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Effects of Professional Development Delivered in a Blended Format on General Education Elementary Teachers' Knowledge of the Response to Intervention Process

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EFFECTS OF PROFESSIONAL DEVELOPMENT DELIVERED IN A BLENDED FORMAT ON GENERAL EDUCATION ELEMENTARY TEACHERS' KNOWLEDGE OF THE RESPONSE TO INTERVENTION PROCESS

by

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Abstract

Research within the last decade suggests that in-service general education elementary teachers' understanding of and skills in administering Response to Intervention (RtI) practices are limited. A review of literature revealed a shortage of professional publications investigating the effects of RtI training for these teachers on their knowledge and skills. This project examined the effects of professional development delivered in a blended format on elementary general education teachers' knowledge of the response to intervention process. Participants included female general education teachers with a current teaching assignment in grades one or two with a range of teaching experience from preschool through sixth grade across nine to 24 total years of teaching. Participants all had at least a bachelor's degree and a current license to teach at the elementary level. The five-week training required participants to complete weekly modules on their own and participate in weekly follow-up group discussions to clarify and expand information from that week's module and review the associated case study from the pretest. In the group sessions, participants discussed the content from that week's module and received feedback from the trainer about the corresponding case study. Pretest/posttest measures included having participants (a) rate themselves on their level of confidence regarding different skills involved in the RtI process, (b) name key elements of RTI, and (c) respond to case studies. The student researcher concluded that the blended format of independent module learning and group discussions increased participants' knowledge of and confidence surrounding the RtI process. The results of this study strengthen the call for more widespread and better training in RtI for general education elementary teachers.

Introduction

Response to Intervention (RtI) was defined by the National Joint Committee on Learning Disabilities as an intervention process that is scientific and research-based in nature, uses appropriate measures to monitor responsiveness to the intervention, and involves making decisions about future instruction based on student performance data gathered during the intervention period (National Joint Committee on Learning Disabilities, 2005). This committee was also clear in stating that these interventions take place in the general education setting, are implemented by qualified professionals, and must be done with fidelity. It is important to clarify what the committee meant by scientific and research-based interventions, qualified professionals, and fidelity. Slocum et al. (2014) concluded that an evidence-based practice "be understood as a professional decision-making framework that draws on the best available evidence, client values and context, and clinical expertise" (p. 53), whereas the American Psychological Association Presidential Task Force of Evidence-Based Practice (2006) maintains empirically supported treatments "are specific psychological treatments [or academic interventions] that have been shown to be efficacious in controlled clinical trials" (p. 273). As far as finding qualified professionals, it appears that a team effort may be most effective because "there may be an overlap between the competencies required of special education, general education, and related service providers" (National Joint Committee on Learning Disabilities, 2005, p. 10). Horner et al. (2017) defined fidelity as "the extent to which a school, district, or state is using the core features [of an intervention] as intended at a specified moment in time" (p. 29). In sum, RtI is a process to provide students with highly focused instruction using evidence-based practices delivered with fidelity by well-trained personnel in order to remediate skill weaknesses and/or deficits that hinder their progress toward grade level standards.

Researchers and educators alike have been discussing and analyzing the term RtI since the 2004 reauthorization of the Individuals with Disabilities Education Act (IDEA) (Individuals with Disabilities Education Act, 20 U.S.C. § 1400, 2004). This reauthorization of IDEA allowed RtI as an alternative method for identifying students with learning disabilities (LD) in addition to the traditionally used cognitive ability-academic achievement discrepancy analysis based on standardized, norm-referenced assessment. Increasingly in Utah, RtI is the preferred method over discrepancy for identifying a LD. For example, the Utah State Board of Education has eliminated discrepancy as a stand-alone option in favor of either RtI data only or a combination of RtI with discrepancy analysis (Utah State Board of Education, 2019). In the time since IDEA's 2004 reauthorization, much research has been done regarding the implementation of RtI and teacher attitudes toward and understanding of RtI (e.g., Castillo, March, Tan, et al., 2016; Castro-Villarreal et al., 2014; Hazelkorn et al., 2011). Research on the importance of using RtI practices in general education classrooms has been well documented and described (Fuchs & Fuchs, 2005). Additionally, in the years since its arrival, research has identified the need for RtI instruction in pre-service teacher prep programs (Prasse et al., 2012). At this time, however, searches for in-service teacher training revealed limited information. Also, many in-service teachers began their careers before RtI was presented as a practice they should adopt into their classroom practice. The lack of substantial research targeting RtI training for in-service teachers suggests a need for further study in this area.

Literature Review

Search Method

Initially, I used Google Scholar to search the terms "teaching training", "response to intervention", and "teacher preparation." This resulted in tens of thousands of related items

including Castro-Villarreal et al. (2014) on the first page of those results. I selected this article for further review because of the references to RtI and teacher perceptions within the title. From that article's references, I pursued Hazelkorn et al. (2011)'s literature review. After sifting through a few more pages of Google Scholar's overwhelming results, I refined my search to the years 2010-2020 (in order to locate the most recent research). This more focused search identified nearly 17,000 articles, which still felt too broad, so I accessed the databases of EBSCOhost and ERIC using Utah State University's online library. I searched with terms combinations "teacher training," "RtI," and "MTSS" and restricted the search results to peer-reviewed journals. This search yielded nine articles, which I felt was a bit too narrow. Broadening the terms to "teacher training," "struggling students," and "interventions" got 207 articles. With these results, I read through titles and abstracts and then focused on any articles that mentioned ongoing training or professional development for teachers related to RtI within the titles and/or abstracts. If the article met that criteria, I went to the full text and perused it to determine if it would be relevant to my study of teacher training and RtI. Specifically, I read articles that discussed teacher perceptions, attitudes, understanding, knowledge of, or training in RtI. I found a few that discussed teacher perceptions about RtI and their perceived skills. Reading through these reinforced the evidence that suggests there is a lack of research about in-service teacher training in RtI, so I included these articles in my review. Finally, I searched ERIC using the terms "RtI," "teachers," and "fidelity" (61 results) to see if that would net relevant research studies. This search was restricted to finding only these words. I browsed the many articles, studies, and reports by looking at titles and abstracts. Dissertations and thesis papers were excluded from my search because I wanted to find peer-reviewed publications in academic journals. If an article title seemed relevant based on my search terms (i.e., contained one or more

of the search terms) I continued to read the article introduction and conclusion to see if it was relevant to my own research. I looked for words and phrases such as in-service teachers, general education teachers, skills training, professional development, RtI, tiered interventions, and perceptions. Because I wished to narrow my focus to RtI training outcomes for in-service teachers (at the elementary level if possible since this will be the setting for my project), I specifically excluded articles that primarily discussed pre-service teacher training or teacher preparation programs. Also, due to RtI's introduction in IDEA (2004), I wished to focus only on information published after that 2004 reauthorization. Lastly, there were some publications where teachers were trained in a specific intervention. These were excluded because my project is not focused on training teachers on a specific intervention, but helping teachers understand the concept of the RtI process as a whole. These searches resulted in three more relevant texts. In reviewing the five total articles and studies found, I selected four to include in my literature review. The fifth was left out because it focused on a survey instrument.

Synopsis of Reviewed Articles

The following are the four articles I selected for review. Each offered relevant information related to teacher training and understanding of RtI practices and processes. Hazelkorn et al. (2011) performed a literature review examining both the prevalence and nature of publications related to RtI within the education community in the years leading up to and right after IDEA (2004) specifically made reference to it. The study performed by Castro-Villarreal et al. (2014) collected and analyzed teachers' perceptions regarding RtI, and then organized their responses into different categories for deeper analysis of those reported perceptions. Castillo et al. (2016) examined the connection between regularly administered professional development about RtI implemented on a large scale across three years and the perceived RtI skills the

educators reported upon completion of the study. Finally, Nagro et al. (2019) studied teachers within a consistently high-performing state to assess their understanding and use of RtI frameworks and resources. This last set of researchers also mention the "research-to-practice gap" (Nagro et al., 2014, p. 59) that exists in education. The proceeding article reviews will more clearly outline this phenomenon.

In-depth Review of Individual Articles

Hazelkorn et al. (2011) studied the literature regarding RtI published from 2003 to 2008, to address the following research questions:

1. To what extent is RtI evident in the professional literature of educator groups (teachers, administrators, teacher educators, etc.) who will be responsible for implementing these practices?
2. What is the nature of the published literature (concept papers, assessment practices, instructional practices, research, etc.) on RtI? (p. 20)

Their endeavor was to glean how much and what kind of professional literature existed that specifically addressed RtI within peer-reviewed education journals. The authors conjectured that there needed to be available literature on RtI if educators were to even be cognizant of the needs, practices, and implications of it.

Their review of literature focused on articles that referenced RtI in the title or abstract and were found in peer-reviewed journals whose audiences would include people who work in education at the elementary through secondary levels. Their search yielded 128 articles from 34 journals. The authors then put these articles through a coding process to determine publication details of the article, the intended audience, the model of RtI used, definition of tiers and levels, applications, and the purpose of the articles. Interrater agreement was checked in 10 percent of

the articles across all codes and coders using exact agreement. From that 10 percent sample check, interrater agreement was established at 91.5 percent. The authors ultimately filtered the journal articles into two main groups: articles that targeted special education or general education.

Their findings revealed that although the number of articles about RtI increased each year in all education-related journals they searched, a mere eight articles were published in journals specifically targeting general educators and those did not appear until 2006. Most of the literature published about RtI was found in journals targeting special educators. Even more interesting is the fact that only two total articles of the original 128 discussed "how to" for RtI implementation (the researchers did not mention if these were in journals for general education teachers or special education teachers). These RtI "how to" articles could possibly have been considered a form of professional development for those who read them. Furthermore, Hazelkorn et al. (2011) discovered that the rate of conceptual articles published was almost three times that of research or empirical articles published within the same time frame mentioned above. This suggests that professionals and experts in education may have still been mulling over the newer concept of RtI and what it should look like in schools. To sum up their findings, these authors essentially said that general education teachers would probably be more informed about RtI practices and procedures if there were more literature on it specifically targeting them, and furthermore, researchers and legislators should make more of an effort to promote it to this group.

In 2014, Castro-Villarreal, Rodriguez, and Moore conducted a qualitative study because they recognized a lack of qualitative research on this topic. Their aim was to ask teachers about their current understanding of RtI, the barriers they faced, what they need to successfully

implement RtI, and what they would like to see happen within their schools to improve RtI. The participants in this study were enrolled in either a graduate program or in a teacher-institute program at a university in a large city in the Southwestern part of the United States. Recruits had to have K-12 teaching experience in order to participate. There were 100 participants: 75 graduate students and 25 in-service teachers spanning 19 school districts. Just over a third of the in-service teacher participants all worked for the same large school district in the area.

They used a researcher-developed questionnaire with both Likert scale statements and short response questions, based on literature reviews conducted by the author. Questions about RtI ranged from teachers' knowledge and available resources, training, and time needed to implement interventions to teachers' perceptions about RtI and how personable those involved in RtI were. Overall, the author created these questions to elicit responses specific to the process of RtI implementation. The researchers analyzed the participants' responses using a software program and constant comparison analysis to search for and code certain phrases, words, and themes from the open-ended questions. These responses were then given a rating linking concepts and themes.

