

EVALUATION METHODS

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There are many methods for collecting and analyzing data to answer your evaluation questions. Determining how to collect data and what types of data to collect are important steps in planning your evaluation.

“Professional learning is so MESSY and non-linear. Evaluations that don’t pick up on or contextualize that make me nervous”

–Unconference participant

Which methods are best to use in an evaluation depends on the type of information needed to answer the evaluation questions, the context of the professional development (PD) program, and the availability of resources. Evaluation methods fall into two broad categories: quantitative methods and qualitative methods.

Quantitative methods rely on numerical information and statistical analyses that describe relationships among variables. Quantitative methods are useful for answering “what” and “to what extent” questions. Results from quantitative methods are often presented visually with charts and graphs. Quantitative results are generally considered to be more objective, more reliable, and more generalizable.

Qualitative methods rely on non-numerical information that is analyzed to describe patterns and themes. Qualitative methods are useful for answering “how” and “why” questions. Results from qualitative methods are typically expressed narratively and accompanied with schematics, such as diagrams and flowcharts. Qualitative results are generally considered to be more subjective as they emerge from individual explanations and interpretations of events and experiences.

Often the best approach is to use a combination of both quantitative and qualitative methods in an evaluation. This approach, known as **mixed methods**, is becoming increasingly common because a mixed method approach can answer a broader range of evaluation questions. Mixed methods collect a more comprehensive set of data, including numbers, statistics, words, videos, pictures, and narratives. For example, a set of qualitative data might be used to point evaluators to the most helpful quantitative data or a narrative constructed from a qualitative data set may be embedded within quantitative data to provide context and rationale. This allows for insights that would not be possible using qualitative or quantitative methods alone.

The following table helps you unpack and compare these three evaluation methods. The second table provides examples of evaluation questions for teacher PD organized by the evaluation method best suited for answering the question.

	QUANTITATIVE METHODS	QUALITATIVE METHODS	MIXED METHODS
Data	Numerical information	Non-numerical information	Both numerical and non-numerical information
Data Analysis	Data is analyzed to measure relationships among variables using statistical analyses	Data is analyzed to look for patterns and themes	Data from qualitative and quantitative analysis is integrated
Use	Used to establish causal relationships and to make predictions	Used to provide in-depth descriptions	Used to answer a broader range of research questions
Results	Expressed numerically and often presented visually through charts and graphs Generally considered to be more objective	Expressed narratively and often presented visually through diagrams and other schematics Generally considered to be more subjective	Expressed by integrating numerical and narrative results Generally considered to be more comprehensive
Strengths	<ul style="list-style-type: none"> Viewed as scientifically objective and rational Useful for testing and validating theories Sophisticated computer software allows for rapid data analysis Easier to replicate Results can be more easily generalized to a larger population Reliability can be statistically established more easily Useful for making systematic, standardized comparisons 	<ul style="list-style-type: none"> Can reveal issues or relationships that may be missed by quantitative methods Can suggest possible relationships, causes, effects, and dynamic processes Allows for ambiguities and contradictions in the data Descriptive narrative results may be more useful to program officers Greater internal validity Data can be simplified without losing its complexity and context 	<ul style="list-style-type: none"> Provides strengths that offset the weaknesses of both qualitative and quantitative methods Provides a more complete and comprehensive understanding of the program than either qualitative or quantitative methods alone Provides an approach for developing better, more context specific instruments Can explain findings or how causal processes work
Weaknesses	<ul style="list-style-type: none"> Data is often decontextualized Participants are unable to explain choices or their interpretations of questions Does not shed light on the complexity of participants' experiences and perceptions Poorly executed statistical analyses can result in incorrect interpretations of the data Large sample sizes are needed to compensate for variability in the quality of data High risk of confirmation bias 	<ul style="list-style-type: none"> Very time consuming to collect, analyze, and interpret data Analysis requires expert understanding of the program Requires more participation of subjects Data collection can be difficult, particularly with large sample sizes Expensive Challenging to establish reliability and external validity 	<ul style="list-style-type: none"> Evaluation design can be very complex Takes more time and resources to plan and implement There may be discrepancies in the findings
Examples Of Instruments	<ul style="list-style-type: none"> Questionnaires Surveys Test scores Records (school or student) 	<ul style="list-style-type: none"> Interviews (structured or semi-structured) Reactions to simulations or video Observations (video or in-person) Focus groups Ethnographies Oral histories Case studies Reflections Portfolios Minutes from meetings 	<ul style="list-style-type: none"> A combination of qualitative and quantitative instruments

