

An Interview with Amy Azano: Fidelity of Implementation

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Recently, the “response to intervention” paradigm has been adopted to ensure early intervention for children with learning and other problems. One main concern is the teacher’s ability to implement this intervention (in academic and other areas) with fidelity, and integrity. This interview reviews some of these issues and discusses the main concerns in this realm.

1) Amy, first of all, can you tell us a bit about yourself, and your education and experience and how you became involved with the National Research Center on the Gifted and Talented?

I am an Assistant Professor specializing in Adolescent Literacy in the School of Education at Virginia Tech. My scholarship focuses on rural literacy and gifted education, as well as fidelity of implementation. Prior to Virginia Tech, I earned a PhD in education from the University of Virginia where I also worked as a research scientist on the federally funded “What Works in Gifted Education” grant at the National Research Center on the Gifted and Talented. I am a former high school English teacher and also served as co-director of the Central Virginia Writing Project.

My recent publications can be found in the *Journal of Research in Rural Education*, *English Education*, *Teaching Exceptional Children*, and the *Journal of Advanced Academics*, and have two authored chapters—one on the CLEAR Curriculum Model and another on rural gifted students. Presently, I’m working on a book, *A Place to Learn: Place-based Pedagogy and Critical Literacy*. I live and work in Appalachia, so I am especially interested in understanding how place contextualizes the experiences for students and teachers in rural schools.

2) Now, let’s start with some terms—how do you define “fidelity of implementation”?

The conceptualization of fidelity of implementation should have a symbiotic and interdependent relationship with any given intervention, so defining the concept can be challenging as it greatly depends on the context of the study. Fidelity of implementation is not simply adherence. It’s a way of thinking about how interventions are “translated”, if you will, from research, program, or curriculum design to actual use in the classroom (or other setting for which it was designed).

Fidelity of implementation is the degree to which an intervention is enacted as designed or intended. Without understanding or measuring fidelity of implementation, it is difficult to make claims about outcomes with confidence. In our work at the National Research Center on the Gifted and Talented, we considered this multi-dimensional complexity. There are various components to FOI, such as adherence,

exposure, program differentiation, quality of delivery, and participant responsiveness. We did not simply want to know if a teacher completed an instructional step as designed but rather why a teacher chose to implement, modify, or omit parts of the intervention. We stayed focused on the idea of wanting to understand teachers' decisions about fidelity.

We were measuring the effectiveness of the CLEAR Curriculum Model, from which two language arts units were created for third grade gifted students. We wanted to assess fidelity to the CLEAR Curriculum Model and its pedagogical principles from which the research-based curriculum was designed—not simply adherence to the instructional steps in the unit. Teachers in our study taught two language arts units, one on poetry and another on research. After each lesson, teachers recorded their notes about implementation in a teacher log.

Additionally, we made repeated on-site classroom observations to observe teachers teaching the units. Using an observation protocol derived from the lesson, we observed how a teacher implemented or modified the lesson. Afterward, we interviewed teachers and asked them about their experience in teaching the lesson. If a modification or omission was made, we asked teachers to discuss their reasoning. If the modification was in line with the underlying principles of the CLEAR curriculum, then that teacher was indeed still adhering to the curriculum.

One of our graduate research assistants at the time, Dr. Lisa Foster (who is currently completing a post doc at Harvard), was instrumental in the data collection and eventually went on to write her dissertation about levels of fidelity with which teachers implemented the CLEAR Curriculum, the factors that influenced implementation, the fidelity of the units to the curriculum, and the relationship between observed and self-reported fidelity. She wrote another manuscript as well about the influences of leadership on teachers' fidelity of implementation.

3) In the schools, teachers are expected to do “response to intervention” but as you know, there are interruptions, fire drills, and children out ill for various reasons. Can response to intervention REALLY be done with integrity and fidelity in the schools?

Schools certainly aren't laboratories, so it can be challenging for many reasons, but if you consider fidelity as an alignment with the program as designed or intended—then typical school interruptions, such as fire drills or flu season, won't necessarily compromise an intervention.

4) Some “pre-packaged programs” require the teachers to read directions verbatim in order for the treatment to be effective. Is this part of “fidelity”?

It really depends on what is being measured and how. If a “pre-packaged” or scripted curriculum is designed with that level of strict adherence or verbatim reading, then measuring fidelity in that way would make sense. However, we did not have scripted curriculum so therefore did not conceptualize fidelity in this way.

5) In your work, you examined “teacher expectations”. What did you find, and how does this relate to fidelity?

