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# **Coaching as a Form of Professional Development to Support Rural Teachers**

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## Introduction

- This paper will share information from three studies. Two studies are being conducted through the National Center for Research on Rural Education, which is housed in the Nebraska Center for Research on Children, Youth, Families and Schools – or CYFS – in the College of Education and Human Sciences at the University of Nebraska-Lincoln. All three studies are part of the rural education research portfolio of CYFS, and all are funded by the U.S. Department of Education through the Institute for Education Sciences.
- Research contributes to data-based understandings of *what works, for whom, and under what conditions* in the rural context, in the areas of instruction/education, professional development of teachers, and related issues (e.g., family-school partnerships)
- The purpose for this paper is to share information on the purposes, process, preliminary findings and coaches' experiences from three large-scale research studies, specifically focusing on the coaching aspect. The goal is to improve understanding of coaching as a component of professional development for teachers, specifically aimed at providing ongoing support to help teachers translate the content of professional development into the authentic contexts of the classroom or the home setting.
- Theory of Change for Professional Development (Figure 1). Specifically related to teacher professional development, this schema depicts the operating theory of change. Briefly, student learning is impacted from high quality professional development – that focuses on discipline-specific instructional content coupled with an empirically-supported approach to providing the PD – that results in a change in teacher knowledge, skills, attitudes, and perceptions and leads to an actual transfer of knowledge and skill to the classroom or home setting. This transfer of skills into applied classroom instruction or home-based support is what results in positive outcomes related to student learning, child learning and behavior, parent-teacher partnerships, and parent-child relationships. While professional development is provided on-site, coaching is delivered either on-site or via distance technology and either in real-time or asynchronous (outside of the actual implementation).
- Professional development framework (Table 1). This table represents the framework for the provided professional development. It all starts with some level of identification of student or child needs. The primary professional development aims to promote knowledge and skills through the use of content instruction through didactic presentation, modeling of skills by content experts, practice of new skills by the teachers, and feedback provided to the teachers by the content experts, including the coaches. The most important aspects of evidence-based, high-quality professional development are first, to engage teachers actively by modeling skill sets, providing opportunities for teachers to practice the skills, and providing feedback – a learning model that includes seeing it being done, practicing doing it and receiving guided feedback with repeated opportunities for practice and feedback. A second critical component involves opportunities to collaborate with colleagues. A third critical aspect is receiving ongoing support – which in these research studies takes the form of instructional coaching for teachers. Finally, high-quality professional development is delivered over time.

- Coaching framework (Table 2). This table represents the framework for these studies' approach to coaching. The primary features involve joint planning between the teacher and coach followed by actions taken by the teachers and / or coach. Other features include opportunities for teachers and coaches to observe each other's strategies, reflection that occurs independently by the teacher and coach and also together in which the coach helps support the teacher's reflection of their practices, and finally, feedback that occurs with the teacher and coach together.
- This paper will present information from three research studies that illustrate the role of coaching as a source of on-going support for teachers who have received professional development as part of a research study.
  - While the specific skills vary among the projects, the intent is the same – to support the development of skills in teachers who work with students or children and their parents to achieve positive outcomes.
  - While the specific delivery of the coaching varies among the projects, there is a shared fundamental approach to it – the coach-teacher relationship is viewed as a partnership, the role of the coach is to support positive skill acquisition and implementation in the actual settings of the classroom or the home, the coaching is built around pointing out specific positive skills that the teacher demonstrates and to help them recognize and modify areas for improvement, and the coach supports and guides the teacher to engage in reflective practices that allow them to truly master the skill sets and be able to consistently apply them in the actual or authentic situations.

