

What is Fidelity?

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Introduction

Fidelity is defined as doing what is intended - a simple definition for a complex measurement. The purpose of measuring fidelity is to assist us with supporting implementation. Collecting fidelity data provides us an opportunity to problem-solve throughout the process versus waiting for outcome data. We often hear the phrase in educational institutions, “We are ‘doing’ the curriculum with fidelity” or “The intervention is being ‘used’ with fidelity.” But how do we truly know if we are measuring what is intended? More often than not, purchased programs and curriculum materials are missing a research-validated measurement to ensure it is implemented as intended. Educational institutions may be measuring fidelity through the use of a walkthrough tool or teacher self-report, but are the tools aligned with what they want to measure (Hill & Erickson, 2019)?

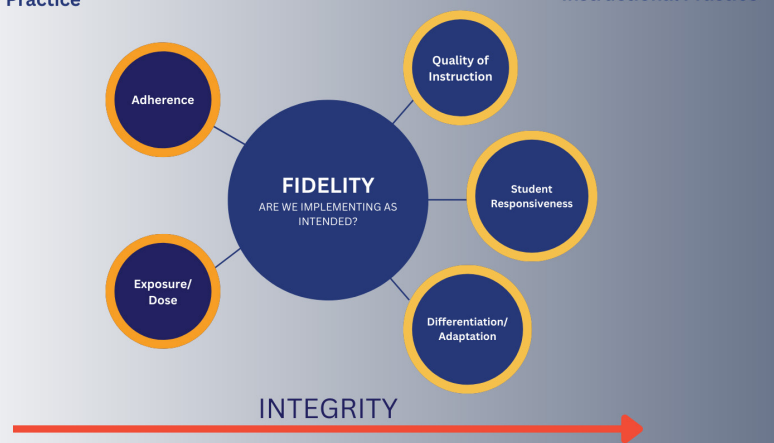
There is a need within the field of education to move fidelity from research to practical application and to do so with an efficient tool. One that does not skim the surface and can ensure a correlation between fidelity and outcomes.

We can even take fidelity a step further and ask whether we want to measure “fidelity to process” or “fidelity to practice.” If measuring the process, we would want to examine if the teacher was following the core components or essential ingredients of the program and how often they were using it. If measuring the fidelity to the practice itself, we would look at the quality in which the teacher was delivering instruction within each core component and if they were able to adapt their responses to the needs of each student as they provided differentiated support.

Fidelity

Fidelity to the
Program or Practice

Fidelity of
Instructional Practice



Fidelity to process is adherence to essential ingredients and dose (frequency and duration). Fidelity to the practice is quality or competence and participant responsiveness or adaptations.

While fidelity to process and fidelity to program are essential factors to consider in implementation, it is also important to consider best practices when measuring fidelity (Hill & Erickson, 2019). We should use consistent fidelity assessments and develop a protocol for use of the fidelity assessments. Fidelity data should be used to inform improvements to implementation support and outcomes. These measures can also give us a view of implementation at different levels within the system or a linked teaming structure. How do school buildings use fidelity data and communicate results to district levels teams? How are District Implementation Teams utilizing data to solve implementation barriers further up the teaming cascade?

What is the Observation Tool for Instructional Systems and Supports?

The SISEP Center has developed the Observation Tool for Instructional Systems and Supports (OTISS) to assist educational agencies when there is a lack of a fidelity measurement in implementation. Based on the work of John Hattie (2009), the tool is designed to measure instructional best practices to ensure a coherent instructional system is in place. The OTISS is an example of how the data can be aggregated and used to decide how to improve implementation, educator support, and instruction. So what does the research say? John Hattie's work included a meta-analysis of over 800 meta-analyses, including over 50,000 studies related to student achievement. A meta-analysis is the concept of examining data from a number of studies to determine patterns and trends in a subject matter. In this case, Hattie examined teacher behavior and what works best for learning (Hattie, 2010). From this body of work and a scoping literature review, SISEP identified seven evidence-based instructional practices that were observable teacher behaviors. See the teacher behaviors listed below.

1. Communicates clear learning goals
2. Demonstrates instructional tasks
3. Engages all students in meaningful interactions with content
4. Adjusts to all students' responses to instruction

5. Provides multiple opportunities for all students to practice
6. Adjusts to all students' engagement with instruction
7. Provides prompt and accurate feedback

So, why should we use the OTISS?