Results indicated that less than a fifth of respondents were able to demonstrate a "good" understanding of RtI, defined as mentioning or touching on between 3 and 4 of the following RtI key concepts: (a) multi-level, tiered, (b) prevention and/or early intervention, (c) universal screening and/or screening, (d) identify at-risk students, need based, and/or struggling students, (e) evidence based intervention and/or instruction, (f) response to intervention, and (g) problem solving (Fuchs & Fuchs, 2005). A majority (78%) received a "poor" rating in their RtI definition due to including fewer than 2 of the key concepts. In fact, only two participants achieved an "excellent" score for including 5 or more key concepts in their definition of RtI. The researchers

did not mention a specific reason for setting those ratings criteria. I would conjecture that it is because there are seven elements and being able to identify half of them (between 3 and 4) would be an acceptable, or "good" working knowledge for most teachers. In addition, participants were not required to explicitly name the key elements, but were given credit for using words or language in their responses that matched the overall concept of a named element. For instance, some participant responses mention finding children with "a deficiency." To the researchers in this study, this response satisfied the concepts of identifying at-risk students. Participants also responded to questions regarding barriers to implementing RtI. The most common themes in their responses were (a) a lack of or need for training; (b) time constraints related to planning, executing, and data collection; (c) not having access to resources sufficient for implementation such as staff, specialists, or materials; and (d) issues with RtI documentation and paperwork. Teacher participants in this study reported suggestions for improving RtI consistent with the barriers they listed—more and better training, resources made more available/accessible, streamlining the process, more effective teacher and administration communication, and lastly more time allotted within the school day to productively use RtI practices. Overall, it seems teachers felt that insufficient systems were in place to promote and sustain the effective use of RtI by teachers in schools. In fact, the authors of this study looked back to Hazelkorn et al. (2011) and summarized that teachers have an RtI knowledge gap that stems from limited education in teacher preparation programs and extends into sparse training for in-service teachers. Furthermore, Castro-Villarreal et al. found that general education teachers showed a concerning lack of understanding and support of the need for RtI and experienced inadequate professional development to help them accurately implement the practice. The main limitation the authors of this study listed included ponderings that teacher

perceptions may vary subject to differences in school systems with high or low RtI implementation fidelity. The researchers recommend research looking into this possible variability further. The authors concluded that teachers had difficulty defining RtI, experienced many barriers to implementation, and had common suggestions for building their knowledge, skills, and ability to provide RtI to students. No actual training was given by these researchers to the teachers. However, their collective data serves as an example that more PD on RtI is a necessity for general education teachers, and they are asking for it.

The next group of researchers took analyzing teachers' perceptions of RtI to a slightly different level. Castillo, March, Tan et al. (2016) studied the relationship that might exist between explicit and concerted professional development and on-the-job coaching and what teachers perceived their own RtI skills to be. They opined that "professional development (PD) is viewed as pivotal to increasing educator capacity for RtI" and subsequently found "minimal empirical research addressing the effectiveness of PD in terms of increasing educators' RtI skills" (Castillo, March, Tan et al., 2016, p. 893). Participants in this study were screened through an application process and represented educators—administrators, general educators, special educators, and other instructional staff—across 7 school districts in a single southeastern state. Most participants were general or special education teachers. Participants were divided into two study groups consisting of 34 pilot schools and 27 comparison schools. Characteristics and demographics percentages for each group of schools were largely similar regarding student race, percentage receiving free-reduced lunch, and percentage of English Language Learners and students with disabilities.

The study spanned 3 years and anyone who participated at any point was included in the final data analysis. The researchers conceded that staff turnover frequently occurs in education

and that participants who stayed at their schools throughout the study likely received more benefit from participating in more trainings over the course of the study. In this study the researchers defined the dependent variable as educators' perceived RtI skills applied to academic and behavior content and data display. The independent variables had two different levels which included professional development provided by school-based leadership teams (SBLTs) and on-the-job coaching for teachers and staff with instructional responsibilities at the pilot school. The instrument used to measure teacher perceptions was the Perceptions of RtI Skills Survey (PRSS), which has 46 Likert-style questions probing educators about their skills in making decisions and problem-solving using data as a guide. (See more investigation and discussion on this survey in Castillo, March, Stockslager et al., 2016.) The authors in this study controlled for years of experience and graduate study (i.e., variables that could influence teacher skills; see Spear-Swerling & Cheesman, 2012). Professional development was given to personnel in the pilot schools over 13 full-day trainings across the three years. Staff working on this project instructed school and district leaders to create diverse teams of approximately 6-8 members for each school. Staff also described the team's purpose at the school. Selection of who to include in their SBLTs at each school site was then left up to school and district leaders.

During the PD sessions, project personnel followed a scope and sequence for instruction that covered the history and educational laws surrounding RtI, what is involved with the RtI process, and implementing RtI using fidelity within a system. The actual training sessions given by those working on the project proceeded with a mix of (a) explanations and rationale for implementing RtI, (b) modeling skills to be used during implementation, (c) skills practice opportunities, and (d) collaboration, reflection, and feedback about skills used. Project personnel also collected data on each SBLT's progress toward mastery of RtI skills and adjusted their

trainings accordingly. In addition to this training, coaches worked in the individual pilot schools to help the educators fine-tune their skills in real classroom and schoolwide practice. Data on educator perceived skills were collected using the PRSS. That survey was given to all who participated in the study at the beginning and end of the first year and at the end of the second and third years. For each individual year of training, an average of approximately half of the participants completed and returned them to the researchers. Additionally, SBLT members at the different pilot schools were asked to evaluate the project personnel on how well they adhered to the training objectives during each PD. Responses from this survey demonstrated that project personnel delivered the different PDs with fidelity.

At the conclusion of this study, researchers found that participating in direct and intensive PDs and ongoing coaching within the schools increased educators' perceived RtI skills relative to academic content. The researchers agreed with Fullan (2010) that if schools focus on just a few well-defined goals, they tended to have better outcomes in systems change projects. According to results from the PRSS, many of the teachers had perceived skills increases with academic content, but not behavior content and this could be attributed to a heavier focus on academics within the schools. Castillo, March, Tan et al. recognized some weaknesses and the potential for future research within their study. First, self-reporting surveys could be at risk for biased answers among respondents (meaning that self-response surveys trend toward inflated perceptions). Second, more research needs to be done to measure demonstrated skills related to RtI training rather than only perceived skills. As a testament to this, the authors stated that "research is clearly needed to identify and understand PD models that can be implemented at a macro-level to increase educators' capacity, that facilitate RtI implementation, and that ultimately lead to improved student outcomes" (Castillo, March, Tan et al., 2016, p. 907). In

summary, the authors of this study found a positive outcomes trend exists between salient, direct PD on RtI and educators' perceived skills.

The last study I examined was published fairly recently (2019), and was authored by Nagro, Hooks, and Fraser. Their aim was to determine teachers' understanding and implementation of tertiary supports (tier 3 intensive interventions) and what factors build a teacher's RtI knowledge base. In their introduction, they acknowledge that a newer term—MTSS, which is multitiered system of supports—has sprung up in this RtI discussion. Some professionals use the terms MTSS and RtI interchangeably. Nagro et al. (2019) describe some slight differences in definitions. RtI has become more of a data-based decision-making instructional process and MTSS is that canopy under which RtI—along with positive behavioral intervention and supports (PBIS)—happens. It is important to note changes and shifts in terms connected with interventions and tiered supports within the education realm. For my project, I will continue to use the term RtI as it has been defined by the researchers previously referenced in this paper. The collective researchers overlap in their definitions mentioning systems or tiers, struggling students or student supports, and evidence or research-bases including using data (Castillo et al., 2016; Castro-Villarreal et al., 2014; Hazelkorn et al., 2010; and Nagro et al., 2019).

The authors decided to study teachers within Maryland schools due to the state's consistent ranking within the top education systems in the United States. The hope was to garner information from a pool of teachers supposedly using best practices (because of their employment in top-ranking schools) within six K-5 schools. The researchers emailed just over a thousand surveys. More than half the emails were undeliverable, likely because of the survey coming from outside the school networks. The researchers suspected that many of the remaining

surveys went to junk or spam folders. In the end, only 63 teachers submitted a response to the survey. Nagro and her associates felt justified in proceeding with the study despite low response rates (12% of the total surveys were returned) because they controlled for different demographic variables, reducing the threat of bias from low response rates. The teachers included general educators, specialists, special educators, related service providers, and other educators with nearly 90% currently responsible for teaching students with disabilities (SWD) and almost all reporting that they have served SWD at some point.

The survey was composed of questions that were reviewed and critiqued by education professionals who had a master's degree and a minimum of 5 years teaching experience before it was emailed out to teachers. The researchers used the term RtI rather than MTSS in their survey so that it would be more recognizable to participants. They defined key terms first to ensure understanding among respondents and included a total of 15 closed-ended questions in three categories: personal demographic information, understanding of RtI frameworks and resources, and general practice.

The researchers found that about half of the responding teachers had experience teaching prior to IDEA 2004 (and therefore before the introduction of RtI in federal legislation) and the other half began teaching after the concept of RtI became part of expected practice. Findings also indicated that 69% of teachers felt that tier 3 interventions were available to any student in need of them and that those interventions could be given by any teacher, while 18% reported that intensive tertiary interventions were reserved for SWD. Interestingly, 11% of teachers said that their school offered secondary supports to students not meeting learning expectations and did not offer tertiary supports. When asked about the types of interventions used, the most frequent responses were (a) explicit or systematic instruction, (b) precision language used by teacher, and

(c) more practice/review opportunities for students. Each of those responses were given by a little more than half of the participants. Some teachers also reported using tactics such as highlighting, modality training, and loss of privileges as "interventions" although these methods were deemed as "nonexamples" by the authors likely for lack of a sufficient evidence base. A little more than half of the teachers reported using paid websites such as Ed Helper and Teachers Pay Teachers and most had no knowledge of available research-supported resources.

Nagro et al. determined that even within one of the best school systems in the country, the majority of teachers lacked specific knowledge of RtI resources, frameworks, and implementation. They concluded that in-service teachers need more training specific to RtI. Some suggestions they offer for helping to boost teacher engagement with and knowledge of best RtI practices are to include the information in websites and resources teachers are already using and to make the information free to access. Lastly, the researchers grant that although the information from this study is not generalizable, it does align with much of the previous research that demonstrates a lack of RtI knowledge among educators and a pressing need for more training for teachers and study of the topic. In particular, they claim that their "study reiterates the need for specific RTI […] teacher education (both preservice and in-service)" […] (Nagro et al., 2019, p. 57). PD for teachers has typically focused on tier 1, but needs to focus more on intensive interventions. Findings from this study are another example of the "research-to-practice" (p. 59) gap that exists in education. Although these researchers did not provide any training for teachers during this study, they emphasize the expansion of learning opportunities for teachers about RtI as a valuable endeavor.

Common Themes and Conclusions

These articles revealed some common themes. First, each piece referenced IDEA (2004) as the catalyst for the introduction of RtI into educators' vocabulary. Second, all offered similar definitions of what RtI is—essentially that RtI is implemented with students who struggle to meet learning or behavioral expectations and involves (a) multiple tiers of intervention (each with its own degree of intensity), and (b) instructional decisions based on data. Third, the researchers investigated what teachers actually knew about RtI, which without exception resulted in findings that teachers needed more training in this area and recommendations that future research continue to study this phenomenon to find the best methods for remediation (Castillo et al., 2016; Castro-Villarreal et al., 2014; Hazelkorn et al., 2011; and Nagro et al., 2019). In my review of the literature, this third common theme became glaringly apparent. Out of the many articles perused and finally the four relevant articles included in this review, only one (Castillo et al., 2016) had actually performed a study on the effects of RtI professional development on teachers' knowledge and skills in implementing it in their classrooms using a direct and intensive ongoing training coupled with job-embedded coaching.

In summary, the literature reviewed here demonstrates that IDEA's 2004 reauthorization introduced the language of Response to Intervention, which boosted discussion about RtI in the American education world. As for defining RtI, most researchers agree that it is a 3-tier intervention process. However, some dispute about who bears the responsibility of tier 3 interventions exists. Hazelkorn et al. (2010) opined that tier 3 interventions were synonymous with special education. Other researchers including Nagro et al. (2019) have suggested that although tier 3 is more individual and intensive in nature,

> A common misconception among teachers is that Response to Intervention is a special education issue because the only mention of RTI is found in IDEA (2004) regarding

> student identification. However, the implementation of RTI falls largely on general education teachers in general education settings. (p. 52)

Even still, Castro-Villarreal et al. (2014) echoed the sentiments originally attributed to Fuchs and Fuchs (2005) that tier 3 instruction lines are sometimes blurred between general and special education. It is possible that much of the uncertainty, misperceptions, and hesitancy surrounding a RtI knowledge base and clear implementation system within the general education scope could be attributed to these differing opinions. One aspect that has been elucidated and concluded by all the researchers in this review is that teachers most definitely need access to better training about what RtI is and ongoing professional development for and coaching of RtI skills.

Purpose

The purpose of this project was to provide instruction targeting effective implementation of RtI practices to in-service general education elementary teachers to use in their classrooms. The overarching question was: To what extent will instruction on the RtI framework and methods provided using a blended professional development package that includes asynchronous and synchronous content delivery increase in-service general education elementary teachers' knowledge of RtI practices and skills in analyzing data and recommending interventions?

