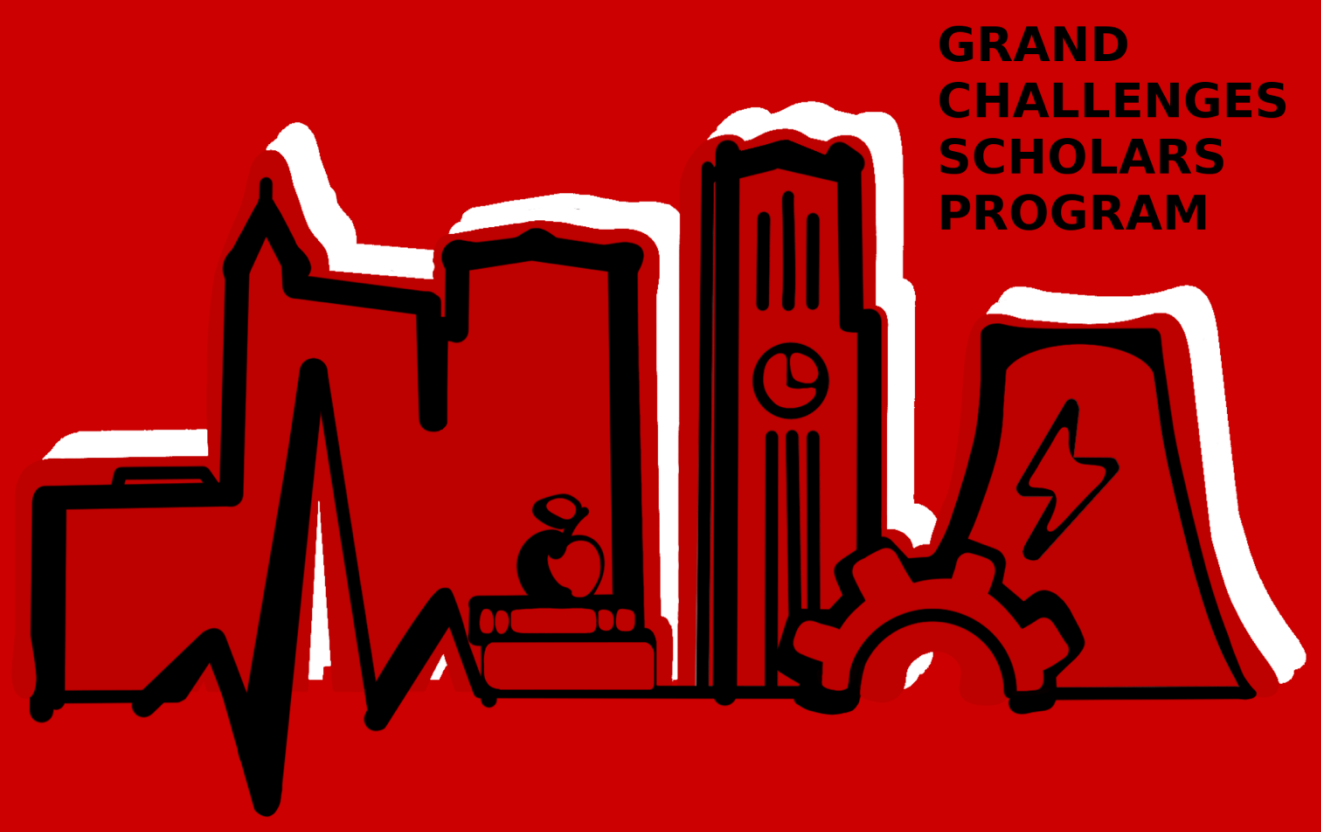




Introduction: COIL and Internationalization

- Internationalization remains a decades-long priority for higher education institutions (HEIs) [1]
- Recent developments in technology and the pandemic have accelerated the adoption of Collaborative Online International Learning (COIL) programs [2]
- COIL implementations vary widely in model, credit recognition, and student learning outcomes [3]
- A standardized evaluation framework could improve COIL outcomes, partnerships, and programming decisions