First, let's discuss how the tool is used.

The tool has a content-free design that applies to any grade level and part of the instructional activity. The focus is on the general aspects of instruction that can inform support for teacher training and coaching. Once trained on the OTISS, individuals complete periodic, ten-minute classroom walkthroughs.

The data is entered into sisep.org, where reports can be pulled for the building, district, regional, and state agencies to guide implementation. Because the data is collected in sisep.org, the data is accessible, frequent, relevant, and actionable based on the available reporting features.

How is the OTISS utilized in the field?

Three state partners are in various stages of using the OTISS as part of SISEP's technical assistance. This brief aims to share their journey of utilizing the OTISS, why they selected it as a measurement tool, how they used linked teams to change instruction using the data, and what they have learned from the process with their regional and local educational agencies.



MINNESOTA

The literacy practices based on the science of reading (SoR) are many and complex. The Minnesota Department of Education (MDE) did not have a valid tool to measure the practices consistently across the components of reading as teachers were trained and attempted to implement each of them. Therefore, they decided to get started with a valid measure that aligned with the practices presented in training, could be used to observe all of the components over time, and had been correlated with student outcomes. They knew that other measures such as checklists specific to the components could be used along with the OTISS as another source of data.

The Minnesota Department of Education started with districts that were willing and able. Part of being able included having teachers who have completed training on the practices that were to be measured and working to implement the practices as a system.

The first organization was a large charter school with a leadership team that saw the wisdom in the [Active Implementation Frameworks](#) and had experienced early indicators that the practices informed by the SoR were benefiting their young readers. The OTISS training for this organization was facilitated by SISEP and participants included Minnesota Department of Education staff and regional partners.

The next three OTISS trainings for districts were facilitated by MDE staff and the regional partner with participants from one or two districts.

The facilitators recorded the virtual training to learn from the discussions so that trainings could be improved. SISEP team members offered prompt responses to questions as they prepared for the trainings.

To date, the OTISS observations have covered seven Minnesota schools. The lessons learned are numerous, as the OTISS is robust enough to review critical features of early reading instruction. The tool allowed the Minnesota Department of Education to:

- Identify themes for training adjustments, such as being more clear about stating why a lesson is important and what promoting reflection by all students looks like.
- Identify methods for improved instruction such as emphasizing practices, time limits and pacing, offering booster training, and adding cues to instructional materials.
- Identify coaching opportunities.
- Increase collaborative consensus for system change and prepare for implementation work.
- Create a desire to capture some of the exemplar lessons for use in training on instruction.
- Add value in using observers from outside a school system.

Additionally, the Minnesota Department of Education team has indicated that districts should develop additional supplemental documentation when using the OTISS. Documentation may include a recording system that details different behaviors uncovered during an OTISS observation that may not be part of the specified indicators and organize themes to inform coaches, trainers, and the district implementation team.

FLORIDA

The Florida Department of Education selected the OTISS as an observation tool for multiple reasons. The OTISS aligns with the PreK-5 ELA Practice Profile they developed to support the implementation of the Florida B.E.S.T. Standards. They also appreciate the one-page approach during a ten-minute classroom observation as it offers a specific and concise look for observers. The tool's simplicity leads to robust discussions that allow for the growth of all observers. The observers value the tool to gather data on professional learning, support, and coaching systems.

The Florida Department of Education has provided initial OTISS training and a refresher before using the tool in their selected districts. The state transformation specialist has supported conversation and conducted classroom observations with district leaders as they worked to achieve Inter-Observer Agreement (IOA).

KENTUCKY

The Kentucky Department of Education (KDE) began utilizing the OTISS in partnership with their regional cooperatives and local education agencies to measure fidelity of mathematics practices that were defined and operationalized in the Kentucky Math Practice Profile. The KDE collaborated with its regional cooperatives and

local education agencies in the Transformation Zone. Cooperatives and district-school leaders were clear that individual teachers' data would not be used as part of the annual evaluation process. Rather, teacher data would be shared after collection and used in aggregate by teachers and their coaches. Teachers collaborate to identify their school-wide goals for improvement. Then, teachers identify the training and coaching they require to meet their school-wide instructional goals. This process built trusting relationships, teacher collaborative buy-in, and collective commitment to improvement and accountability. Eventually, coaches and teachers met to look at individual teacher data, in confidence, to develop their individual goals for improvement.