Blended Format

With the increased accessibility of technology in recent years, blended learning formats have become a more popular and sometimes recommended method for learning within the education field (U. S. Department of Education, 2017). Researchers have outlined a few reasons why blended learning models are an appropriate and effective method for teacher professional development. These reasons include: (a) improved participant learning, (b) increased access and flexibility, and (c) increased cost efficiency (Graham et al., 2018). These reasons pair well with teachers' busy schedules and the ability to engage with learning material at their convenience. It also helps schools and districts keep costs down by cutting out the need for occupying physical spaces and paying for travel or meals.

Method

Participants and Setting

In this project, I worked with the principal at one elementary school in a large Utah district to identify six to 10 teachers in grades one through three to participate in training in RtI. Yin (1994) suggests that this number of participants may be sufficient in a multiple case study design. This grade range was selected because research findings recommend beginning interventions as early as possible (Scammacca et al., 2007) in the typical time period students are expected to master foundational learning skills. Kindergarten teachers were excluded because their curriculum already focuses on the most basic skills. Only teachers with a current license to teach at the elementary level were eligible for this study. Teacher candidates in an alternate route to licensure program, interns, and student teachers were excluded because they are considered pre-service teachers and this project targeted in-service teachers who have completed a teacher credential program and have a current teaching assignment. Once potential participants were

identified, an email was sent to these individuals outlining the training course, timeline, and expectations for participation (See Appendix A for email). A consent to participate form was attached to the email. Those who agreed to participate were then sent a Qualtrics (Qualtrics, Provo, UT) demographic survey. Instruction for the participants occurred through online learning modules and interactive group sessions via Zoom that they accessed from their personal or classroom computers.

Demographic Survey

Demographic information included gender, current grade assignment, number of years teaching at the current grade level, other grade levels previously taught, total number of years teaching, highest education degree earned, and any other teaching certificates or endorsements they had earned (see Appendix B for demographic survey).

Pretest and Posttest

Prior to training, all participants completed a pretest to assess knowledge of RtI (i.e., baseline knowledge). The pretest was comprised of three parts. The first part was a Likert-type rating scale I developed asking about their confidence level in (a) identifying struggling students, (b) selecting evidence-based interventions, (c) choosing or creating an appropriate measure to monitor progress and collect data, and (d) making data-based instructional decisions. The scale contained the following response options: 1 (*I do not feel confident at all*), 2 (*I feel somewhat confident*), 3 (*I feel confident*), and 4 (*I feel confident and could teach it to others*). There was also an open-ended response so participants could explain why they selected their particular ratings. The second part was an open-ended question asking participants to identify the components RtI. The final portion of the pretest asked participants to analyze four case studies/data sets, each focusing on a different part of the RtI process. For each case study, they

evaluated student progress and recommended intervention based on the data. The posttest was identical to the pretest in that it included the same three parts except with four similar, but new case studies/data sets for participants to demonstrate the knowledge and skills they acquired during the training period. Participants completed the pretest and posttest at prescheduled Zoom meetings the week before (pretest) and after (posttest) training. See Appendix C for Pretest and Appendix D for Posttest.

Response Measurement

The topics queried in the pre and posttests were used as the weekly learning objectives during training. The pretest was given prior to training to identify baseline knowledge and the posttest was administered at the end of training to gauge learning outcomes. I scored the pretest and posttest using a rubric to measure participants' understanding and applied knowledge of different parts of the RtI process. See Appendix E for the rubric, which outlines the expectations for responses. A list of the key elements of RtI and examples of case study responses were also included in the rubric. A second rater scored responses of two participants (33.3%) to obtain interrater agreement.

Asynchronous and Synchronous Training Package

Participants completed asynchronous training modules about the different aspects of RtI and what is involved in implementing the overall process. Modules included instruction regarding: (a) the concept and history of RtI, (b) identifying struggling students, (c) selecting evidence-based interventions, (d) choosing appropriate measures to monitor progress and collect data, and (e) making data-based instructional decisions. This same content was also reflected in the questions and case studies on the pretest and posttest. These training topics were chosen because they align with the key components of RtI outlined specifically by Fuchs and Fuchs

(2005) and noted by other research groups referenced in this study and in the learning modules (see Center on Multi-Tiered Systems of Supports at the American Institutes for Research (n.d.); "Frameworks for Response to Intervention in Early Childhood: Description and Implications" (2014); National Joint Committee on Learning Disabilities (2005)). These modules were done asynchronously, one per week over five weeks. The learning modules were designed to take approximately 15 to 45 minutes each to read through and listen to the full content. The first module addressing concepts and history of RtI (See Appendix F) included two different RtI chart models, elements of RtI (Fuchs & Fuchs, 2005), RtI definitions from the researchers in the literature review, and a basic history of the RtI terminology, as well as some interactive memory and matching activities. The second module addressed identifying struggling students (See Appendix G) and included statistics about the number of students who struggle to learn, common indications that a student may be struggling, a short video from an expert, information about screening, and mindfulness activities for participants to complete regarding their own experience. One mindfulness activity asked the participants to draw the number of students in their classroom, then circle or recognize the percentage of students who typically struggle in school. Selecting evidence-based interventions was the focus of the next module (See Appendix H). It had links to the What Works Clearinghouse site, so the participants could compare different intervention programs. In addition to this, participants completed two short fill-in-the-blank and post-a-response activities. There were also links to reputable resources for finding information about interventions. The fourth module covered choosing appropriate measures and the importance of progress monitoring and data collection (See Appendix I). It had examples of common measures used in elementary school for reading, writing, and math. Participants also responded to a poll about monitoring progress (used for discussion only). The final module

delved into how to make data-based instructional decisions (See Appendix J). This module addressed why and how to use data, showed an example of a decision tree, explained the different kinds of instructional changes and adaptations (quantitative and qualitative), and featured a video from an expert in the field.

After each module, I met with the participants as a whole group via video conference for 30 to 35 minutes each week to discuss the learning modules, clarify information, and analyze the case studies from the pretest. During this time, I noted who was attending and wrote down any questions the participants had that could not be readily answered in our time together. I later emailed participants an answer or further information after having time to do some searching. I also included a note letting them know that it was meant to be informative only and that they were in no way required to read the information as part of the study. The video conferences were held in Zoom and were recorded for participants who were unable to attend the session, as well as for fidelity of implementation data collection. I then provided feedback to the entire group on their collective responses to the case studies. Case studies were scenarios with hypothetical students and performance data that I created to focus on situations that could arise in first through third grade classrooms. This exercise gave participants an opportunity to apply knowledge gained from the modules and practice moving through the RtI process. Participants were given a chance to share their thoughts with the group and get feedback from the trainer.

Trainer Fidelity Survey

Two members of my committee each selected two of the five previously recorded live sessions to watch and determine if I presented the learning objectives effectively (see Appendix K). This checklist included the following statements: (a) Trainer clearly stated and gave a summary of the week's topic from the module, (b) Trainer asked for and answered participant

questions (observer may tally the number of questions asked and answered), (c) Trainer presented case studies to participants and facilitated discussed as a group, (d) Trainer gave feedback to participants regarding case studies. Response options were: 1 (*Trainer did not do this*), 2 (*Trainer partially did this*), and 3 (*Trainer did this*). There was also an area for the observer to take notes.

Timeline and Missed Sessions

Since the number of participants in the study group was small, it was important to obtain pretest and posttest scores from each of the participants. Participants were asked to complete the pretest during an online Zoom meeting attended by all participants and overseen by me on a specified day the week before training was to begin. During this time, participants were emailed the Qualtrics link for the pretest. One participant had a conflict and was permitted to complete the pretest while supervised over Zoom one hour before the other participants. After completion of the pretest, participants were granted access to the first learning module. A link to each learning module was emailed each week and participants were again emailed reminders two to three days before the group discussions that they should complete the module before the Zoom meeting. Live Zoom meetings were generally held on Thursday afternoons. However, one session was moved to Friday due to a scheduling conflict with a professional development opportunity at the school.

Some weeks one or two of the participants could not attend, so a link to the recording of the live session was sent to them to view before the next synchronous meeting. Attendance was monitored at each weekly group session to track who needed access to the group discussion recordings. An emailed link was sent to those participants within one day of the session and set to expire after one week. At the end of the training series, participants were given the posttest in

the same manner as the pretest. Two participants had to reschedule to take the posttest a few days after the rest of the group. Participants received a certificate indicating the approximate number of hours spent in this training (up to 10 hours) that they can use toward re-licensure (see Table 1 for participation report).

Participant Feedback

After the completion of the training series and posttest, participants were asked to complete two Qualtrics surveys (See Appendices L and M for questions included in the surveys). The first asked participants to anonymously give feedback to the trainer about the learning modules and discussion sessions. The survey included a scale to rate the ease of use of training materials and usefulness of the content to their teaching practice. There was also a section for participants to share any comments or suggestions. The second survey asked participants to give their name and tell how many of the modules and discussions (videos if they missed a group session) they viewed or completed in order to determine how many participation hours to include on their completion certificates. Participants who attended group sessions or watched recordings in full at a later time were instructed to count those as completed for those days. The information obtained from the feedback survey may be used to improve the learning modules and training sessions as needed for possible future use and was used to assess social validity for the participants.

Results

Demographic Information

All participants were female and were assigned to teach either first or second grade. Teacher experience ranged from nine to 24 total years of classroom teaching experience at the elementary level. Years of experience at their current grade level ranged from two to 21.

Participants had varying levels of post-baccalaureate and/or graduate work and training, which included master's degrees, English Language Learner (ELL), Science Technology Engineering Mathematics (STEM), and Math (see Table 2 for demographic information).

Pretest and Posttest

I analyzed the data gathered from the pretest and posttest to see how each participant progressed individually (see Table 3) and as a group (see Table 4) during the course. Posttest responses suggested an overall increase in general education teachers' knowledge and skills within the RtI framework for all participants.

Confidence Ratings

Pretest. On the pretest in the area of identifying struggling students, two participants scored themselves at 2 ("somewhat confident"), two reported 3 ("confident"), and two indicated a score of 4 (meaning they felt "confident and could teach it to others"). For selecting evidence-based interventions, three participants scored themselves a 2 and three chose a rating of 3. Considering the skill involving choosing an appropriate measure to monitor progress and collect data, the scores were more varied across participants. Scores in this area ranged from 1 ("do not feel confident at all") to 4. Lastly, confidence scores for making data-based instructional decisions showed one participant choosing 1, two selecting 2, and three giving a rating of 3.

Posttest. On the posttest, all participants scored themselves at least a 3 or 4 on the confidence rating scale in all areas (see Table 5 for individual confidence and Table 6 for group mean confidence).

Key Elements and Case Study Performance

Pretest. Only one participant was able to name three key elements of RtI (1C). Three participants (1A, 2A, and 2C) could name one or two, and two participants (1B and 2B) were

unable to any. On Case Study A, most responses ranged from being unable to correctly identify any students with performance below, at, or above leveled expectations to being able to correctly identify two students with only one participant (2B) able to identify three. On Case Study B, three participants (1B, 2B, and 2C) did not name any evidence-based interventions or resources to consult and three participants (1A, 1C, and 2A) could only name one evidence-based intervention or resource to consult and/or did not provide a supporting reason. In the area of choosing an appropriate measure to monitor progress and collect data (Case Study C), two participants (1B and 1C) did not specify any assessments or a plan for monitoring progress, two participants (1A and 2A) were able to name an assessment and/or describe a plan for progress monitoring, and two (2B and 2C) could name two assessments and describe a plan. On Case Study D, all participants except one (1C) either could not correctly identify one or more students specifically who were or were not responding to an intervention, or they did not specify a strategy or intervention change with supporting reasoning. Participant 1C named each student individually and offered a simple strategy change with supporting reasoning, albeit minimal.

Posttest. All participants were able to name at least a couple of RtI key elements. One participant named two, two were able to describe three, and three participants could list or describe five, six, or seven key elements. On Case Study A, all participants were able to identify clearly low-performing and clearly high-performing students and some less clearly performing students, and interpret student progress within a data set. One task in which most participants scored lower was selecting evidence-based interventions (Case Study B). Although all participants increased their scores in this area, only three out of six (1A, 1C, and 2C) were able to name two evidence-based interventions or resources to consult and provide a supporting reason. The other participants could name one evidence-based intervention and give a supporting

reason, or they neglected to provide a supporting reason causing them to receive a lower score. Five out of six participants still struggled with Case Study C, which addressed choosing or creating an appropriate measure to monitor progress and collect data. Only one participant (2C) was able to name two or more assessments/measures and describe a plan for frequent and regular data collection. The other participants were able to name an assessment or describe how they planned to monitor progress, but not both together. On Case Study D, four out of six participants (1A, 1C, 2A, and 2C) were able to correctly identify at least one student who was or was not responding to an intervention and specified a strategy or intervention change with supporting reasoning.