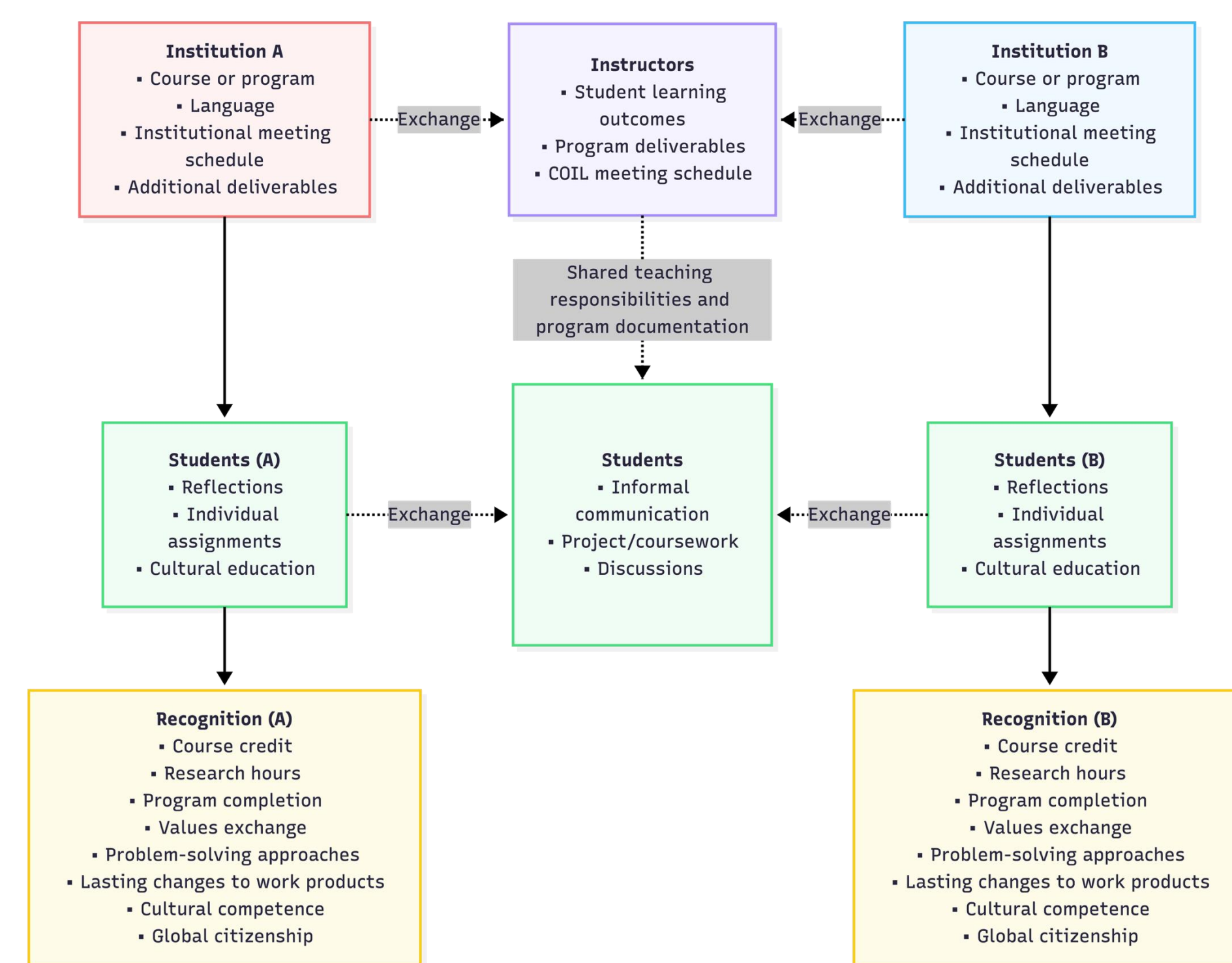


Figure 1. COIL implementation structure. Modified from SUNY [3].