Kentucky's learnings and next steps include the following:





- The tool is currently being reviewed to assess whether use of the OTISS in preschool is applicable to the Teaching Pyramid Model (Hemmeter et al., 2009).
- Based on the data collection and experiences of the initial use of the OTISS, the Kentucky Department of Education co-created within the Transformation Zone a new tool for measuring fidelity - the Kentucky Mathematics Innovation Tool (KMIT). The KMIT is aligned with the Kentucky Mathematics Practice Profile and uses a similar Inter-Observer Agreement process before utilizing the tool.
- The fidelity measurement data collected through the KMIT provides vital information to the state, regional, district, and building levels, impacting policies, training, and coaching supports to improve teacher practice and then students' summative mathematics scores (Ryan Jackson, et al., 2021).

Fidelity Data as part of a Decision Support Data System

In education, we are often known as data-rich and information poor. We collect data, knowing we should, but often fail to take the time to dig deep into the data to hypothesize problems and identify solutions. Best practice is for educational agencies to collect fidelity data as part of their Decision Support Data System (DSDS). The DSDS is a system for identifying, collecting, and analyzing data that are useful to the teacher, district, and other agencies. Having a system ensures that the right team members are trained and have access to the information with a common process to review, discuss, and formalize action steps based on that data.

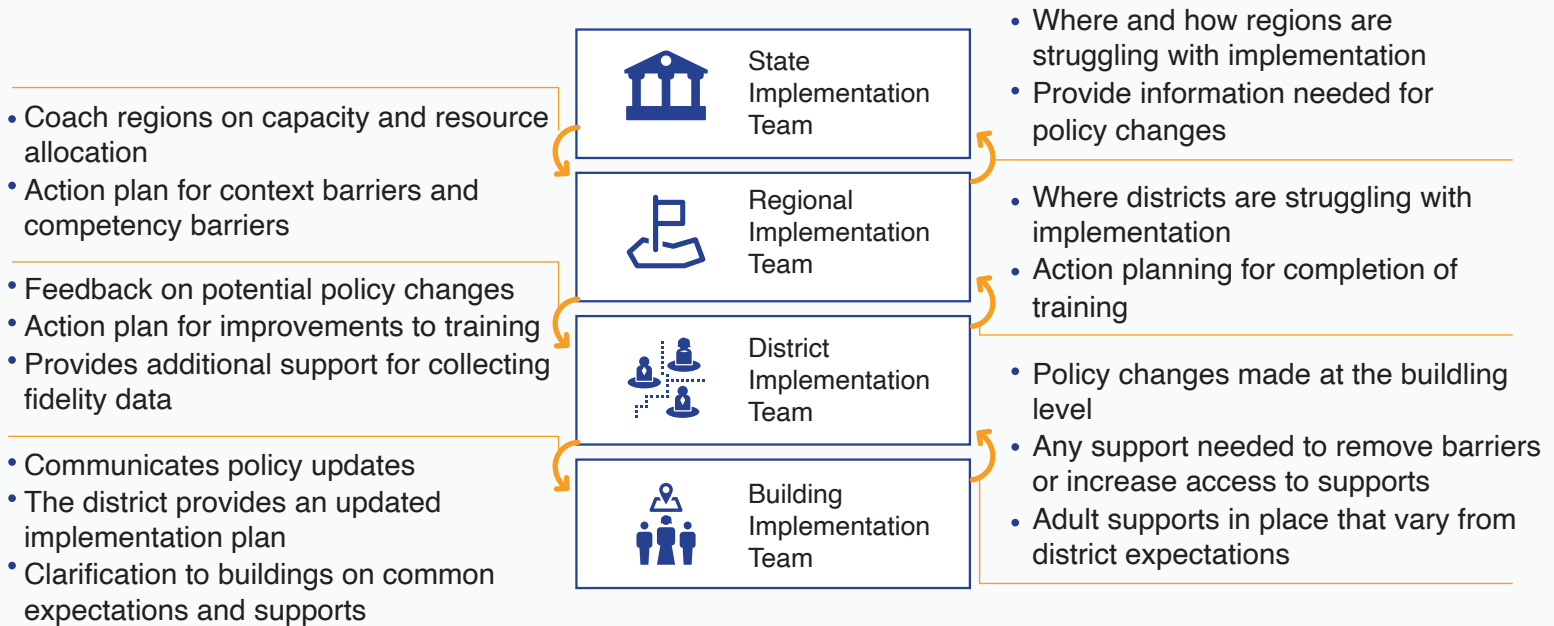
Additionally, no education agency should collect and use data in isolation. As part of a linked teaming structure, the various teams throughout the cascade should communicate and share fidelity data to improve their work within the practice or program implementation. (Table 1)