Overall Performance

Five out of six participants (all except participant 1C) were able to list more of the key elements of RtI than previously, which included being able to name or describe at least three of the key elements of RtI. Three of those participants (1A, 1B, and 2A) were able to name or describe five to seven. Two participants (2A and 2C) increased their knowledge and skills from pretest achievement (according to the rubric) on all four case studies in the posttest. Three participants (1A, 1B, and 1C) increased their knowledge and skills on three of the four case studies with the fourth staying the same. One participant's (2B) posttest scores increased on one case study, stayed the same on two, and went slightly lower on one compared to their pretest scores.

Interrater Agreement

I used the rubric to score both the pretest and posttest. A member of my graduate committee used a random number generator to select which participants to score, and then used the rubric to evaluate those participant's responses (1B and 2B for pretest, 1A and 2A for

posttest). This represented 33.3% of the total test responses. Both raters scored responses independent of each other before comparing in order to eliminate the chance for bias. Of those responses scored by both raters, there was 65% exact agreement. This was calculated by taking the number of scores that were exactly the same from the participants that both raters scored and dividing them by the total number of skill areas assessed in both the pretest and posttest. That is, RtI key elements and four case studies equaled five areas of assessment on the rubric. Because two participants one the pretest and two participants on the posttest were score by both raters, this became 13 out of 20 total scores between both raters to have been exactly the same. Using the same method, but including scores from both raters that were within one of each other (plus or minus), interrater agreement reached 85%, or 17 out of 20 scores either exactly the same or +/-1. Some responses did not fit well within a single rating on the rubric (e.g., met part of criteria in two different ratings), which may have decreased interrater agreement.

Trainer Fidelity

Two members of my committee each watched two recordings of the Zoom meetings and filled out the trainer fidelity survey. Together they reviewed weeks 1, 2, 3 and 5. Both raters gave scores of 3 (trainer did this) across all areas (100% agreement), indicating that I led discussions and presented information on the weekly topics as expected. Their completed surveys were included following the Trainer Fidelity Survey sample found in Appendix K.

Discussion

The purpose of this project was to provide instruction that targeted effective implementation of RtI practices to in-service general education elementary teachers. It is important for teachers to receive more training on RtI that is both accessible and efficient due to already full schedules and task demands. The intention was that they would take this knowledge

and these skills into their classrooms. The posttest data shows that overall, the participants were more thoughtful in their responses to case studies. The quality of their individual responses showed that there were some gains in their knowledge of important components and practices related to RtI, skills in analyzing data, and recommending interventions after receiving instruction on the RtI framework and methods provided using a blended professional development package that included asynchronous and synchronous content.

Participant 1A

Before the training, this participant showed she was an eager learner. She rated herself as "somewhat confident" across the skills stating, "There's always room for improvement! I want to improve in these areas!" Indeed, she demonstrated serious engagement during group discussions—asking questions and responding to others' remarks. I observed this informally several times throughout the Zoom meetings and when re-watching parts of the recordings. She was the only participant who was able to name all seven of the key elements of RtI on the posttest (coming up from two!). She also made significant improvements in her case study responses with three of the four improving by two or three levels (according to the rubric) in quality. Upon completing the training, she expressed that "Experience in the classroom and with collaboration with our team and administrators" was part of the reason she gave herself a post-training rating of "confident" in all skill areas. Her outlook for the future was very positive, as well. She stated, "Also, this course has improved my knowledge about RTI and provided me with more resources to use for interventions."

Participant 1B

She began this training feeling so "confident" in several areas that she "could teach it to others." One area of lower confidence—a self-rating of 2—was in making data-based

instructional decisions. Her reasoning was, "I have experience with identifying struggling readers and know what interventions to give." This was a very interesting self-assessment given her pretest scores in those areas suggested she was only minimally able to apply these skills. Nonetheless, she actively participated in all of the synchronous discussions except selecting evidence-based interventions. She was out of town for that week and was instead sent a link to the video recording. However, she indicated on her participation survey that she only completed four of the five discussion weeks meaning that she likely did not view it. An area where this participant really grew was on naming the key elements of RtI. In the pretest, her response was, "I can't remember." On the posttest, she was able to recall five, which ranked her in the top half of participants for performance on this question. By the end of the training, this participant demonstrated much growth in the areas where she indicated a lot of confidence, but performed quite low on the pretest. Conversely, she earned the same low score on both the pre and posttests in the area where she initially felt the least confident—making data-based instructional decisions. Despite receiving the same score on that case study, she still reported her personal confidence to have increased in that area on the post assessment. She gave the following qualification to her confidence ratings on the posttest:

> I have learned so much from this training. This class has given me a better understanding of how the RTI model works. I also participated in the collection data process[*] during this class which was very beneficial. It has been very enlightening and informative. Every teacher should get this training.

Overall, this participant appeared to have a positive experience.

[*] This comment is referring to collecting data for a struggling student whom she had discussed with the school's student intervention team.

Participant 1C

At the inception of this study, this experienced, Master-level teacher was "confident" in all areas of RtI—especially in identifying struggling students in which she felt she also "could teach it to others." She justified her confidence saying, "After 17 years, it has become clear which students need interventions, what works and what does not." Her responses on the pretest, gave a small insight into the reason for her confidence. She's been teaching for many years with hundreds of students passing through her classroom, and it was obvious that she had encountered similar situations. This veteran teacher gave brief descriptions of what she "would" do in response to each case study, however these responses did not always answer the specific queries at the end of each scenario. Specifically, on case study C, she described what she would do to intervene and mentioned setting goals, but was not explicit in what assessments or tracking tools she would use to monitor progress. Additionally, although she named fewer key elements of RtI on her posttest than she did on her pretest, she did list progress monitoring and appropriate measures, which suggests that those stuck out to her during the training although they are not expressly named in Fuchs and Fuchs's (2005) definition. Even so, this participant made significant individual progress responding to each case study except the last one— case study D. Her score remained the same, but only because she did not specify a strategy change for each student based on the data presented although she correctly identified each student as responding or not responding to the intervention. This may indicate a limitation of the rubric to adequately capture respondents' incremental increases in skill application. In the end, this teacher expressed nearly exact confidence as prior to training, yet also conceded, "After participating in the

modules and class I can see a few changes that I can make. The class also confirmed what interventions and measures I am doing that are successful."

Participant 2A

This participant was among the most experienced of the group with graduate level education, a couple of extra endorsements on her teaching license, and all of her 21 years of classroom experience in the same grade (2nd). She reported mainly high levels of self-confidence in the beginning highlighting one area of weakness:

> I feel that I know how to identify a problem, and know how to do interventions. My struggle is finding an appropriate measure for a specific skill. I feel I know how to choose good interventions, but am not sure it is necessarily always evidence based other than personal experience with using the interventions over many years.

Her pretest responses to case studies were very clear and thoughtful, even if they did not meet the rubric criteria for higher scores. Considering her participation during the study, she was unable to attend one of the synchronous sessions, but was emailed the link to the recording and later reported that she had completed all discussion sessions. During the synchronous discussions she attended, I observed her to engage in conversations, ask meaningful questions referencing personal experience, and appear receptive to new information. She was also one of only two participants that made gains in each area of the pretest. Her confidence was also boosted in choosing appropriate measures for monitoring progress: "I feel that I understand more about finding evidence based materials to use for intervention, and feel experienced enough to choose good measures for data I am collecting." She stated that finding evidence-based interventions became more clear to her, and alluded to her willingness to continue learning about it saying, "I just feel that I need more experience with looking for evidence based interventions." This

statement supports my own sentiment that perhaps increasing the length of discussions and practice opportunities as a group could have made this study even more effective.

Participant 2B

Although this participant was one of the two teachers that had the fewest number of years in the classroom, she had spent all her years teaching grades one or two and had attained a Master-level education. She explained her confidence before starting the training, "I feel confident in knowing when a student is struggling academically, but I most often go to interventions that have worked for previous students or consult a colleague for help. I am not sure if the interventions are evidence based." This insecurity manifested in her pretest response for this case study topic as she echoed the same sentiment that she was not sure what specifically evidence-based resources to use when intervening with a student. This participant was the only one to have a case study score go down between the pretest and posttest (on case study C, which targeted the skill of choosing an appropriate measure to monitor progress and collect data). Even though the pretest and posttest case study scenarios were written to be very similar since they aimed to evaluate the same skill, in this particular situation the scenario dealt with assessing and monitoring reading progress on the pretest and math progress on the posttest. It is plausible that this teacher was more readily able to name specific assessments and progress monitoring tools for reading rather than math because of the state's universal screening and monitoring tool—Acadience®—that is currently required for kindergarten through third grade. Again, this exposed some potentially weak spots in the assessment of RtI skills in this study. Upon finishing training, she was more assured in boosting her self-ratings on the posttest specifying, "I have more confidence in the fact that I can teach the information to others because I have now been taught the correct principles and I could teach it to someone else."

Participant 2C

Participant 2C had the most teaching experience out of all the participants with 24 total years of experience in an elementary classroom, but had the fewest years—two—teaching at her current grade level assignment, switching most recently from an upper elementary grade. She reported the least amount of confidence on the pretest rating all areas: "I do not feel confident at all" or "I feel somewhat confident." In her rationalization for these self-ratings, she confided, "I feel that I'm new to the RTI process having taught in another state. It was just introduced before I left [other state][†]." Her low confidence was reflected in her pretest answers. Every response was short and lacked details. The data shows that this participant grew the most out of all participants. On the posttest, her case study responses were so much more comprehensive and encompassed all the elements of well-rounded responses that were most consistent with rubric criteria and outlined in the guided responses found in Appendix E. Consequently, she was one of the two participants to improve in all skill areas. During the synchronous discussion sessions, I observed that she was a quiet participant unless specifically invited to comment, but it appears that the training materials and sessions had a clear effect on her understanding of and confidence in utilizing RtI skills. She summed up her experience post-training with just a few words, "I feel confident than before [*sic*] and I learned a lot of information from the class." Her newfound confidence and application skills were exactly the results for which this study endeavored.

Other Considerations

[†] Information taken out to protect anonymity

Overall, I expected participants to score a little higher in the areas of identifying students who were performing below expectations and making data-based instructional decisions because numbers and scores offer discriminating evidence from which to make decisions. This turned out to be true for identifying struggling students and mostly true for making data-based decisions. On the other hand, I expected that selecting evidence-based interventions was likely to be an area in which the participants improved, but they continued to struggle a bit. It is possible that the reason for this is that the time parameters for this study did not allow for deeper and more prolonged experiences investigating this topic. The mean score in this area was one of the lowest of the confidence rating scale at the start of this study. This could have been due to teachers understanding what was involved, and perhaps relying solely on administrators and coaches to select the different curricula used at their school. Posttest mean scores showed that participants became more confident with selecting evidence-based interventions. The mean score regarding methods to measure student progress also went up likely because it is a practice that is already expected and imbedded in their everyday teaching, but perhaps participants just didn't recognize it implicitly in the beginning. In this same area of the posttest, case studies where participants did not score as well as anticipated, most participants described how they would intervene rather than being specific about the assessment tool and progress monitoring schedule. This may be because the case study immediately before asked for a remediation plan, and the participants could have continued with that train of thought into the next case study.

On the whole, the instruction given to participants may have led to increased awareness to recognize and use the tools they currently have at hand more intentionally. This is evidenced by the previously shared comments about their confidence and the quality of their posttest responses. For example, participant 2C responded to case study D on the pretest about making

data-based instructional decisions by writing, “Student A is making progress. I think what I would do is look at teaching phonics skills again,” earning her a level 1 score. She identified just one student from the group and did not give justification for why she would need to reteach the skill or which student might need an adjustment to the intervention. Her response on the posttest in the same skill area earned her a level 3 score:

> Student A is progressing and responding well to intervention. Student B is showing up and down (roller coaster progress). I would reteach the facts again and see if being timed is the issue. Maybe lesson problems and time to build confidence and work up to 4 minutes once facts are secure. Student C is progressing but looks like it was a bad test day on Jan. 26, I would conference with student to see if something else was going on in their life, that probably made them do poor that day.