Objective: develop an adoptable framework to evaluate COIL programs' efficacy in meeting HEI internationalization goals and improve future programs

Methodology

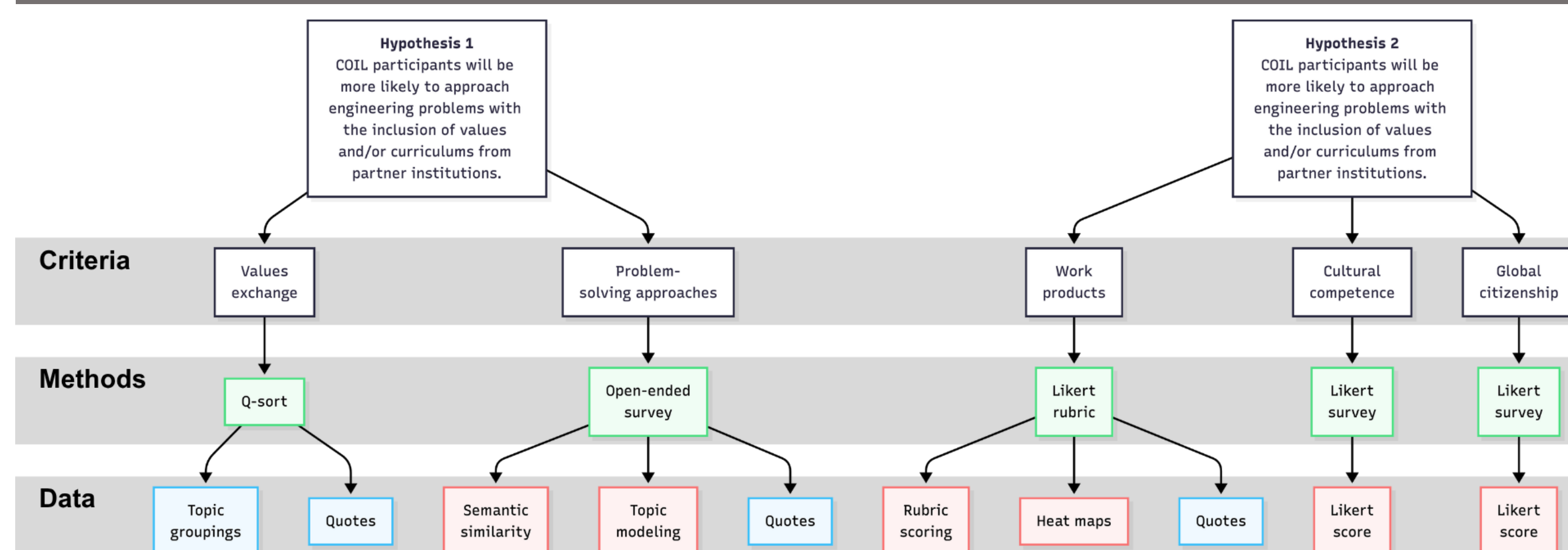


Figure 2. adoptable framework and data produced, where blue represents qualitative and red represents quantitative data.