### **Project 1: CSI: Coaching Science Inquiry in Rural Schools**

- Investigating effects of professional development in guided science inquiry and benefits of science coaching delivered to teachers via distance technology.
- Large-scale randomized trial: 90 science teachers currently participating in 76 schools in NE and IA; almost 3,000 students in grades 6-12; currently recruiting teachers for second year of study (2013-2014).
- Research question: What is the impact of professional development on guided scientific inquiry with follow-up coaching (treatment) versus no professional development (control) on (a) **teacher** inquiry knowledge, skills, self-efficacy, and beliefs and (b) **student** inquiry knowledge, skills, engagement and science attitudes?
- Professional development targets
  - Standards for science inquiry
  - Science inquiry instructional strategies
  - Supports for classroom implementation

- Student engagement in science inquiry
- Coaching as part of summer professional development
  - For the teachers involved in the CSI project, it began with the professional development during the summer. Key CSI personnel introduced them to guided scientific inquiry with activities that had them involved as “students.” The whole group then discussed the process after each activity, so that any questions or concerns could be addressed. The teachers were given inquiry units to look over-- CSI had lessons ready to go in Life Science, Physical Science and Earth Science for middle school and high school. After the first few days of being introduced to the process, the teachers were then assigned a coach. The coaches and their teachers met in groups and one to one to begin the process of building a relationship.
  - Later in the first week of the summer workshop, each coach modeled one of the CSI lessons. Then the teachers each chose a lesson that they would model the following week. They worked with their coach and other teachers on their “team” to unpack the lesson and determine how to present it and what part of the inquiry cycle they would focus on. This gave the teachers a chance to practice and get feedback, and also the chance to see many of the lessons in action. The opportunity to see other teachers teach was an added bonus.
  - Teachers also had the chance to practice using the cameras and manipulating the video files. They set up Dropbox accounts and created a shared folder before leaving for the summer.
  - The teachers were able to choose when during the school year they would implement the CSI lessons, aiming for 6-8 weeks. During that time period, they would incorporate the lessons into their classes and work with their coach. Because the coaches were not on-site, everything was handled with distance technology such as email, Dropbox and Webex.
- Preliminary results from summer institute (Figure 2). Teachers’ self-reported views regarding pedagogical content knowledge, scientific inquiry knowledge, overall inquiry knowledge, and teacher self-efficacy all improved from pre-professional development to completion of the summer institute professional development.
- CSI Coaching process:
  - The On-Going Coaching Support begins with an initial coaching session between the coach and teacher in which they practice the technology and co-plan for the first classroom lesson implementation.
  - The teacher implements and video-records the classroom lesson. The teacher and the coach independently review the classroom video in preparation for the coaching session.

- The coach and teacher engage in a distance-based coaching session during which there is discussion and feedback based on the video-recorded classroom lesson implementation.
  - A coaching session includes positive feedback from the coach to the teacher, a review of the outcomes as observed by the teacher and the coach, a snapshot of the student skills as a class by the teacher with feedback from the coach, and a detailed discussion of the lesson – what went well, what didn't work, how the students were impacted by the lesson implementation. Then, the teacher and the coach share video clips of specific teacher behaviors and strategies that led to desired student outcomes. Then, the teacher and the coach identify areas that can be improved and exchange ideas about strategies to support improved implementation that are likely to lead to desired student outcomes. Then, the teacher and coach plan for the next lesson and schedule the next coaching session.
- They co-plan for the next classroom lesson implementation and schedule the next coaching session.
- The teacher follows up with any preparation needed for the next class implementation, and the coach engages in coach self-reflection for how the coaching session went.
- Then, the process loops back to the teacher who implements the next classroom lesson and video-records it, and the process continues for 1-2 coaching sessions per week over a 6-8 weeks period.
- Then, the coach and teacher mutually decide when to discontinue the regularly scheduled coaching sessions.
- CSI Coaching Logistics
  - As part of the project, the teachers were asked to record their classroom two times a week and then meet with their coach online following those lessons. The process ideally proceeded thusly:
    - Monday: Teacher records lesson, retrieves the video from the camera and puts the file in their shared folder on Dropbox. Teacher watches their recording, reflects on the lesson and prepares for the meeting with the coach.
    - Tuesday: Coach and teacher have a meeting online using Webex (Cisco) that typically lasts one hour. The sessions include positive feedback from the coach, review of the desired student outcomes and teaching strategies, a quick review of the student inquiry skills, detailed discussion of the lesson including the sharing of video clips from the recording to demonstrate what worked well and why and what student outcomes need