This response showed analysis of more than just one student, consideration of other factors that may be impacting performance, and thoughts on what might need to change or stay the same based on the data presented. One more example came from participant 1C who gave the following response to case study B, which asked participants for a specific intervention they would you use, give a reason why, and list resources to consult:

> I would pull those students aside and work to understand word problems. First, I would see if it is a reading problem. I would read the problems to the students to see if they would be able to understand the problems better. I would help the students identify key words that would help them solve the word problems.

On this case study, information was specifically given that this student was one of the “more fluent readers” in the class. This participant mentions an accommodation—reading the problem to the student—and begins to talk about a possible skill to teach—identifying key words. The

response suggests that she has relied solely on herself to intervene. Her posttest response revealed a somewhat different tone:

> I would first identify the issue. For example, are they too slow because of sight words, decoding multisyllabic words, or they don't understand vocabulary. Based off of that intervention I would set goals to increase and target those areas. I could go to the Intervention Center, Utah State Board of Education, or look for district resources.

In this response, she discussed finding the underlying issue instead of assuming it, targeting a specific skill area to teach as an intervention, and named several credible resources she could go to for more information or help. The posttest response gives an entirely different impression and perspective than the pretest response that alludes to growth. The data gathered suggests that the training modules and subsequent group discussions increased confidence levels surrounding RtI components, and boosted the knowledge these general education teachers had to implement efficacious interventions with their struggling students. I think this training was beneficial for all involved. It was helpful for me to hear the participants' questions and struggles. I can see that the general education teachers grew some from the data, but I believe I also gained valuable perspective. Perhaps some of the disconnect surrounding RtI for general education teachers is that they just haven't had enough opportunity to converse with colleagues who are more practiced in all the components of RtI. It would be interesting to see how much RtI knowledge these participants retain (in three months, six months, or even a year) when not actively studying or discussing RtI each week.

Limitations

Some limitations of this study were: (a) the small sample size at only one school, (b) some participants missed discussion sessions and the opportunity to participate live, (c) although

I was not in a position of authority over the participants, they may have felt some hesitation in asking questions and voicing their struggles with RtI because we worked together, (d) the live sessions were short (approximately 30 minutes) and may not have given enough time to engage in deeper discussion, and (e) some responses on the pretest and posttest did not fit well into the different criteria levels on the rubric. For instance, some participants identified all students responding to an intervention, or named several resources to consult for interventions, but failed to give a supporting reason. In reality, some scores were brought down because one small part was missing or the wording of their responses didn't quite match the rubric criteria, although the intent may have been there. In the future wording on the rubric could be adjusted so that credit could be given for more individual components of the participants' responses.

Procedures were in place to try and control some of these issues. For instance, participants completed each learning module during the week before participating in the discussion and continued to have access to it throughout the training period, if needed. Recordings of the synchronous discussion sessions were offered to participants who had to miss it in person for any reason. However, the experience would have been somewhat different since participants did not have had the benefit of asking questions in person, discussing case studies with their peers, and receiving feedback personally from the trainer.

Social Validity

Social validity has become an important component of any study that aims to change human behavior. Foster and Mash (1999) discuss terms such as "treatment feasibility," "treatment acceptability," "importance of treatment outcomes," and "meaningful change involv[ing] subjective evaluation by the client" (p. 314) in their examination of social validity. Essentially, skills acquisition or behavior change is meaningless unless the people it directly

affects find it meaningful in some way. Additionally, the treatment needs to be something the clients or participants are capable of doing and something that is accepted and deemed important within their community. Within the context of this study, professional development delivered in a blended learning package is feasible and an acceptable method for elementary teachers to engage with. RtI as a training topic is relevant to their everyday teaching practice because it is the aim of teachers to provide learning opportunities that will allow their students to advance in skills and knowledge and progress toward grade level standards. On the Participant Feedback Survey there appeared to be a perceived benefit to those involved. Five out of six participants rated the training materials as "easy to use." One participant rated it as "somewhat easy to use," expressing a preference for meeting in-person for discussions and commenting, "Zoom is a little difficult, but COVID friendly."

All participants rated the usefulness of the training content to their teaching practice as "very useful." In addition, participants included the following comments in the survey following the end of the study:

- "The training was very informative and appropriate for teachers. The course was well organized and very interesting. This RTI training should be a requirement for all teachers."
- "This training was just what I needed to learn about RTI."
- "This training would be especially great for new teachers who have never had experience with RTI. It gives a good run down of the process from start to finish."

These comments suggest that the participants found the training meaningful and directly relevant to the performance of their current jobs. This is significant because in order for RtI to be implemented with fidelity in schools along with other important educational reforms, those

implementing the practices or changes must have some kind of buy-in. That is to say trainings on topics such as RtI should align with the "beliefs, values, and experiences" of those who are to put them into practice in order to reach the highest level of efficacy (Albin, Lucyshyn, Horner, & Flannery, 1996; Detrich, 1999). When educators feel that a training is worthwhile and the training materials are packaged and delivered in an accessible way, everyone benefits—teachers, students, and communities at large. The advantages have the potential to be far-reaching across people and time. The self-reported increase in participant confidence levels across all topic areas from pretest to posttest, taken together with the posttest comments regarding their personal confidence, may indicate a level of social validity regarding this training.

Using the Blended Format Model

Using a blended format for professional development in this study proved to be a convenient and safe way to administer professional development while restrictions on group gatherings were in place due to the effects of the COVID-19 pandemic. One participant did leave feedback that "It would be great in the future to have educators meet face-to-face to have meaningful discussions. (Zoom is a little difficult, but COVID friendly)." This was from the same participant who rated the training materials to be "somewhat easy to use." Meeting over video, although convenient, can be less preferable for some. In general, though, it is a cost-effective and feasible way to provide large-scale training to teachers. Many teachers are provided access to computers and internet as part of their job. With online and technology tools such as Zoom, Nearpod, PowerPoint, Canvas, Loom, and various Google products such as Meet, Slides, and Gmail, the ability to meet remotely, learn through video and interactive tools online, and share and submit work has become more accessible than ever.

The present COVID-19 pandemic has pushed educators to use technology and blended learning formats more and more over the last year. This has many positive implications. For instance, there are times when administrators and teachers must meet with parents or other teachers, but it is difficult to find childcare, take time out of their workday to meet face-to-face, or drive across town to jump in on a meeting that may only last a few minutes. Teachers can instead send important information to others to review beforehand, then meet via video conference, which reduces travel time and costs. Another benefit of blended learning is that it can be accessed from anywhere and often done at leisure. Such a format eliminates the need for schools and districts to secure physical spaces to meet, pay for costs associated with travel (i.e., mileage reimbursement, airfare, hotels, meals, etc.). This also maximizes the probability that teachers will be able to participate in professional development outside of the workplace and contracted time, if necessary.

Future Research

Next steps may include using blended learning formats to enhance opportunities for teachers to engage in learning and practice activities as assigned by teacher coaches or administrators. Through use of video technology, coaches could experience more organic observations of teachers implementing RtI in their classrooms without having to be physically present since studies have found that behavior is affected when an observer is present (Mercatoris & Craighead, 1974). A subsequent follow up with the coach to discuss what went well and ways to improve pedagogical practices could be possible even when time constraints and physical distance would otherwise make this interaction impossible. Overall, integrating technology with learning objectives that allow for individual pacing and preferences while also integrating in-person discussions may increase participant engagement, provide opportunities for

more immediate feedback, and lead to better outcomes for teachers. Further research could also focus more on teacher attitudes about RtI before and after training rather than confidence only. The possibilities and need for further study of this topic are extensive.

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Table 1

Participation Survey Results

Participant	Please indicate the number of modules you viewed/completed in their entirety (1-5).	Please indicate the number of group discussions you completed (1-5). (*If you were present for all of a discussion or watched the full recording for any session missed at a later time, count this as completed.)
1A	5	5
1B	5	4
1C	5	5
2A	5	5
2B	5	4
2C	5	5

Table 2

Demographic Information

Participant	Current Grade Taught	Other Grades Taught	Years at Current	Total Years Teaching	Endorsements	Teaching License	Highest Level of Education
1A	1	3	8	9		El Ed	Bachelor
1B	1	K, 3, 4	13	18		ECE, El Ed	Master
1C	1	Pre-k, K	11	17	Math, ELL	El Ed	Bachelor
2A	2		21	21	STEM, ELL	El Ed	Master
2B	2	1	6	9		El Ed	Master
2C	2	K, 6	2	24		ECE, El Ed	Master

Note. Pre-k (Preschool), K (Kindergarten), El Ed (Elementary Education), ECE (Early Childhood Education), ELL (English Language Learner), STEM (Science Technology Engineering Math)

Table 3

Pretest and Posttest Scores

Participant	RtI Key Elements		Case Study A (Identifying Struggling Students)		Case Study B (Selecting Evidence-based Interventions)		Case Study C (Choosing an Appropriate Measure to Monitor Progress and Collect Data)		Case Study D (Making Data-based Instructional Decisions)	
	pre	post	pre	post	pre	post	pre	post	pre	post
1A	2	7	1	4	1	3	2	2	1	3
1B	0	5	1	4	0	2	0	1	1	1
1C	3	2	2	4	1	4	0	2	2	2
2A	1	6	2	4	1	2	1	2	1	4
2B	0	3	3	3	0	1	3	2	1	1
2C	1	3	0	4	0	3	3	4	1	3

Note. Refer to the rubric for corresponding answer levels.
RtI Key Elements possible range: 0-7
Case Studies possible range: 0-4

Table 4

Group Mean Pretest and Posttest Scores

Area Assessed	Pre-training	Post-training
RtI Key Elements	1.2	4.3
Case Study A (Identifying Struggling Students)	1.5	3.8
Case Study B (Selecting Evidence-based Interventions)	0.5	2.5
Case Study C (Choosing an Appropriate Measure to Monitor Progress and Collect Data)	1.5	2.2
Case Study D (Making Data-based Instructional Decisions)	1.2	2.3

Note. Refer to the rubric for corresponding answer levels.
RtI Key Elements possible range: 0-7
Case Studies possible range: 0-4

Table 5

Individual Confidence Ratings

Participant	Identifying Struggling Students		Selecting Evidence-based Interventions		Choosing an Appropriate Measure to Monitor Progress and Collect Data		Making Data-based Instructional Decisions	
	pre	post	pre	post	pre	post	pre	post
1A	2	3	2	3	2	3	2	3
1B	4	4	3	4	4	4	2	4
1C	4	3	3	3	3	3	3	3
2A	3	4	3	3	2	4	3	4
2B	3	3	2	4	4	4	3	4
2C	2	3	2	3	1	3	1	3

Note. Possible responses: 1 (I do not feel confident at all), 2 (I feel somewhat confident), 3 (I feel confident), and 4 (I feel confident and could teach it to others)

Table 6

Group Mean Confidence Rating

Skill	Pre-training	Post-training
Identifying Struggling Students	3.0	3.3
Selecting Evidence-based Interventions	2.5	3.3
Choosing an Appropriate Measure to Monitor Progress and Collect Data	2.7	3.5
Making Data-based Instructional Decisions	2.3	3.5

Appendix A

Invitation Email to Potential Participants

Invitation Email

Dear Colleagues,

I am conducting a study to measure the effects a training series presented in a blended learning format on Response to Intervention (RtI) will have on general education teachers' knowledge of the RtI process. This training will focus on teachers in grades 1-3 who hold a current teaching license. As a general education teacher assigned to teach in one of these grades, I would like to invite you to participate. The course will consist of weekly training modules and group discussions over five weeks. Both the modules and discussion groups should take between 30-60 minutes each to complete each week.

Being involved will require you to commit to completing the five weeks of training along with completing pre and posttests, a demographic survey, and a survey at the end of the training asking about your experience with it.

Please read the attached informed consent letter. If you are interested in participating, please sign and return the consent within one week from receiving this email.