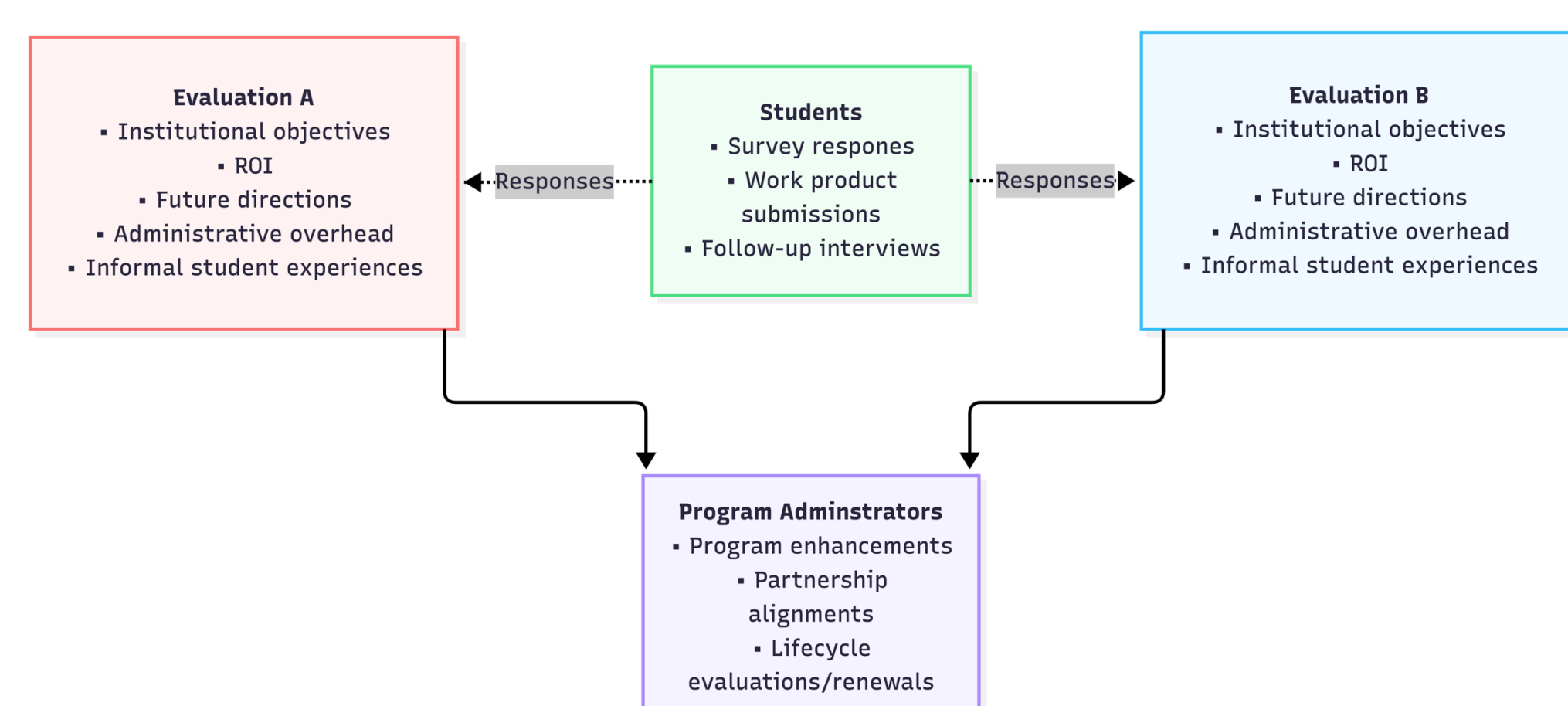


Figure 3. additional steps to be added to Figure 1 if the evaluation methods in Figure 2 are implemented.