Examples of Evaluation Questions for Teacher Professional Development

	QUANTITATIVE METHODS	QUALITATIVE METHODS	MIXED METHODS
Teacher Reactions to Professional Development	<ul style="list-style-type: none"> • Did the participants feel that the PD was worth their time? • Did the participants think the PD was successful? • Did participants like the venue and presentation style? • Did the PD session accommodate participants' personal learning styles? 	<ul style="list-style-type: none"> • What were the biggest strengths of the PD experience? • What were the biggest weaknesses of the PD experience? • What did participants expect from the PD experience? 	<ul style="list-style-type: none"> • How did participants' expectations of the PD compare to their actual experiences? • How did the weaknesses of the PD affect participants' sense of their time being well-spent?
Teacher Attitude, Beliefs, Knowledge and Skills	<ul style="list-style-type: none"> • Did participants acquire the intended knowledge? • Did participants acquire the intended skills? • Did the PD shift participants' attitudes towards teaching? • Did the PD shift participants' confidence in implementing changes to their teaching? • Did the PD shift participants' commitment to implementing changes to their teaching? 	<ul style="list-style-type: none"> • How do participants feel about the knowledge and skills presented in the PD experience? • How does the language teachers use to describe their own teaching and the teaching of their peers change following participation in the PD experience? 	<ul style="list-style-type: none"> • Are teachers able to identify the use of new knowledge and skills when observing videos of their peers teaching?
Social & Organizational Contexts	<ul style="list-style-type: none"> • Was the school administration supportive of implementing change? • Did teachers feel they had the resources they needed to implement change? • Were new communities of practice created? • What are the demographics of the students? 	<ul style="list-style-type: none"> • How did the administration support teachers in implementing change? • What obstacles prevented teachers from implementing change? • How did the school system change as a result of participation in the PD? 	<ul style="list-style-type: none"> • How did administrative support affect teachers' feelings of self-efficacy in implementing change? • What organizational supports resulted in creation of the most successful new communities of practice?
Classroom Practices	<ul style="list-style-type: none"> • Did the PD lead to participants' applying new knowledge and skills in their classrooms? • Do teachers who participated in the PD use more argumentation in their science lessons? • Do teachers who participated in the PD incorporate more multidimensional learning into their lesson plans? 	<ul style="list-style-type: none"> • How did participants apply their new knowledge and skills? • What language from the PD do teachers use to describe their colleagues' teaching practices? • How are teachers using formative assessments in their classrooms? • How are teachers integrating NGSS and CCSS in their lesson plans? 	<ul style="list-style-type: none"> • Do teachers' self-reports of applying new skills match the actual application of new skills in classrooms? • What is the best way to measure argumentation in a science classroom?
Student Outcomes	<ul style="list-style-type: none"> • What was the impact on students? • Did the PD improve student achievement? • Did the PD affect students' physical or emotional well-being? • Are students more confident as learners? • Is student attendance improving? • Are dropouts decreasing? 	<ul style="list-style-type: none"> • How do parents perceive the impacts of teacher professional development on the students' academic performance? • How do students describe the effects of their teachers skills and knowledge on their own ability to learn? 	<ul style="list-style-type: none"> • Do schools with greater teacher implementation of new skills and practices have higher student achievement? • How do students who express the greatest confidence in learning describe their teachers? • How do students with the highest content test scores describe the learning environment in their classroom?