addressed or improved upon and strategies to address these, what is the teacher doing that can be improved upon, and finally discussing the next lesson. In the coaching sessions, the coach and teacher use a teacher inquiry rubric and student inquiry rubric to both assess the lesson and plan for the next one.

- Wednesday: Teacher records a lesson again, shares the video, watches it and prepares for Webex session.
- Thursday: Coach and teacher meet online to discuss the lesson.
- Teachers use the GoPro cameras so that the whole classroom can be seen; all students are visible in the videos. GoPro cameras have a 178° angle left to right and capture floor to ceiling. The teachers also wear a wireless microphone so that their voices can be heard clearly. This enables the researchers to hear what teacher is saying and doing. The teachers get very good at repeating what the students say, but if they are standing next to a group the microphone picks it up pretty well.
- The shared Dropbox folder is set up so that once the teacher puts in the video file, and it syncs to Dropbox, the file is deleted from their computer. The file then automatically syncs to the CSI server. When that step is completed the file is available for the coach to download it to their computer and begin to analyze it. The entire transfer of the file from camera to Dropbox to server to coach can take several hours.
- Because the lessons are submitted as video files, the teachers also have the ability to watch themselves teach, which can be an effective means of professional development.
- The Webex meetings enable coaches to share files, share video, or even share our desktop with the teachers. The meetings can be recorded, which is necessary for the study, but also allows the coaches to refer back to those recordings for reflection or for details later. Webex is free for the teachers to use. WebEx allows for the teacher and coach to view the classroom video to look at specific time-stamped video clips to help observe the teacher strategies and student classroom behaviors.
- The equipment for recording lessons was provided to the teachers. They received a GoPro camera and wireless microphone and batteries. If needed, they were also provided with a webcam. Participation in this study did not cost the school districts any money. Furthermore, teachers who participated were provided with 8 days of professional development, room and board and mileage for those 8 days, and a stipend.
- CSI: Rural Schools: Initial Coaching Results (Figure 3)

- Responses on an evaluation survey from the 25 teachers who have completed the coaching process, indicate an overwhelmingly positive evaluation of the coaching experience. The complete evaluation survey has 17 items with a 5-point Likert-type rating scale with 5 being the best score. Average responses ranged from 4.0 – 4.87.
- CSI: Keys to success for the teacher
  - Many of the teachers have commented that the summer professional development was the best they had ever had because of the coaching follow-up. Most feel that they wouldn't have been as successful at implementing the inquiry units if not for the coaching. Some reported they would not have independently tried it at all.
  - The coaching sessions are teacher-driven--the teacher decides what to present in the lesson and what student outcomes to target. The coach is there to help them implement the lessons and provide valuable feedback.
  - There are a couple of key factors that have made teachers most successful with implementing guided inquiry and the coaching process: consistent recording of lessons/meeting with the coach and watching their own videos. There are also some key factors to students being successful in learning science with this method: exploring, ownership of the data/investigation, discussion, and application. Many of the things discussed during coaching can be found in the higher levels of Bloom's taxonomy.
  - Teachers have found that using guided inquiry has made a difference in the attitudes their students have towards science. Teachers have said that it gives their students a "level playing field," and that those who are quiet or shy start to participate more. Or that those who aren't "book smart" get a chance to shine. The teachers who thought it would take more time are finding that it sometimes requires less time on their part for preparation. They reported the investment in class time has been worth it because of the depth of understanding that they see in their students.