Thank you,

Laura Jensen
USU Student Researcher
laura.beth.jensen@aggiemail.usu.edu

Karen D. Hager-Martinez, PhD
Principal Investigator
Utah State University
Department of Special Education and Rehabilitation Counseling
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IRB Protocol #11595

Appendix B

Demographic Survey Questions

Demographic Survey

1. What is your gender?
    - Female
    - Male
    - Prefer to self-identify:
    - Prefer not to answer.

2. What is your current grade assignment?
    - 1st
    - 2nd
    - 3rd

3. How many years have you taught at this grade level?

4. What grade levels/subjects have you taught prior to your current assignment? (if no other grade levels taught, answer N/A)

5. How many total years have you taught in a school?

6. What is the highest degree you have earned?

    - Bachelor
    - Master
    - Doctorate

7. What is your teaching credential (e.g., elementary education, early childhood education)?

8. Do you have any other teaching certificates or endorsements (e.g., special education, secondary teaching, ELL certification, reading endorsement, math endorsement, administrative license)? Please specify below.

9. Please type your first and last name.

Appendix C

Pretest

Pretest

Participant Name: _____

Please rate your confidence level for each of the following:

	I do not feel confident at all.	I feel somewhat confident.	I feel confident.	I feel confident and could teach it to others.
Identifying struggling students	○	○	○	○
Selecting evidence-based interventions	○	○	○	○
Choosing an appropriate measure to monitor progress and collect data	○	○	○	○
Making data-based instructional decisions	○	○	○	○

Please give a brief statement of why you gave yourself those ratings:

Please identify the components, or elements, of RtI:

A. Consider the information presented below for five mid-year third-grade students. Based on the data presented, for each student A-E, specify if they need remediation and explain your reasoning on why they do or do not need intervention.

	Student A	Student B	Student C	Student D	Student E
Oral Reading Fluency	78 cwpm	103 cwpm	37 cwpm	88 cwpm	64 cwpm
Accuracy	98%	90%	79%	96%	88%
Passed Core Phonics Survey?	Yes	Yes	No	Yes	Yes

Note. Mid-year benchmark for third grade is 86 cwpm and 96% accuracy (based on Acadience Reading goals).

Student A

Student B

Student C

Student D

Student E

B. Micah is a third-grade student who has memorized the skip counting songs up to the tens (multiplication facts up to 10x10). His correct response rate on a multiplication fact fluency assessment is about average compared to many of the students in your class. However, when working on multiplication word problems he really struggles, usually scoring about 20% correct or less despite being one of your more fluent readers. You notice a similar struggle with two other students in your class. What specific intervention would you use and why? What resources would you consult?

C. Isabel is a first-grade girl who just moved into your class from another district after winter break. It becomes clear very soon that she struggles to read and write CVC, CCVC, and CVCC words even when you help her by saying the sounds slowly. Her mid-year Acadience benchmark showed 63 correct letter sounds (CLS; benchmark is 43) with 1 whole word read (WWR; benchmark is 8) and a reading fluency of 19 correct words per minute (cwpm) with 50% accuracy (benchmark is 78%). An error analysis reveals nearly all the words she read correctly were sight words. You decide to make a plan to intervene and track her progress. Name or describe the assessment(s) you might use or create to monitor Isabel. How often will you monitor? Explain your reasoning.

D. Consider the beginning-of-year benchmark (BOY) and weekly progress monitoring data below for three second-grade students who have been receiving intervention in a small group targeting reading fluency over the last six weeks. Based on the data you see, for each student A, B, and C, specify which student(s) is/are responding or not responding to the intervention. Explain what you will do and why?

	BOY*	Sept 22	Sept 29	Oct 6	Oct 13	Oct 20	Oct 27
Student A	38 cwpm, 85% accuracy	35 cwpm 90% acc	36 cwpm 94% acc	42 cwpm 94% acc	45 cwpm 98% acc	52 cwpm 99% acc	49 cwpm 95% acc
Student B	19 cwpm, 62% accuracy	17 cwpm 68% acc	15 cwpm 80% acc	20 cwpm 87% acc	24 cwpm 88% acc	29 cwpm 94% acc	26 cwpm 91% acc
Student C	27 cwpm, 79% accuracy	24 cwpm 75% acc	26 cwpm 77% acc	21 cwpm 78% acc	25 cwpm 80% acc	30 cwpm 85% acc	29 cwpm 71% acc

Note. Beginning-of-year benchmark (BOY) for second grade is 52 cwpm and 90% accuracy (based on Acadience Reading goals).

Student A:

Student B:

Student C:

Appendix D

Posttest

Posttest

Participant Name: _____

Please rate your confidence level for each of the following:

	1 – I do not feel confident at all.	2 – I feel somewhat confident.	3 – I feel confident.	4 – I feel confident and could teach it to others.
Identifying struggling students	○	○	○	○
Selecting evidence-based interventions	○	○	○	○
Choosing an appropriate measure to monitor progress and collect data	○	○	○	○
Making data-based instructional decisions	○	○	○	○

Please give a brief statement of why you gave yourself those ratings:

Please identify the components, or elements, of RtI:

A. Consider the Acadience reading benchmark scores of five beginning first-grade students on the chart below. Based on the data presented, for each student A-E, specify if they need remediation and explain your reasoning on why they do or do not need intervention.

	Student A	student B	student C	student D	student E
Phoneme Segmentation Fluency (PSF)	50	46	42	8	23
Nonsense Word Fluency – Correct Letter Sounds (NWF-CLS)	15	45	41	4	21
Nonsense Word Fluency – Whole Words Read (NWF-WWR)	0	5	0	0	1

Note. Beginning-of-year benchmark for first grade is PSF: 40, NWF-CLS: 27, NWF-WWR: 1 (based on Acadience Reading goals).

Student A

Student B

Student C

Student D

Student E

B. Alejandra, Jasmine, and Taylor are in your third-grade class. All three have scored well below grade level expectations on Oral Reading Fluency (ORF) and Retell each time you have monitored since the beginning of the school year (about every few weeks). You decide they need more reading help while in your class. What specific intervention would you use and why? What resources would you consult?

C. It is the beginning of a new school year and Carson is a boy in your second-grade class. You notice that he uses his fingers to count and really struggles to count backward when subtracting. He also doesn't know how to write numbers (in numerical form) above eleven. You decide to make a plan to intervene and track his math progress. Name or describe the assessment(s) you might use to monitor this student. How often will you monitor? Explain your reasoning.

D. Consider the 4-minute timed *test scores and weekly progress monitoring data below for three third-grade students who have been receiving intervention in a small group targeting addition and subtraction within 20 fact fluency over the last six weeks. Based on the data you see, identify each student A, B, and C, and explain how each student is or is not responding to the intervention. What is your plan moving forward for each student and why?

	†Jan 5	Jan 12	Jan 19	Jan 26	Feb 2	Feb 9	Feb 16
Student A	46%	40%	66%	70%	80%	92%	96%
Student B	32%	38%	20%	40%	48%	50%	36%
Student C	56%	76%	82%	10%	84%	78%	82%

Note. Test scores and weekly monitoring done with mixed addition and subtraction fact fluency sheets, and percentage calculated by dividing number of correct responses into the total number of problems in a 4-minute timing
†Whole class assessment

Student A:

Student B:

Student C:

Appendix E

Rubric

Rubric for Pre/Post Measure and Case Studies

RtI key elements	Unable to give any key elements	Gives one key element	Gives two key elements	Gives three key elements	Gives four key elements	Gives five key elements	Gives six key elements	Gives seven key elements
Case Study Response Levels	0	1	2	3	4			
Case Study A Identifying struggling students	Unable to correctly identify any students with performance below, at, or above leveled expectations	Correctly identifies one student with performance below, at, or above leveled expectations	Correctly identifies two students with performance below, at, or above leveled expectations	Correctly identifies three students with performance below, at, or above leveled expectations	Correctly identifies four students with performance below, at, or above leveled expectations			
Case Study B Selecting evidence-based interventions	Does not name any evidence-based interventions or resources to consult	Names one evidence-based intervention or resource to consult; does not provide supporting reason	Names one evidence-based intervention or resource to consult; provides supporting reason	Names two evidence-based interventions or resources to consult; provides supporting reason	Names three or more evidence-based interventions or resources to consult; provides supporting reason			
Case Study C Choosing or creating an appropriate measure to monitor progress and collect data	Does not specify an assessment, measure or a plan for frequent and regular data collection	Names an assessment/ measure OR describes a plan for frequent and regular data collection	Names an assessment/ measure AND describes a plan for frequent and regular data collection	Names two assessments/ measures AND describes a plan for frequent and regular data collection	Names three or more assessments/ measures AND describes a plan for frequent and regular data collection			
Case Study D Making data-based instructional decisions	Does not correctly identify any students who are or are not responding to interventions	Correctly identifies one or more students who are or are not responding to intervention; does not specify a strategy or intervention change with supporting reasoning	Correctly identifies one student who is or is not responding to intervention; specifies a strategy or intervention change with supporting reasoning	Correctly identifies two students who are or are not responding to intervention; specifies a strategy or intervention change for each with supporting reasoning	Correctly identifies three students who are responding or not responding to intervention; specifies a strategy or intervention change for each with supporting reasoning			

Confidence Self-Rating

	1 – I do not feel confident at all.	2 – I feel somewhat confident.	3 – I feel confident.	4 – I feel confident and could teach it to others.
Identifying struggling students	○	○	○	○
Selecting evidence-based interventions	○	○	○	○
Choosing an appropriate measure to monitor progress and collect data	○	○	○	○
Making data-based instructional decisions	○	○	○	○

Guided Responses for Pretest and Posttest

RtI Definition

Seven key elements (according to Fuchs & Fuchs, 2005)

- Multi-level, multi-tiered, MTSS
- Prevention and/or early identification
- Universal screening and/or screening
- Identify at-risk students, need based, and/or struggling students
- Evidence based intervention and/or instruction
- Response to intervention, or RtI
- Problem solving

Pretest Case Studies

A. Students

A. This student passed the Core Phonics Survey, indicating they have the most basic skills needed to learn to read. Although this student read **below the expected benchmark**, it is not far off and the accuracy is good. This student is reading very

close to grade level expectations. It's likely that this student needs core support with occasional monitoring to make sure they continue to progress toward the end of year benchmark.

B. This student also passed the Core Phonics Survey. This student read above the correct words per minute (cwpm) expected, indicating they have some good reading skills and read at a good rate. The accuracy is a bit lower than expected, which could mean this student is missing important information as they read. It would be prudent to do an error analysis and see what kinds of words this student missed to know if they would benefit from a targeted intervention. This student would benefit from continued monitoring to make sure the accuracy improves. Overall, this student is **above expectations in cwpm, but below expectations in accuracy**.

C. This student scored well **below benchmark expectations** in rate and accuracy. This student also failed to pass the Core Phonics Survey indicating a clear need for immediate intensive interventions in addition to their regular classroom instruction. Frequent progress monitoring (at least weekly) is advised.

D. This student scored right **at grade level expectations** and passed the Core Phonics Survey. He/she is likely to benefit from the regular core instruction with occasional progress checks.

E. This student passed the Core Phonics Survey suggesting that they have basic phonics skills. The words correct per minute and accuracy were **below benchmark expectations**. An error analysis could reveal areas for targeted or strategic intervention. This student would benefit from immediate intervention with frequent monitoring (at least weekly) in addition to their regular classroom instruction.

B. Although Micah may be proficient in multiplication math facts recall and reading, he may be struggling to understand the overall concept of multiplication enough to apply it in word problems. Micah could benefit from **systematic instruction (in addition to his current math instruction) targeting how to make arrays and how to identify key words in word problems**. This could be achieved through regular **small group instruction** with his classroom peers who also struggle in this area or **one-on-one supplementary instruction**. Some possible **resources to consult** are: a) Utah State Board of Education's Mathematics Core Guides, b) National Center on Intensive Intervention's website for math intervention materials, or c) All Learner's Network website. **These resources have a research base or are approved by the state board of education.**

C. It seems that Isabel is has good letter-sound correspondence (e.g., 63 correct letter sounds), but struggles to blend those sounds into a whole word (e.g., 1 whole word read). Isabel also seems to be able to recall grade level sight words well during Oral Reading Fluency probes (e.g., error analysis). Because Isabel struggles with blending sounds

together, specifically CVC, CCVC, and CVCC words, to form a whole word, it would likely be beneficial to monitor her with a **Nonsense Word Fluency probe** or **another measure that targets short vowel sounds, consonant blends, and digraphs in initial and final positions**. It is important to **monitor this skill frequently (at least weekly)** and to use the same measure each time to track progress. It may also be practical to monitor her overall **oral reading fluency** to see how these sound blending skills transfer to applicable reading activities as she makes progress.

