

Part 4: Evaluation and Revision Report

Preparing for Purposeful Manipulative Use

Lydia Hernandez

EDTC 6332

Overview

“Preparing for Purposeful Manipulative Use” is a self-paced, Web-based training for elementary teachers. Its purpose is to make manipulatives easier to prepare, manage, and intentionally plan for during instruction. The training is organized around the “Prepare > Manage > Plan” process and gives teachers opportunities to practice the process before applying it to one of their own upcoming math lessons.

I used a Subject Matter Expert Review and a Small Group Evaluation to evaluate the training. For the SME review, I asked an experienced 5th-grade math teacher who also serves as our district's 5th-grade math course leader to review the module from a content and instructional perspective. For the small group evaluation, four elementary teachers with varying years of experience from 1st through 4th grade completed the module independently so I could see how the training worked for the actual target audience.

Formative Evaluation Strategy #1: Subject Matter Expert Review

Introduction

My first evaluation was the Subject Matter Expert Review. My SME was a 5th-grade math teacher who also serves as our district's 5th-grade math course leader. I selected her because she has experience not only teaching elementary math, but also supporting math instruction at the district level.

She completed the entire training and reviewed the purpose, “Prepare > Manage > Plan” process, activities, and final application. I asked her to look specifically at whether the content was accurate, realistic for an elementary math classroom, easy to follow, and aligned to the purpose of the training.

Summary of Findings

Section	SME's Comments/Recommendations	My Response
Introduction / Overall Training	The purpose was very clear. The training was streamlined and easy to follow.	No revision needed.
Prepare	The strategies were useful and broad enough that the process could be replicated with different manipulatives.	No revision needed.
Manage	The systems and procedures were easy to follow.	No revision needed.

Plan / Overall Content	The training worked well as a beginner-level training focused on systems and procedures. As an experienced teacher, the SME would like a Part 2 that goes deeper into specific 5th-grade manipulatives and how to use them.	This is outside the scope of the current training, but I would consider it as a future Part 2 or follow-up training.
Final Application	The activity allowed teachers to apply “Prepare > Manage > Plan” and stayed focused on the systems and procedures.	No revision needed.

Synopsis

Overall, the SME found the training clear, streamlined, and easy to follow. She felt that the strategies were broad enough to be used with different manipulatives and that the training stayed focused on its purpose. Her biggest piece of feedback was actually about what could come next. As an experienced 5th-grade teacher, she would like to see another training that focuses on specific manipulatives and how they can be used instructionally.

I did not make that an immediate revision because teaching specific manipulatives was intentionally outside the scope of this training.

Formative Evaluation Strategy #2: Small Group Evaluation

Introduction

I used a Small Group Evaluation with four elementary teachers for my second evaluation. The group included a 1st-grade self-contained teacher with eight years of experience, a 3rd-grade math teacher with one year of experience, a 4th-grade math teacher with one year of experience, and a 3rd-grade math teacher with five years of experience. I wanted teachers from different grade levels and experience levels because the training is intended to work across elementary.

I had the teachers complete the module independently while I observed how they moved through it. I looked for places where they needed help, paused, became confused, or had difficulty completing an activity. After, I asked them about the navigation, the “Prepare > Manage > Plan” process, anything that needed more explanation, or anything they would change. All four teachers were able to complete the training and final application independently. The training itself was fairly quick, but the final application took longer because teachers had to apply the process to one of their own lessons. For some teachers, the entire process took close to an hour.

Summary of Findings

Section	Observations / Feedback	My Response
Navigation	All four teachers completed the training independently. They liked having both the Next buttons and the menu because they could follow the training in order or jump between sections.	No revision needed.
Prepare -> Manage -> Plan	Teachers found the process clear and useful. A first-year teacher said having a plan made using manipulatives feel more manageable. A more experienced teacher said the process helped her apply systems and procedures she already uses to manipulatives.	No revision needed. The process worked for teachers with different levels of experience.
Practice Activities	Teachers completed the activities independently, but they expected the quizzes to have more than one question and wanted more opportunities to practice.	I will add additional scenario-based questions so teachers have more than one opportunity to practice applying the process.
Manage	One teacher wanted more guidance about student rules and expectations after manipulatives are passed out, including how to set expectations for using the materials.	I will add a short section about setting expectations for student use once manipulatives are distributed.
Final Application	All teachers completed the final application independently. The training itself was quick, but the application took longer because teachers had to apply the process to an actual lesson. For some teachers, total completion time reached close to one hour.	No immediate revision needed. The application is supposed to require teachers to apply the process to their own instruction, so some variation in completion time is expected.

Proposed Changes

The small group feedback identified two changes that I will make to the instructional solution. First, I will add additional scenario-based questions to the practice activities. The teachers understood the activities, but they expected more than one question and wanted another opportunity to apply what they had learned before moving on.

Second, I will add brief guidance to the Manage section about setting expectations for students once manipulatives are distributed. This will help address what happens after the materials are passed out without changing the overall focus of the training.

I will not add instruction on specific manipulatives to the current module. Both the SME and the small group showed interest in going deeper, but that would expand the training beyond its original purpose. Instead, I would consider developing a Part 2 that focuses on specific manipulatives, how they connect to math concepts, and additional guidance for introducing them to students.

Small Group Synopsis

Overall, the teachers found the training easy to navigate and the “Prepare > Manage > Plan” process clear and useful. What I found most interesting was that this was true for both newer and more experienced teachers. One first-year teacher shared that she had avoided manipulatives because they felt messy, but having a process made her feel like she could actually try them. A more experienced teacher already had strong classroom systems and procedures but had never really transferred those systems to manipulatives. The planning process helped her put that thinking on paper.

Summary

I was able to take something I actually see teachers struggle with and work through the entire process of turning it into a training that I used in an actual teacher training. One of the biggest things I learned was that not everything related to manipulatives has to be in one module.

The evaluation was probably one of the most useful parts of the process because I was able to see how teachers with very different levels of experience responded to the same training. The feedback also showed me that there is somewhere to go after this. Once teachers have the systems and procedures in place, the next step could be helping them go deeper into specific manipulatives and how they support different math concepts.

As I continue working toward opportunities in educational technology and eventually higher education, I think this experience will be useful because I did more than just create a training. I identified a need, designed and built a solution, had actual learners use it, collected feedback, and made decisions about what should and should not be changed. That entire process is something I can carry into future instructional design and professional learning projects.

Declaration of AI Use in the Writing Process This Evaluation and Revision Report was developed based on my own professional experiences, observations, evaluation data, and ideas. ChatGPT was used to review the project for clarity, organization, grammar, and alignment with the project requirements but did not contribute to the evaluation data, analysis, or interpretation of the material.