## **Project 2: Project READERS: Response to Effective Early Reading Support**

- Project READERS focuses on evaluating the impact of professional development with ongoing web-based coaching designed to assist K-3 rural teachers in using student data and adapt research-based interventions to prevent and remediate student reading difficulties.
- Large-scale randomized trial conducted in over 80 schools in several states in the Midwestern and Northeastern U.S.
- Data are examining teachers' knowledge, perceptions, and practices pertaining to the use of student data and the implementation of reading interventions
- Student outcomes: reading performance



- Initial findings suggest that rural teachers have positive perceptions about the utility and impact of the professional development (PD) and distance coaching approach.
- Given rural teachers' PD needs and resource limitations, this study's findings will have important implications regarding the effective use of PD from a distance to support rural teachers in meeting the needs of their students.
- Project READERS professional development:
  - Teachers and reading interventionists participate in a summer institute and on-site workshop-based training during the school year
  - Focus of PD: Teacher trainings focus on "how to" of data-based decision making for students include didactic training and active participation through the use of scenarios and real student data. Interventionist trainings provide support in effective delivery of reading interventions including training on specific interventions.
- Project READERS coaching process
  - Regular coaching provided by highly-trained "Response-to-Intervention Reading Coaches" via web-based video conferencing.
  - Coaching focuses on (a) using student data to make reading intervention decisions and (b) implementing research-based interventions with small groups of students.
  - Real-time "bug-in-the-ear" coaching takes place with school interventionists while they provide intervention with their students; interventionists participate in debriefing after intervention sessions
  - Technology used in coaching
    - Coaching Session during Instruction:
      - WebEx Video Conferencing
        - Used by School Teachers, Interventionists, and Coaches to support implementation in classroom practices. Allows for side-by-side coaching with off-site coaches.
      - Headsets with microphones
        - Used by Interventionists to allow real-time communication with interventionists during classroom intervention time
    - Debriefing Sessions and Reflection
      - Videos of Intervention Sessions
        - Used by the Interventionists to observe and code intervention implementation
      - Videos of WebEx Coaching Sessions
        - Used by teachers, interventionists, and coaches to observe coaching fidelity
    - Drop Box

- Used by coaches and coach supervisors to transfer and store recorded WebEx sessions
- Teacher WebEx sessions:
  - Focus on application of content covered in the most recent Teacher Institute Session
  - Structure of sessions:
    - Updates on progress/tasks from previous coaching session
    - Review of content from the Institute relevant to next step in the process
    - Review of relevant data (e.g., screening, progress monitoring)
    - Guided practice
    - Coach walks through next step with the teacher using 1 student from the class
    - Teacher walks through next step with a second student
    - Preview next coaching visit
    - Set teacher & coach next steps
- Project READERS comments:
  - *Comments from Teachers*
    - “Being able to converse one on one and ask questions and get immediate feedback was priceless!”
    - “I really liked getting ideas on what to do with different groups of kids, help on how to group kids, what materials to use for small groups, and having [my reading coach] as a sounding board for ideas!”
  - *Comments from Interventionists*
    - "My coach listens to my concerns and helps me become a better interventionist."
    - "When I have questions [my reading coach] is always willing to answer them right away or show me how to do better with the students."
    - "Having the coach give me feedback on what I was doing right and what I needed to change."
    - "The debriefing session allowed me to hear what I am doing well and what I need to improve."
    - "The immediate feedback gave me the opportunity to see my coach model certain skills."