D. Students*

A. This student appears to be **responding to the current intervention** and on October 20, even appears to have achieved the beginning-of-year benchmark expectation. This student would likely **benefit from continued intervention and monitoring until at least three stable scores (at or near the expectation) were achieved**.

B. This student's correct words per minute goes down a bit at first, then rises steadily along with their accuracy throughout the six weeks. This student appears to be **responding to the intervention**, and could **benefit from continued intervention and frequent progress monitoring. The teacher may consider increasing the time or frequency of the intervention to promote a higher rate of improvement for the words correct per minute.**

C. This student's data suggests that they have remained at about the same level in both reading rate and accuracy throughout the six weeks of intervention, which indicates he/she is **not responding** to the current intervention. It would be judicious to **consider a more intensive intervention (e.g., increase time and frequency, reduce group size, and/or use a different or additional intervention).**

*It may be important to note that all students in this group had a small dip in progress on the last data point taken. This can happen for various reasons such as coming back off a short break (e.g., holiday, weekend, illness, or vacation), the reading passage for this day was a bit more difficult or the topic was unfamiliar to the students, or they were assessed at a different time of day than normal (e.g., right before lunch or recess instead of after).

Posttest Case Studies

A. Students

A. This student appears to have a good grasp of recognizing different phonemes in spoken words. Producing individual letter sounds seems to be a skill that is currently less developed for this student and could be targeted for intervention. Reading whole (nonsense) words should be addressed in intervention along with

building letter sounds. **PSF is above expectations and NWF-CLS and NWF-WWR is below expectations.**

B. This student scored **above expectations** and would likely benefit from regular core instruction.

C. This student scored close to, but **below expectations for phoneme segmentation** and well **above expectations for correct letter sounds**. Since the student was unable to read any nonsense words as a whole on this benchmark assessment (**NWF-WWR is below expectation**), it would be advisable to plan some strategic intervention to help him/her begin to read these words as a whole instead of sound-by-sound.

D. This student scored well **below grade level expectations**. He/she was only able to identify 8 phonemes and 4 letter sounds, which suggests this student likely needs intensive intervention in addition to his/her regular instruction that specifically targets phonemic awareness and letter-sound association.

E. This student is **below expectations** for the beginning year benchmark, but close. This suggests the skills are emerging, but may not be strong yet. Strategic intervention along with core instruction would be justified.

B. Some interventions might include **small group** or **one-on-one explicit instruction** in phonics and spelling patterns, sight words, common affixes, and/or fluency. There are many **evidence-based literacy programs**. Participants may list some that they have access to within their school **(e.g., Wonders, Wonder Works, Reading for All Learners, Lexia**, etc.). Some possible **resources to consult** are: a) Utah State Board of Education's Language Arts Core Guides, b) National Center on Intensive Intervention's website for reading intervention materials, or c) Reading for All Learners website.

C. Because Carson is just beginning second-grade, his basic number sense may still be developing. However, it may be sensible to monitor his number counting and writing skills while providing interventions. The teacher could also monitor his **number writing fluency with a curriculum-based measurement (CBM)** to assess his progress. Another option for monitoring would be to use a specific **rubric** developed by the teacher or grade level team. It is important that progress is **monitored frequently (at least weekly)** and with the same assessment tool for several weeks during intervention.

D. Students

A. This student appears to be **responding** well to the intervention. It is advised to **continue monitoring progress until at least three stable data points are achieved** at appropriate levels.

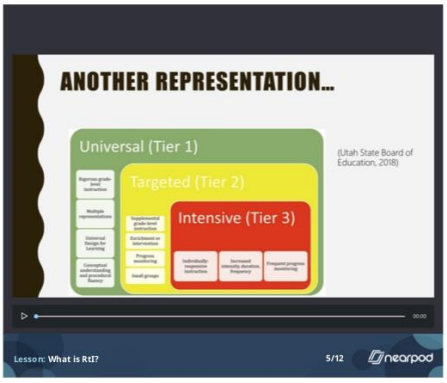
B. This student appears to have inconsistent scores ranging from 20% to 50%. He/she is **not responding** well to the intervention and may need a **change to a**

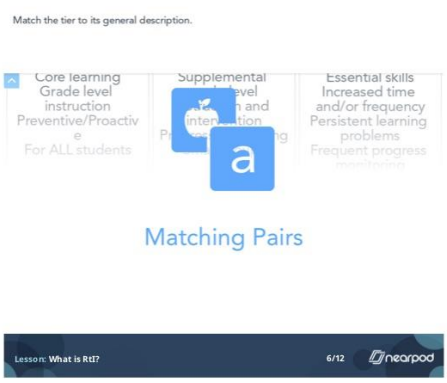
more intensive intervention (e.g., small group size, increase in time/frequency, change in intervention). A closer analysis reveals that this student makes small gains over a couple weeks followed by a drop after each long weekend out of school (MLK Day and President's Day). This student may **benefit from increased intervention following longer school breaks** and perhaps sending home materials to practice during breaks.

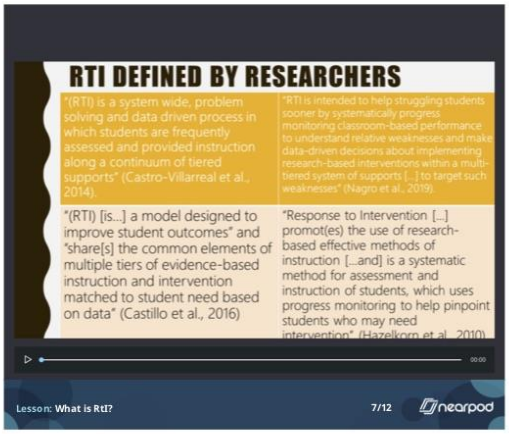
C. One data point on January 26 could be cause for concern. However, taking all the weekly scores into consideration, this student appears to be **responding** to the intervention. The teacher should **analyze what was happening the day the 10% score was obtained** to see if there are underlying circumstances for the abnormally low score (e.g., student felt sick, student's dog ran away the night before, assessment was given at a different time of day than normal, etc.). If there is only one low data point among several others that are high, the teacher may be able to throw that score out as an anomaly. This student would likely **benefit from continuing the current intervention and progress monitoring schedule**.

Appendix F

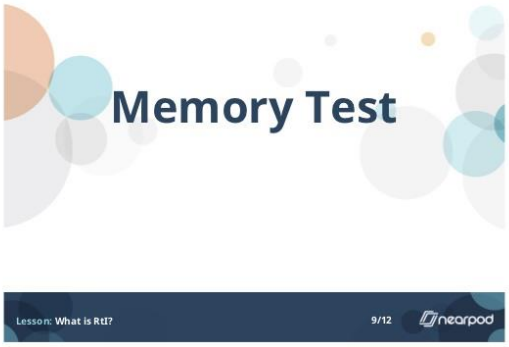
What is RtI? Nearpod slides. https://share.nearpod.com/R0O7R00I08



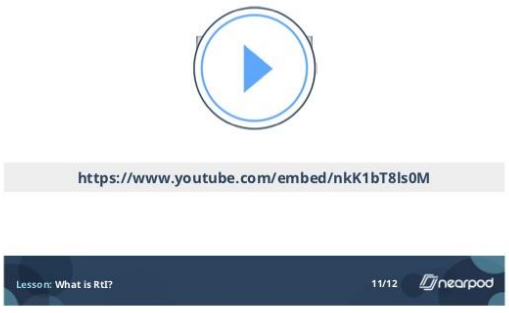


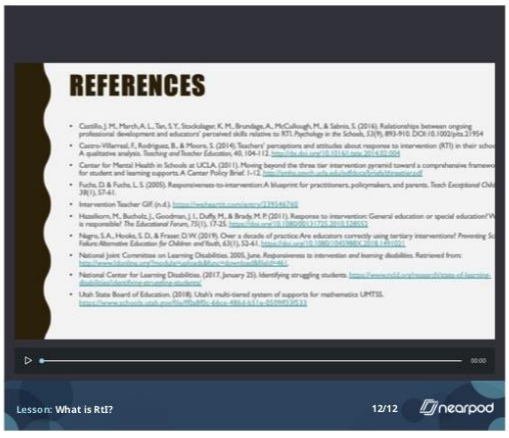

RTI DEFINED BY RESEARCHERS
"(RTI) is a system wide, problem solving and data driven process in which students are frequently assessed and provided instruction along a continuum of tiered supports" (Castro-Villarreal et al., 2014).
"RTI is intended to help struggling students sooner by systematically progress monitoring classroom-based performance to understand relative weaknesses and make data-driven decisions about implementing research-based interventions within a multi-tiered system of supports [...] to target such weaknesses" (Nagro et al., 2019).
"(RTI) [is...] a model designed to improve student outcomes" and "share[s] the common elements of multiple tiers of evidence-based instruction and intervention matched to student need based on data" (Castillo et al., 2016)
"Response to Intervention [...] promot(es) the use of research-based effective methods of instruction [...and] is a systematic method for assessment and instruction of students, which uses progress monitoring to help pinpoint students who may need intervention" (Hazelkorn et al., 2010).
Lesson: What is RtI? 7/12 nearpod


KEY CONCEPTS OF RTI
Fuchs and Fuchs (2005) outline 7 key concepts related to RtI:
1. It looks quite literally at student response to intervention.
2. It is multi-level or tiered.
3. It involves prevention and early intervention.
4. Universal screening or regular screening is recommended.
5. Identifies at-risk, need-based, and/or struggling students.
6. It uses evidence-based intervention and/or instruction.
7. It involves problem solving (and/or data-based decision making).
Lesson: What is RtI? 8/12 nearpod


Memory Test
Lesson: What is RtI? 9/12 nearpod

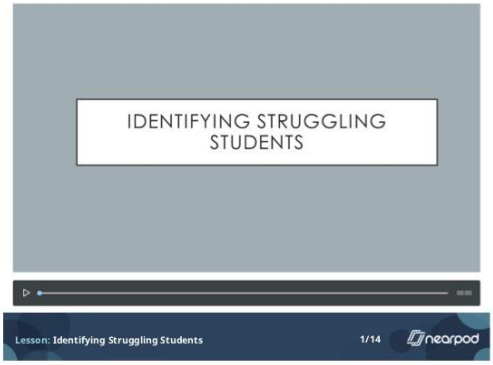

multi-level, tiered
multi-level, tiered
prevention, early intervention
prevention, early intervention
screening for all
screening for all
evidence-based intervention or instruction
evidence-based intervention or instruction
problem solving and/or data-based decision making
problem solving and/or data-based decision making
RtI
RtI
Lesson: What is RtI? 10/12 nearpod

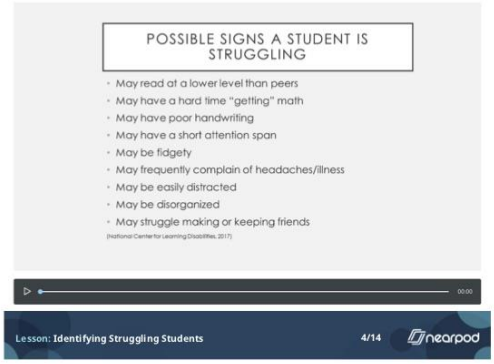

https://www.youtube.com/embed/nkK1bT8ls0M
Lesson: What is RtI? 11/12 nearpod

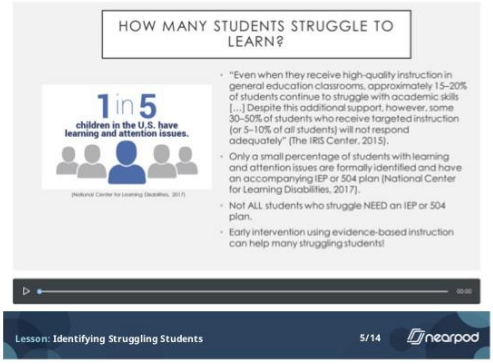

REFERENCES
Lesson: What is RtI? 12/12 nearpod

Appendix G

Identifying Struggling Students. Nearpod slides. https://share.nearpod.com/Ccj2FC3I08







1 in 5 students in the U. S. have learning or attention struggles. Consider how many students are on your roster and draw what this might look like in YOUR classroom.