Results: Multimodal Evaluation Framework Design

Values Exchange

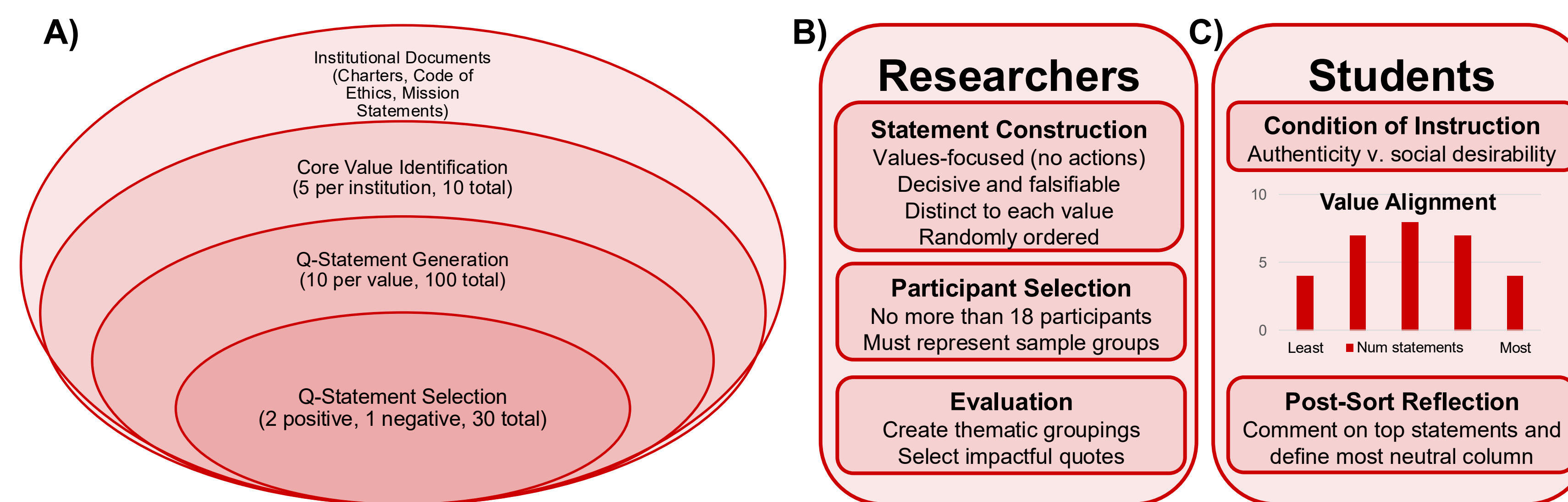


Figure 4. A) statement selection strategy for Q-methodology study design, using public documents to generate 30 Q-statements. B) researcher responsibilities to construct statements and ensure an appropriate C) sample population to sort value statements on a quasi-normal distribution (4-7-8-7-4).