### **Project 3: Getting Ready**

- Getting Ready is a *child- and parent-focused, strengths-based intervention* aimed at enhancing the school readiness of preschool children who are growing up in adverse socioeconomic conditions.
- It focuses on *strengthening relationships in children's lives*, including relationships between parents and their young children, and between parents and teachers.
- Getting Ready aims to support the “curriculum of the home” for young children and families through an individualized and culturally sensitive approach to service delivery.
- The current study involves 300 children/families and 75 classrooms conducted in several rural and suburban communities in Nebraska. Partners include public school prekindergarten programs as well as Head Start programs. (2012 – 2016)
- Children from target classrooms identified to be at greatest educational risk are enrolled at age three; intervention is two years prior to kindergarten. Children will be followed through kindergarten.
- This is the second investigation of Getting Ready; the first randomized study involved 500 children/families.
- Teachers participate in *formal training* that provides them information on how to blend important developmental objectives with effective parent-child interactions.
- Teachers receive *ongoing coaching* from a master coach to support their use of research-based strategies to promote responsive and effective parent-child interactions.
- In addition, coaches help teachers learn to engage with families in *targeted, collaborative problem-solving* to set goals and support children’s development.
- There are three primary interactions during which coaching occurs :
  - Parent contacts – six meaningful contact meetings that occur throughout the year between teacher, parent/child, and coach.
  - Alternate coaching support - the coach engages weekly with the teacher in coaching interactions (approximately 2 hours/ week). These include observation and support in classroom, additional meetings, email support, phone calls, etc.
  - Coaching conversations – individual or small group interactions between coach and teacher(s) for the purposes of planning and reflecting, and for providing feedback. Approximately 90 minutes/month – generally two-45 minute sessions (Pre and Post) (in person or via distance).
- In any coaching interaction with the teacher, the coach is reinforcing the use of collaborative strategies by the teacher to support parent-child interaction, and/or parent-teacher relationship.

- All coaching interactions are strengths-based and characterized with the following features:
  - **Joint Planning**
  - **Observation**
  - **Action/Practice**
    - Modeling, Resources
  - **Reflection**
    - Video/ digital audio can be used as a tool to guide reflection
  - **Feedback**
- Data from first Getting Ready study indicate intervention is viewed favorably by teachers.
  - *“The group coaching, it’s positive, mellow, nonjudgmental and a great atmosphere. They don’t come in and say, ‘You’re doing this and this wrong’—it’s ‘Let’s work on this and let’s make yourself become better for our families.’”*
- Data also indicate positive outcomes for children and families.
  - Enhanced social-emotional competencies;
  - Improved language & literacy skills;
  - Improved parenting behaviors.

### Summary comparison of coaching across the research studies (Table 3)

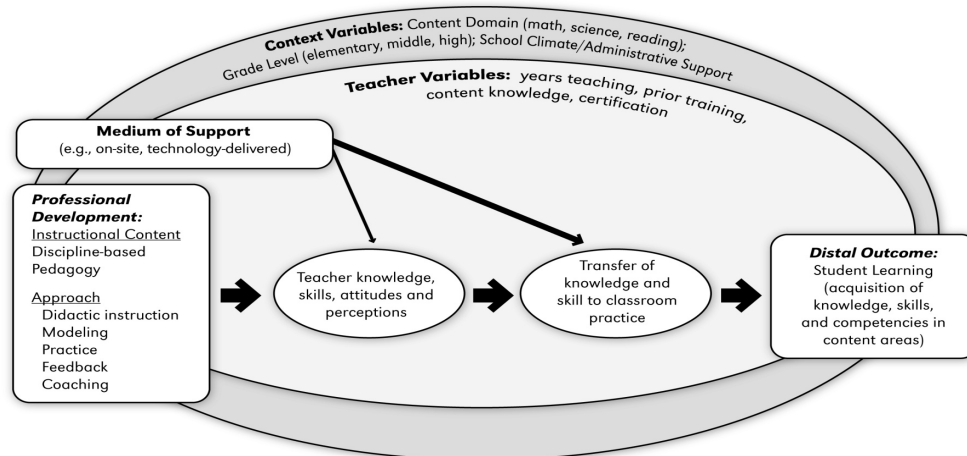
- There are several differences in the delivery of coaching across these three research studies. Some of the differences are in the process or steps in the coaching process, how the coaching is delivered (e.g., on-site or via distance technology, synchronous/real-time or asynchronous/before or after an instructional session but not during), how often the coaching is delivered (e.g., 2-3 times a week for 6-9 weeks), and the general focus of the coaching sessions. Table 3 helps provide a quick glance of the comparisons.
  - In CSI, coaching sessions are delivered via distance technology, in an asynchronous fashion, with 1-2 sessions per week for a 6-8 weeks period.
  - Project READERS’ coaching sessions are delivered via distance technology, in a synchronous or real-time fashion. Coaching sessions with CSI, similar to coaching in READERS, is delivered via distance technology. However, the READERS coaching sessions are conducted in real-time while the teachers are teaching unlike CSI in which the coaches watch the video-recording of a class session and then conduct the coaching session with the teacher.
  - Unlike CSI and READERS, the coaches in Getting Ready provide coaching to the teachers in person in the homes of families with the parents, children, and teacher together in actual situations. Coaching sessions typically occur in the classroom or in the home, depending on the purpose and focus of the coaching session.

