

Evidence for coaching on student outcomes. Although coaching has demonstrable impact on teacher change, few studies have examined the effects of coaching on student outcomes. A recent synthesis of technology-based mentoring found no studies that provided data to support the impact that mentoring of teachers had on student outcomes (Gentry et al., 2008). Recently, our research group established that reading outcomes of first-graders receiving Tier 2 intervention, whose teachers received either text-only technology-based coaching support or on-site coaching, were similar on all measures across multiple domains of reading, but that students in both coaching groups outperformed students whose teachers received assistance by request on measures of reading including phonological awareness and word recognition (Denton, Mathes, Weiser, 2010). Since then, our group has worked to enhance our technology-based coaching model to make coaching via technology more like coaching by a person (i.e. observations and face-to-face conversations using webcams and teleconferencing). We call this coaching platform the *Coaching Solution* (Mathes, Cuevas, Denton, 2009).

To date, we have conducted one study with the refined *Coaching Solution* platform at Tier 2 with teachers of first-graders at risk for being identified as learning disabled. In this study, all teachers were provided intensive face-to-face staff development on the implementation of *Early Interventions in Reading (EIR)*: Mathes & Torgesen, 2005) and in the use of *I-Station's Indicators of Progress (ISIP)* CAT-Driven CPM data (Mathes, Torgesen, & Herron, 2009) to inform instruction, but were assigned randomly to the *Coaching Solution* or no-coaching conditions. This study established that across all measures of reading administered, the most important factors for predicting outcomes were students' initial status (i.e., pretest scores) and how many *EIR* lessons were completed (Mathes & Weiser, 2010). Importantly, the number of lessons completed was mediated by coaching condition, with teachers in the *Coaching Solution* condition more likely to have better pacing, deliver instruction of higher quality as measured by a fidelity rating scale, and to complete more lessons across the academic year. Commonality

coefficient analyses of these coaching implementation variables were able to explain the unique and shared variance of these variables on participating students' post-test scores. Results from these analyses are presented in Table 2.

Table 2: Variance in Post-Test Scores Explained by Coaching Variables

Post-Test Measure	Unique Variance of End Lesson	Unique Variance of Quality	Unique Variance of Pacing	Shared or Overlapping Variance
Oral Reading Fluency	73%	1%	4%	22%
WJIII Word Identification	51%	1%	15%	33%
WJIII Word Attack	81%	1%	2%	16%
WJIII Comprehension	82%	14%	11%	7%
WJIII Spelling	90%	5%	2%	3%
TOWRE Sight Word Efficiency	78%	16%	15%	9%
TOWRE Phonemic Decoding	60%	1%	5%	34%
CTOPP Blending Words	91%	1%	2%	6%
CTOPP Blending Non-Words	70%	2%	1%	27%
CTOPP Segmenting Words	60%	1%	6%	33%

Features of the Coaching Solution

Within the *Coaching Solution*, content is partitioned into several spaces. The first space is the *Teacher Resource Space* comprised of staff development information. In this section, all information learned during staff development is available through topic specific slideshows with in-depth information about each slide presented under its respective slide. This additional information is also presented using professionally recorded voice talent with excellent audio quality. However, teachers can choose to hear the additional text, or simply to read it. Embedded into these slides are professionally filmed and edited video demonstrations of specific techniques

and teaching routines. These video demonstrations are also located in a separate space called the “*Video Library*.” Coaches guide teachers to specific video demonstrations by placing links to specific routines into teacher space.

Beyond access to content and video demonstration, the *Coaching Solution* provides teachers with access to a larger community beyond their classroom. This community is partitioned into four spaces: *Coach Space*, *Community Space*, *Team Space*, and *Data Space*. The teacher’s individual space is called *Coach Space*, which is dedicated to personalized and private communications between a teacher and his or her coach. It is the location where the bulk of coaching interaction takes place. This space also includes webcam observations and teleconferences. *Community Space* operates much like a chat room and provides a space where teachers can seek advice from other colleagues facing similar challenges, as well as celebrate successes. Within *Community Space*, teachers can access personal pages of each teacher. The coaches’ role in this space is to facilitate discussions, but not to direct them. Threaded, coach-directed conversations occur in the *Team Space*. These discussions can be both synchronous and asynchronous. To facilitate participation in the discussions, teachers are placed into smaller teams of about 10 teachers. Synchronous discussions are planned to occur at regularly scheduled times. The final space on the *Coaching Solution* is the *Data Space*. This space provides teachers with access to all child level data collected as part of the project. Of greatest relevance are graphic representations of up-to-date CPM data from *ISIP*, which is accessed through a portal within the *Coaching Solution*.

The Coaching Solution process. Using the *Coaching Solution* platform, our coaches will provide student focused coaching following a 4 step process: (a) data collection and review; (b) webcam classroom observations and teleconferencing, (c) one-on-one and team discussions, and (d) referencing teacher resources. The first step, **data collection and review**, requires teachers and coaches to examine student data. This is accomplished through examination of the teacher

reports that accompany *ISIP* and are accessible through a portal in the *Coaching Solution* that links teachers to their data within *istation*, the vendor of *ISIP*. The second step, **webcam classroom observations and teleconferencing**, provides a venue for the coach to directly observe instruction. An added benefit is that images captured digitally can also be viewed by the teacher for up to 10 days after an observation. Coaches are able to pull short clips of instruction to illustrate for the teacher both positive and less desirable features of instruction. Observations are followed by teleconferences in which observed instruction is discussed in terms of student behavior and achievement. The focus of teleconferences is on reflective problem solving. The third component, **one-on-one and team discussions**, links the teacher to a community of other teachers facing similar challenges. Teachers can also choose to seek assistance solely from the coach, or ask others within the team for advice and assistance. This space is also used by the coach to engage teachers in reflecting on child progress between observations. The final step, **referencing teacher resources**, allows teacher to access information and video clips presented during staff development as needed.

References

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