

DRAFT Appendix B: STEMworks Review Protocol

Overview

The Change the Equation (CTEq) Design Principles Rubric helps expert reviewers identify STEM learning programs that merit inclusion in CTEq's STEMworks database of effective STEM learning programs. The Rubric establishes specific, rigorous criteria for identifying those programs that are "accomplished" or "promising" in their alignment with CTEq's Design Principles for Effective STEM Learning Programs. For each of the ten Design Principles, the Rubric describes criteria for three levels, "Accomplished," "Developing," and "Undeveloped."

Using these criteria, STEM programs that apply to STEMworks must rate themselves on each of the ten Principles, offer written justifications their self-ratings, and offer concrete evidence to support their justifications. The Rubric provides examples of evidence programs can use to do so. Expert reviewers review program applications to determine whether programs have sufficiently supported their self-ratings with explanation and evidence. When programs fall short of their self-ratings, the reviewers provide programs with explanations of where they fell short and what changes they would have to make to reach their self-ratings.

Only programs that meet specific pre-defined thresholds for "accomplished" and "promising" performance are admitted to STEMworks.

Management of Nevada Reviews and Reviewers

Nevada will ensure that Nevada reviewers are assigned to programs and managed by an entity or people who disclaim all interest in the outcome of the reviews. The managing entity or these people will enforce a "review firewall" that ensures that no external party, including CTEq or Nevada leadership or staff, can influence the outcome of reviewers' work. The managing entity or people will also manage interactions with programs applying to STEMworks.

Inter-Rater Reliability

To develop inter-rater reliability, each reviewer uses the Design Principles Rubric to score at least three programs. The team then comes together to compare scores, to raise any issues about the scoring process, and ultimately to come to a consensus on how each program should be scored. Once consensus is reached and reviewers are familiar with evaluating explanations and evidence using the rubric, pilot program applications are assigned to at least two reviewers.

Guidelines for Using the Rubric for Reviewing Program Applications

Reviewers use an online review site to access and rate each program. Reviewers individually review programs' self-ratings, explanations, and evidence for each Design Principle using the online Design Principles Rubric. Reviewers then rate each of the ten principles as Accomplished, Developing, or Undeveloped, based on how well the program's evidence and explanations satisfy the criteria listed under each principle.

Reviewers provide comments and feedback for each principle, focusing on the evidence applicants provided and whether it supports their explanation and self-rating.

This feedback often cites lack of clarity or omissions in applicants' explanations or lack of evidence to support the self-rating provided by the program. Once each reviewer has submitted his or her individual review, each program's reviewers meet and come to a consensus rating for each principle.

In any case where the reviewers disagree, either with each other or with the program's self-rating, the reviewers examine each criterion listed under each principle and determine at what level each criterion is satisfied **by the evidence provided**. No assumptions can be made about what evidence a program might have, or should have. Only the evidence provided in the application should be considered.

Once the reviewers come to a consensus on each principle, consensus comments and feedback are provided for each principle, in particular for principles in which the raters disagreed with the program's self-rating. The raters also provide a brief narrative summary outlining the strengths and impacts of the program with regard to the Design Principles. Each principle is then assigned 2, 1, or 0 points, for Accomplished, Developing, or Undeveloped, respectively, for a possible total score of 20.

Programs that meet the criteria for Accomplished or Promising are included in the STEMworks database. To be deemed Accomplished, programs must score 17 points. The protocol and threshold for Promising programs will be determined through a pilot project to review STEM Learning programs in at least one state.