- There are also many similarities. Technology, for example, is used to video record implementation sessions for teachers to engage in self-reflection, and video recording of coaching sessions allows for the coaches to engage in self-reflection.

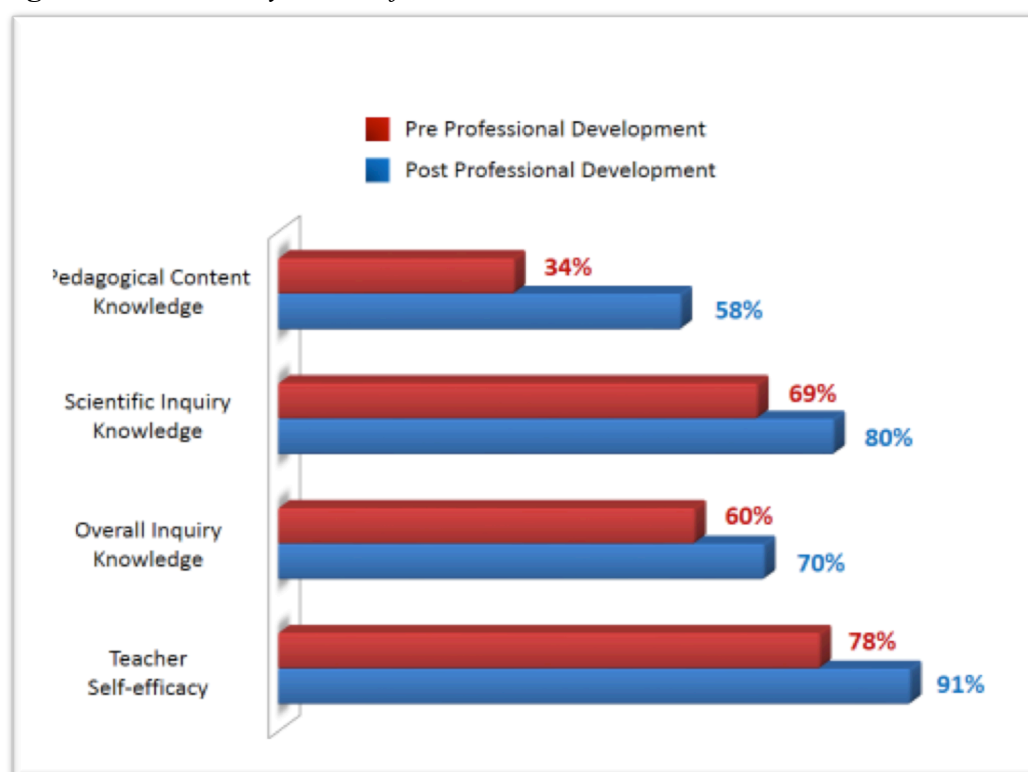
### **Active Ingredients of Coaching**

- Active Ingredients are those components of the intervention, in this case of the coaching aspect, that are believed to be responsible for effecting the positive outcomes observed in teachers immediately, and ultimately in students, children, teacher-parent partnerships, and parent-child relationships.
- Active ingredients encompass three areas: Coach Process Skills, Coach-Teacher Relationship Skills, and Teacher Skills
- Active Ingredients involving Coach Process Skills
  - Observes teacher implementation
    - Observation skills for specific teacher behaviors that promote positive outcomes for students and/or families
  - Co-develop areas of skill focus with teacher