“Teacher expectations” was a *finding* of our data analysis. We observed many teachers over several years and in analyzing the data corpus found salient themes emerge as reasons that served to facilitate or interfere with adherence to the curricular model. We found that “teacher expectations” was one of those reasons. If teachers believed their students were capable of completing a task as described in the curriculum, they adhered to the lesson or the curricular component; if they believed students were not capable, they often modified the plan. For example, in the poetry unit we intentionally chose challenging (or “above grade level”) poems for students to read. Teachers who said—*Wow, that’s a tough poem, but my kids are going to love it*—taught the poem as described in the unit. Teachers who said—*Oh, I know my kids. I think the vocabulary would be too difficult*—substituted the poem for an “easier” one. Or, perhaps they still taught the poem but provided scaffolding for students who might struggle by teaching the vocabulary terms prior to reading the poem. Our goal was to understand the teacher’s rationale for making the modification. We did find, however, that teachers who had lower expectations of their students’ abilities not only modified the lesson but also did not adhere to the underlying principles of “depth and complexity” inherent in that particular lesson. We also found from our statistical analysis that students in classrooms with “high fidelity” teachers outperformed students in classrooms with “low fidelity” teachers.

6) Let’s examine various parts of “fidelity of implementation”: a) Adherence, b) exposure, c) program differentiation, d) quality of delivery and e) participant responsiveness—how do each of these relate to fidelity and or integrity?

These components come from the literature in fidelity of implementation. Adherence is probably the most common component and often how researchers tend to first think of fidelity: did participants or teachers “do” or stick with the plan as designed. However, exposure is a way of thinking about the amount of time spent on an intervention. Program differentiation speaks to the importance in knowing if the intervention is distinct from what would typically be occurring in that classroom. So, let’s say for example you have a Tier 2 reading intervention. You have to be able to explain how the specific intervention you are measuring is distinct from any other type of one on one or small group instruction. If you measure positive outcomes, is it because of the intervention or would any one on one or small group interaction yield a favorable outcome? Quality of delivery and participant responsiveness are ways of thinking about how participants interact or are engaged by the intervention.

7) Now, some methodology issues—small sample size—can researchers really draw inferences and conclusions from these small sample sizes of 10-15 subjects?

We had 55 teachers in our sample (for the 2011 study). However, I would encourage others to think about FOI in these multi-dimensional ways. I think it’s important to assess fidelity regardless of the sample size.

The point here is that to make any claims about the intervention, we need to understand if it was enacted as intended.

8) Random assignment—how important is this factor?

Similar to sample size, random assignment is important in experimental studies; however, not necessarily a key ingredient in measuring fidelity of implementation. You can look at FOI in a study that has a relatively small group of participants purposively chosen for a study.

In our work, we looked at it both ways. We used random assignment in the larger “What Works” study and studied teachers’ fidelity of implementation. In our leadership study (with Dr. Foster), we used mixed methods with only 12 teachers used in the final analysis. In our “snapshots” study (presented at the Society for Research on Educational Effectiveness), we used random assignment for generalizability on the protocols used to determine fidelity.

9) Teachers and time—do they really have the time to do all is required while at the same time conduct classroom research?

This was yet another finding of our study. Teachers’ perceptions of time greatly influenced their delivery of the curricular units. If teachers felt they had the time to adequately implement the curriculum, they did so with greater fidelity than teachers who perceived their time to be limited—even if they had the same amount of time.

10) Qualitative vs. quantitative—how do each of these relate to Fidelity of implementation and evaluation of research?

This speaks, I think, to the ontological and epistemological stance of the researcher seeking to measure fidelity. Because fidelity is broadly defined and considered, I think ways of capturing fidelity of implementation data can also be broadly interpreted. We used qualitative methods to capture fidelity data reflecting the expressed rationale for implementing/not implementing with fidelity (for our 2011 study); however, we used quantitative methods to understand how teachers’ choices influenced student achievement on outcome measures.

11) Experience and expertise of seasoned teachers versus, newly qualified or newly certified teachers—do you discuss and examine these issues?

You may want to follow up with Lisa directly, but I know that her dissertation looked at demographic issues and found nothing statistically significant with regard to demographics (i.e., age, experience, degree, certifications, or endorsements) as they related to implementation.

12) There are “drill and grill” teachers who obviously adhere to regimens, and there are teachers who believe children are, well, children, and not rats in a Skinner box. Any insights there?

As I mentioned previously, our goal was not to limit a teacher’s ability to “teach” in the classroom. Rather, the curricular units were designed from three well-known models in gifted education (Tomlinson’s Differentiation model, Kaplan’s Depth and Complexity, and Renzulli’s School Wide Enrichment Model). In assessing fidelity, we did not simply make check marks for when a teacher did or did not adhere to a part of the plan exactly as it was written. The lessons explicitly honored student differences in interest, ability, and readiness levels. Therefore, we looked for evidence of “good” teaching that aligned with the CLEAR Curriculum. So, if a teacher modified the plan to further differentiate based on what he or she knew of a student’s interest or readiness level, then we regarded that modification as adhering to the philosophical principles of the curriculum.