Engineering Problem Solving Approaches

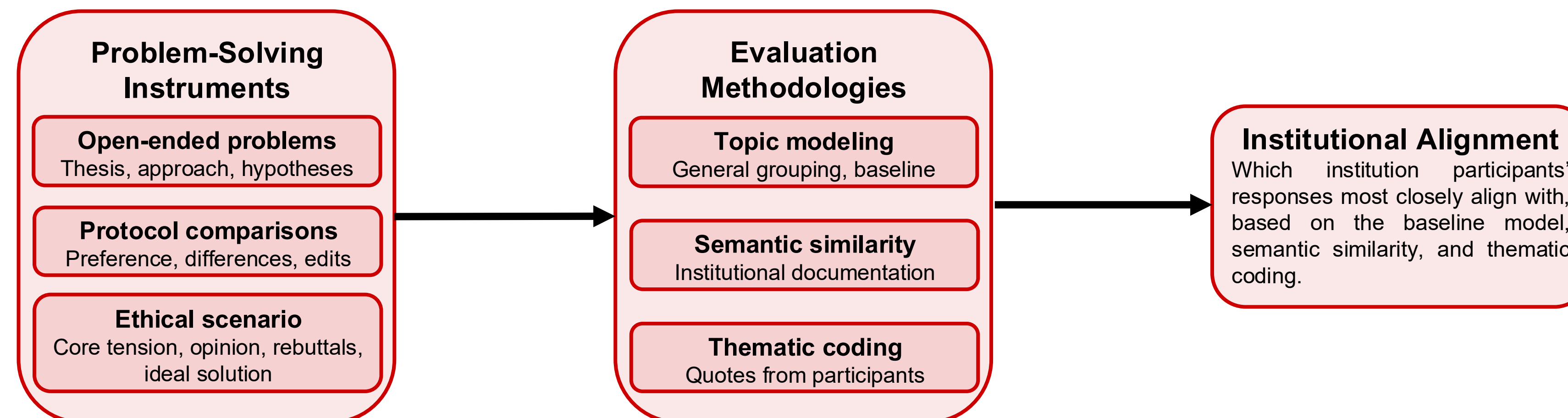


Figure 5. design of problem-solving approaches survey, with various instruments that require participants to construct hypotheses, evaluate audience accessibility, and make an ethical argument in the context of an engineering problem. Through machine learning techniques and thematic coding, value alignment between participant responses and institutional documentation, individual participants' institutional alignment is assigned.

Work Product Modulation

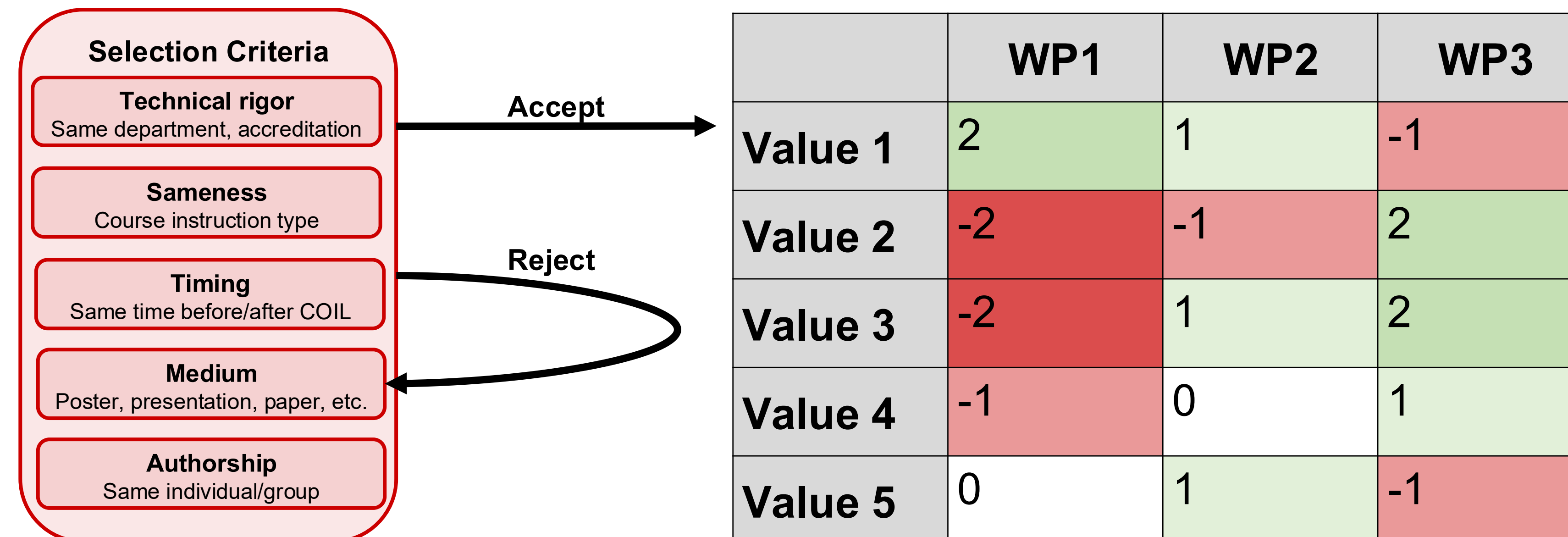


Figure 6. to understand the long-term professional effects of COIL on participant outcomes, comparable work products from equal times before, during, and after their COIL experience are evaluated for institutional values. Their alignment with each value (all 10, from both institutions), is used to create heatmap that shows whether their institutional alignment was modified during COIL. In cases of extreme changes, participants may be asked to complete an additional interview to discuss such changes, including whether COIL was a significant driver.

