

Model Fidelity

What is it?

Model fidelity refers to the degree to which a program or service is operating as intended. The [National Implementation Research network at Frank Porter Graham](#) notes that model fidelity is essential to understanding: whether an innovation is actually in use; whether you can attribute an outcome to the innovation (or is it due to something else?); and, how to identify what improvements should be made when outcomes are not as expected, or change. Fidelity, then, is the “adherence, integrity, and quality of implementation” and the degree to which service delivery adheres to an intended protocol or design (Children’s Bureau, 2009).

Ensuring that services are being provided in alignment with an intended model requires that they are implemented with fidelity. Sound implementation is assured by training and coaching. Sound maintenance of a model over time requires model checks (e.g., assessing knowledge, beliefs, observing behaviors) and supports so that staff do not “drift” back to old practices.

What makes for strong model fidelity?

High quality training, materials, and leadership commitment are all important factors for achieving model fidelity. In particular, supervision is considered an essential component to ensuring adherence to model fidelity. Bearman, Schneiderman and Zoloth (2017) examined the application of supervision using *active learning techniques* in an experimental design to assess evidence-based treatment knowledge, attitudes and practices, finding a significant effect for model fidelity among therapists. Active learning includes role-playing and modeling of the behaviors intended in the model.

Readiness for the adoption of new practices is a less-frequently examined component of model fidelity success. In 2006 researchers analyzed whether a tool intended to assess readiness for implementation of a new model of tobacco use prevention programming in schools could predict successful model implementation (Gingiss, Roberts-Gray and Boerm). They explored this because of the overall low rates of implementation of numerous interventions in schools as well as high variation in success of implementation. The characteristics of the tool included categories such as *Facilitation Process*, *Resources*, *School-based Leadership*, *Implementer Characteristics*, *External Environment*, *External Leadership*, *Compatibility*, and *Innovation Characteristics*. All of these attributes – many of which are cultural – were identified because they were potential barriers to implementation success. The tool was found to be categorically correct in 74% of cases, predicting that 28% of schools would achieve implementation fidelity and that in fact, 28% of schools were moderately active in implementation at follow-up.

In what ways is fidelity measured and what methods are used?

Across multiple sectors, research on model fidelity is growing and is seen as a distinct attribute to any program evaluation. Generally, when a new practice is put in place, service providers need to acquire new knowledge and put that knowledge into practice. These two broad domains are referred to variously as: learning, training, and fidelity to structure (the intervention as *described*); and competent execution, demonstration of skills, or fidelity to process (the intervention as *delivered*) (Sheridan, Kwon, & Welch, 2009; Knoche, Sheridan Edwards, and Osborn, 2010). With some models of practice, the

physical environment needs to change as well. Model fidelity measures have most recently been described most fully as containing:

<i>Adherence</i>	The implementation of intervention strategies as designed by program developers
<i>Dosage</i>	The amount of intervention that is delivered to participants.
<i>Quality of Intervention Delivery</i>	The quality or effectiveness with which intervention strategies are delivered.
<i>Participant Responsiveness</i>	The participant's level of engagement in and receptiveness to intervention programming.
<i>Program Differentiation</i>	Whether the characteristics of the intervention distinguish treatment from comparison groups during the implementation of the intervention in studies evaluating the efficacy of interventions.

(Mowbray, Holter, Tague, & Byee, 2008; O'Donnell, 2008 in Knoche et al., 2010)

For the new knowledge components of a new model, the use of trainings, manuals and pre- and post-tests can assess what service providers know. Likewise, when attitude changes towards clients or service recipients is part of the new model, surveys, interviews and focus groups are some ways to assess the degree to which this internal change has occurred (or is occurring).

Changes in practices (or *competent execution*, as described by Forgatch, Patterson and DeGarmo (2005)) need to be observed (Koch et al., 2010). Service provider-client interactions can be directly observed or videotaped. Transcripts of sessions with clients is also an option. Evaluating fidelity can involve creating coding tools to assess what is observed or reviewed, or specific evidence-based models may come with coding instruments that can be used when assessing practices. In the study, when the correct behaviors and interactions were observed in videotaped sessions, they were strongly predictive of the positive expected outcomes that were observed later (Forgath, et al., 2005).