Table 1: How is fidelity data used at the various team levels?

 Building Teams	 District Teams	 Regional Teams	 State Teams
Barrier Busting & Action Planning to improve implementation	Reviews to see clarifications and commonalities between buildings	Knowledge of adaptations that are necessary	Action plan with purveyor to improve training content
Improvements to Selection, Training, & Coaching	Update policies based on addressing barriers	Planning for tiered supports & action planning	Support capacity and scale up
Correlate with student outcome data to measure the impact of implementation	Support access and experience through shifting training and coaching	Designing learning and collaboration networks for districts	Resource allocation decisions (funding, staff, etc.)
What stage of learning are we in?	What capacity is needed at the school level to increase fidelity data?	Regional plan for training and coaching Regions (depending on role) may impact policy	Impact policy changes Provide information on how fidelity data impacts capacity

As seen in Table 1 and the experiences shared by partnering states, it is critical that, once the fidelity data is collected at the building level, it is communicated and shared with the district, regional, and state teams. In addition to the actual data being shared, changes made at each level should be communicated for feedback, shown in Graphic 1 below.

Graphic 1: Communicating Fidelity Data Between Linked Teams



Fidelity is critical to implementation and drives the teams' work associated with the program or practice. We can also determine the direction we should consider if we implement with fidelity, but do not get the expected outcomes (Hill & Erickson, 2019). Not only does it inform the Building Implementation Team if the practice or program is being implemented as intended, but it can provide insight into implementation barriers around policy and support. A significant consideration to utilizing fidelity data within linked teams is communication. We must communicate our results to reinforce the expected implementation of the innovation and guide the feedback process.

So our question is, how are you measuring fidelity? You have to measure fidelity to determine if you are implementing the innovation as designed. You have to build systems to collect this data. You have to determine what data you are trying to collect and how your data system will manage it. The data should be used to evaluate the effectiveness of professional learning as trends throughout different sites. This data refines professional learning and coaching, along with determining your next steps. At SISEP, we offer the OTISS as a tool to measure fidelity. If you would like additional information on the Observation Tool for Instructional Systems and Supports, please contact us at sisep@unc.edu.

Extend Your Knowledge



Read

- [Module 2: Implementation Drivers](#)
- [Observational Tool for Instructional Supports and Systems: Empowering Teachers as Instructional Leaders](#)



Watch

Voices from the Field Video Series

- [Implementation Drivers Intro Video 4](#)
- [Competency Drivers Video 3](#)
- [Competency Drivers Video 4](#)
- [Integrated & Compensatory Video 3](#)



Listen

[Implementation Science for Educators Podcast](#)

- Tip 15: Fidelity and Adaptations
- Tip 16: Utilizing OTISS as a Fidelity Measurement
- Tip 17: Fidelity - The OTISS & KMIT Journey in Kentucky
- Tip 18: Fidelity and the Kentucky Mathematics Innovation Tool



Apply

[Drivers Ed: Fidelity Streaming Lesson](#)

References

Hattie, J. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

Hemmeter, M. L., & Fox, L. (2009). The Teaching Pyramid: A model for the implementation of classroom practices within a program-wide approach to behavior support. *NHSA DIALOG*, 12 (2), 133-147.

Hill, H. C., & Erickson, A. (2019). Using implementation fidelity to aid in interpreting program impacts: A brief review. *Educational Researcher*, 48 (9), 590-598. <https://doi.org/10.3102/0013189x19891436>

Ryan Jackson, K., Gau, J., Smolkowski, K., & Ward, C. (2021). *Improved mathematics outcomes using active implementation: Kentucky's effective and durable change* [Brief]. National Implementation Research Network, University of North Carolina at Chapel Hill.