Cultural Humility and Global Citizenship

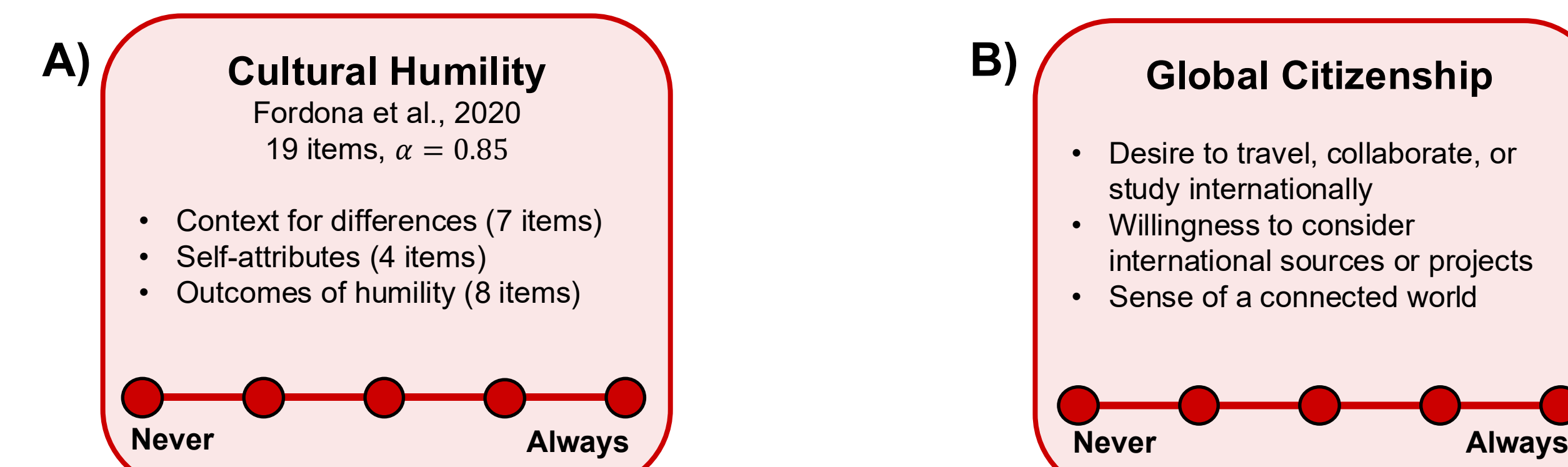


Figure 7. Likert-scale assessments provide a traditional metric for participant self-evaluation that can be used to compare COIL efficacy with studies that do not implement the above framework. This maintains framework accessibility as a standard evaluation matrix for A) cultural humility, as measured by Fordona et al., and B) global citizenship, as measured by self-description of international appreciation professionally and personally.

Conclusions

- COIL programs are widely implemented, but the long-term effects on students remain understudied
- This framework provides a multimodal exploration of possible COIL outcomes and serves as a starting point for standardized evaluation and enhancements that will improve program effectiveness and inform HEI funding