  - Use of video clips to show positive skill implementation and areas for improvement
  - Facilitates teacher self-reflection
  - Models new skills
  - Coach self-reflection with support from peer coaches and project team
- Active Ingredients involving Coach-Teacher Relationship Skills
  - Coach views him/herself as a partner with the teacher
  - Mutual respect, trust and reciprocity established and maintained
  - Coach provides feedback to teacher on positive teacher practices/strategies and areas for improvement
- Active Ingredients involving Teacher Skills
  - Coach views him/herself as a partner with the teacher
  - Mutual respect, trust and reciprocity established and maintained
  - Coach provides feedback to teacher on positive teacher practices/strategies and areas for improvement

**Figure 1.** *Theory of Change from Teacher Professional Development*



**Figure 2:** *Preliminary Results from Summer Institute PD*



**Figure 3:** *CSI: Rural Schools: Initial Coaching Results*

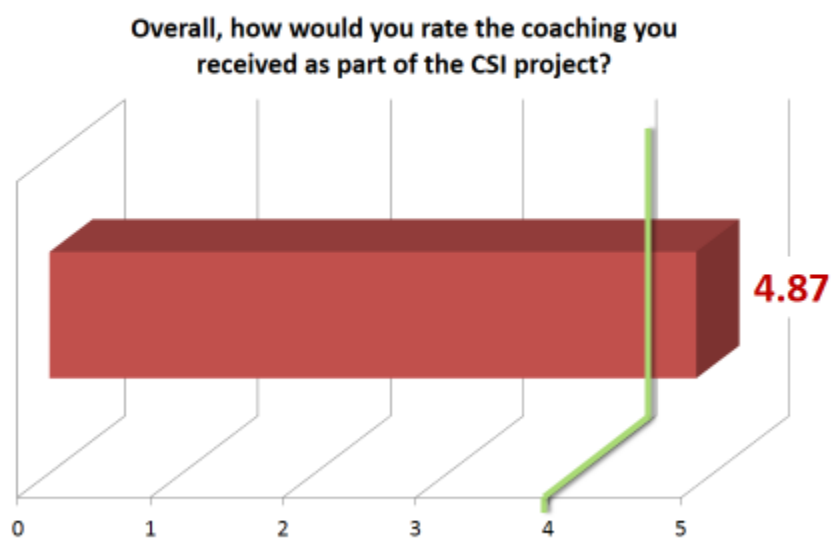
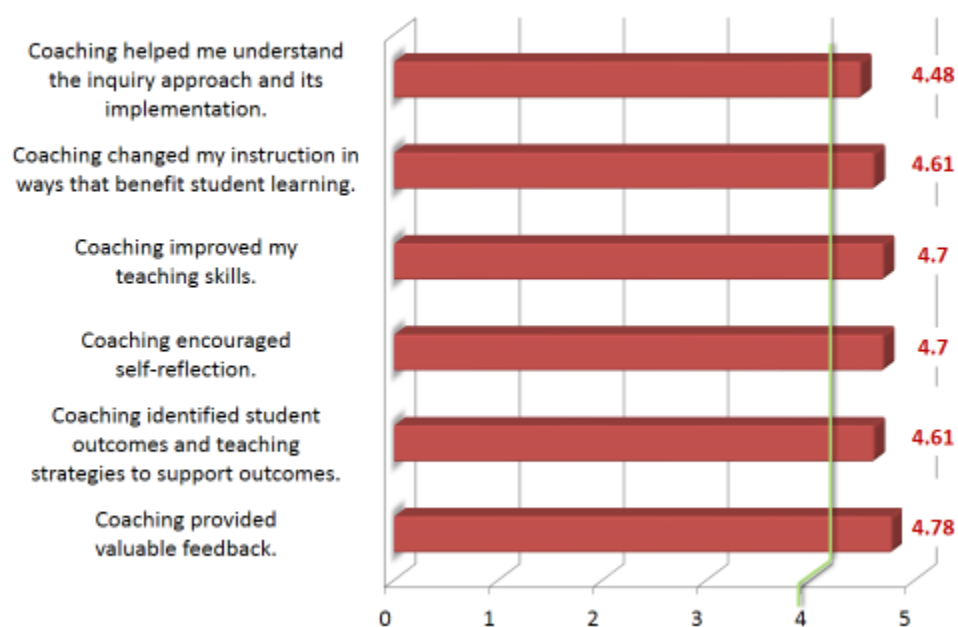


Table 1.

*Professional Development Framework*

Process	Approach	Definition
Assessment (identification of student needs)	Self-report	Teacher appraisal of student knowledge, skills, needs, and/or capabilities
	Direct observations	Direct, objective assessment of student performance
	Progress monitoring	Teacher-administered probes document students' performance
Promotion of knowledge/skills	Content instruction	Evidence-based, domain-specific information presented by content experts
	Modeling	Demonstration of effective instructional strategies by coaches
	Practice	Enactment of newly learned skills by teachers
	Feedback	Written and/or verbal evaluations of teacher practice
Skill transfer (to classroom or home setting)	Coaching	Individualized coordination and oversight by coaches, from training through actual implementation in authentic classroom or home settings



Table 2.

*Coaching Framework* (Hanft, B., Rush, D., & Shelden, M. (2004). *Coaching families and colleagues in early childhood*. Baltimore: Paul H. Brookes).

Features	Participants	Definition
Joint Planning	Teacher & Coach Together	<ul style="list-style-type: none"> <li>• Discuss/agree on actions before/during next implementation</li> <li>• Occurs as part of all coaching conversations</li> </ul>
Action / Practice	Teacher & Coach	<ul style="list-style-type: none"> <li>• Spontaneous/planned opportunities for teacher to practice, refine, analyze new/existing skills, determined by joint plan</li> </ul>
Observation	Teacher & Coach Together	<ul style="list-style-type: none"> <li>• Examination of another's actions or practices (coach or teacher) in order to develop new skills, strategies, or ideas</li> <li>• Can involve use of video or live modeling by coach</li> </ul>
Reflection	Teacher & Coach	<ul style="list-style-type: none"> <li>• Analyze actions, practices, strategies, ideas, in light of new or intended outcomes</li> <li>• Video/ digital audio can be used as a tool to guide reflection</li> </ul>
Feedback	Teacher & Coach Together	<ul style="list-style-type: none"> <li>• Information provided by coach after teacher implements or practices new skill or reflected on own observations/actions</li> <li>• Can take the form of affirmations, examples, descriptions, data, suggested areas for improvement and resources</li> <li>• Purpose is to promote teacher's new skills, strategies, and ideas as they relate to intended outcomes</li> </ul>

Table 3.

*Summary Comparison of Coaching Across the Research Studies*

Coaching Sessions	CSI: Rural Schools	Project READERS	Getting Ready
Delivery Mechanism	Distance Technology	Distance Technology	On-Site; some distance
Synchronous or Asynchronous	Asynchron	Synchronous Asynchronous	Synchronous & Asynchronous
Frequency	1-2 sessions per week, 6-8 weeks	Interventionists: 1 live session & 1 debriefing session/month; ~8 mo Teachers: 1/mo (6 sessions)	90 minutes/ month coaching 8 hours/ month alternate contacts 2 academic years
Location of Teacher Implementation of PD Skills	Classroom	Classroom	Interactions with Families (e.g., homes, parent-teacher conference)