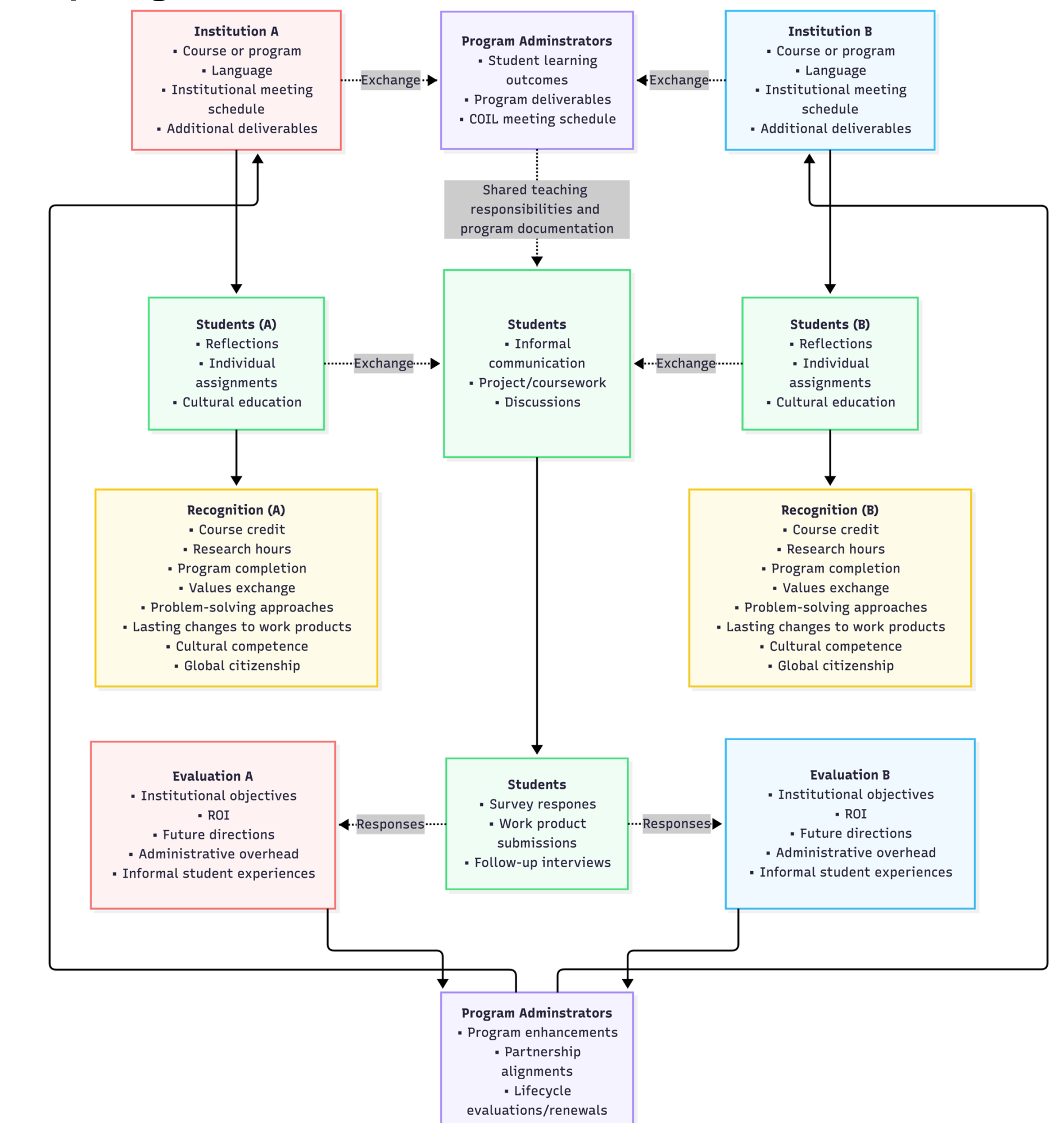


Figure 8. updated COIL program lifecycle that includes standardized evaluation of participant experiences by program administrators to inform institutional internationalization goals using the novel framework.

Limitations

- 10 types of data are produced, making results difficult to parse or potentially contradictory
- The pipeline is not fully automated, necessitating some computational understanding and significant person hours
- Of the 10 data types produced, some HEIs will prioritize distinct metrics, potentially resulting in nonuniform comparisons
- A case study is yet to be performed, although one is currently being planned at NC State

Future Work

- Eliminating barriers to understanding by automating more of the framework and removing redundant metrics
- Adding relevant metrics as grant cycle and program prioritizes continue to evolve

References & Acknowledgements

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