Lesson: Identifying Struggling Students 7/14 nearpod

HOW CAN SCREENING HELP IDENTIFY STRUGGLING STUDENTS?

- "The purpose of early identification is to determine which children have [...] problems that may be obstacles to learning or that place children at risk."
- "Screening tools are not intended for diagnosis, placement, and educational planning. Careful consideration of reliability, validity, standardization, cultural and linguistic sensitivity, and relevance of screening instruments and procedures is required for appropriate selection, use, and interpretation."

(National Joint Committee on Learning Disabilities, 2006, p. 3-4)

- "Universal screening can be used to identify which children will need the most intensive intervention. In some cases, children with the weakest initial skills may bypass Tier 2 intervention and move directly into intensive intervention."

(National Center on Intensive Intervention)

00:00

Lesson: Identifying Struggling Students 8/14 nearpod

Consider this information about identifying struggling students and screening. (Dr. Compton specifically talks about reading, but you may apply these concepts to any

Lesson: Identifying Struggling Students 9/14 nearpod

HOW DO WE SCREEN STUDENTS?

- Screening tools vary, but they measures a student's achievement compared to their peers or an expected standard. They are valid, reliable, and evidence-based and generally administered more than once throughout the school year.
- These may include:
  - Curriculum-based measurements (CBM)
  - Criterion-referenced tests (CRT)
  - Surveys
  - State mandated tests

(Center on Response to Intervention)

00:00

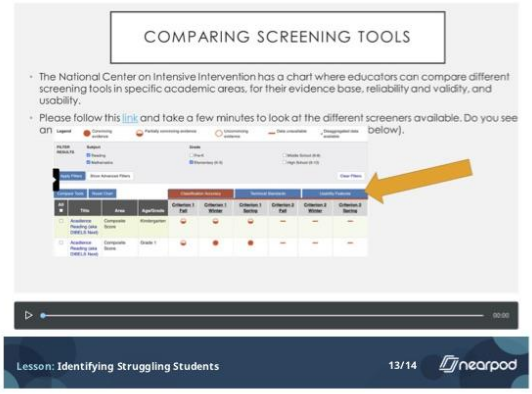
Lesson: Identifying Struggling Students 10/14 nearpod

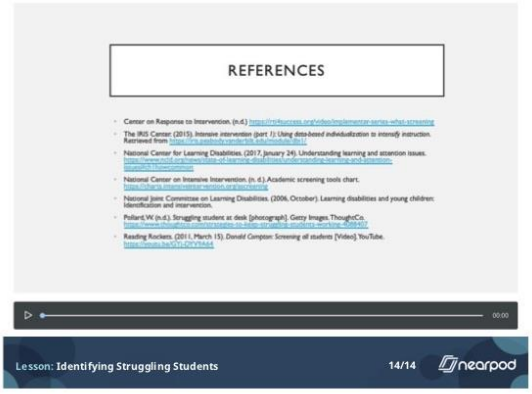
Open Ended Question

Lesson: Identifying Struggling Students 11/14 nearpod

What are some screening tools you can think of that you have available in your classroom or at your school? What areas do you feel you are missing screening tools?

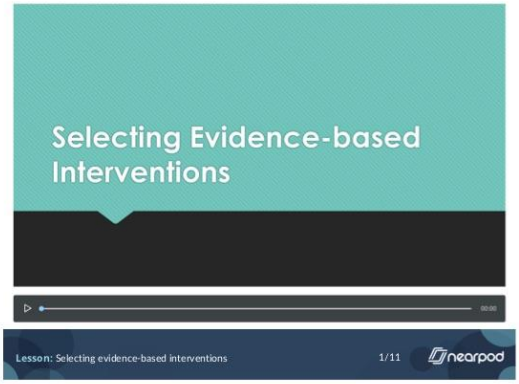
Lesson: Identifying Struggling Students 12/14 nearpod

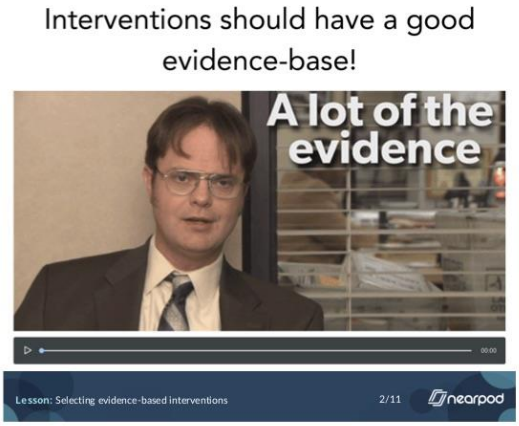

COMPARING SCREENING TOOLS
The National Center on Intensive Intervention has a chart where educators can compare different screening tools in specific academic areas, for their evidence base, reliability and validity, and usability.
Please follow this link and take a few minutes to look at the different screeners available. Do you see an below).
Lesson: Identifying Struggling Students
13/14
nearpod

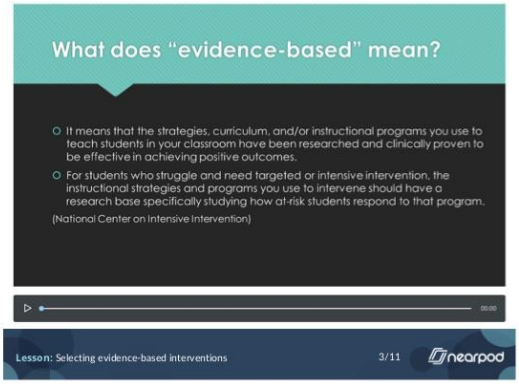

REFERENCES
Lesson: Identifying Struggling Students
14/14
nearpod

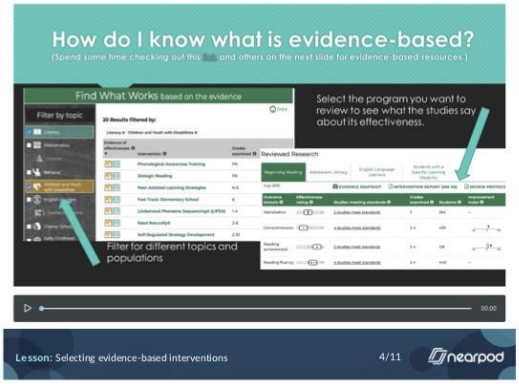
Appendix H

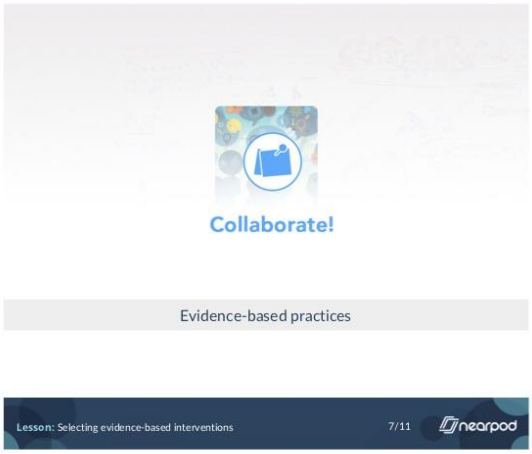
Selecting Evidence-based Interventions. Nearpod slides. https://share.nearpod.com/ji40zX5I08



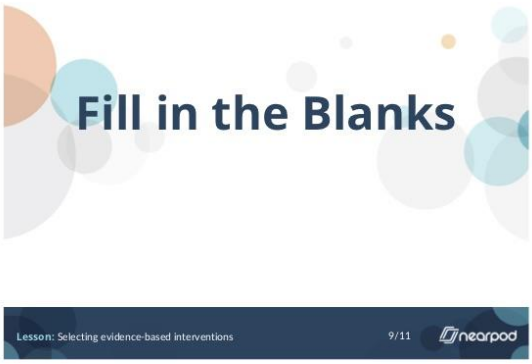


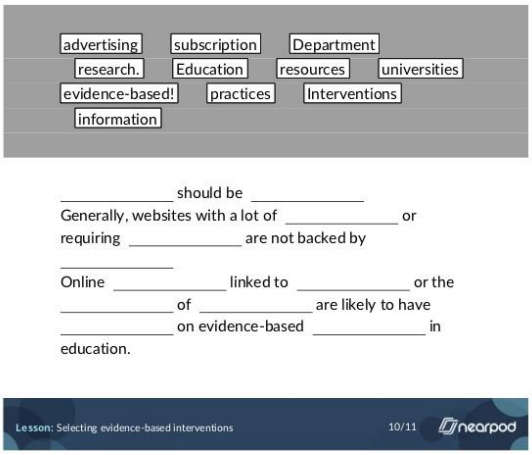


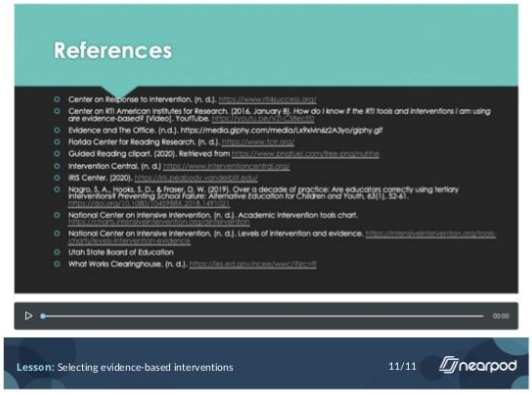



Collaborate!
Evidence-based practices
Lesson: Selecting evidence-based interventions 7/11 nearpod


What are some examples of research-based instructional approaches?
Prioritize skills to teach
Provide systematic instruction
Provide explicit instruction
Use precise, simple language
Provide specific feedback or error correction procedures
Provide students with increased opportunities for practice
(Nagro et al., 2019)
Lesson: Selecting evidence-based interventions 8/11 nearpod


Fill in the Blanks
Lesson: Selecting evidence-based interventions 9/11 nearpod


advertising
subscription
Department
research.
Education
resources
universities
evidence-based!
practices
Interventions
information
_____ should be _____
Generally, websites with a lot of _____ or requiring _____ are not backed by _____
Online _____ linked to _____ or the _____ of _____ are likely to have _____ on evidence-based _____ in education.
Lesson: Selecting evidence-based interventions 10/11 nearpod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Nagro, S. A., Hooks, S. D., & Fraser, D. W. (2019). Over a decade of practice: Are education correctly using tertiary interventions? Preventing School Failure: Alternative Education for Children and Youth, 63(1), 52-61.
National Center on Intensive Intervention. (n. d.). Academic intervention tools chart.
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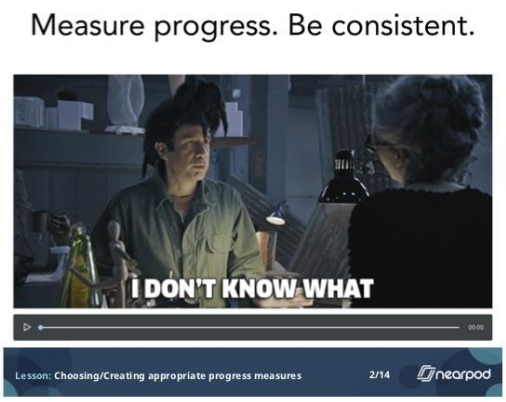
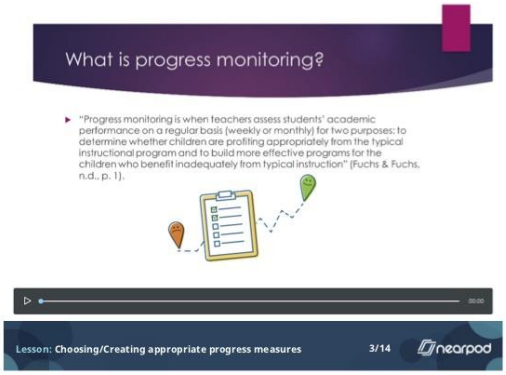
Utah State Board of Education
What Works Clearinghouse. (n. d.).
Lesson: Selecting evidence-based interventions 11/11 nearpod

Appendix I

Choosing/Creating Appropriate Measures to Monitor Progress. Nearpod slides. https://share.nearpod.com/DaWtLn8I08





Please read the short document on the following slide.

Lesson: Choosing/Creating appropriate progress measures 7/14 nearpod

Lesson: Choosing/Creating appropriate progress measures 8/14 nearpod

How often do I need to monitor progress?

- A panel of experts gathered by the Institute of Education Sciences recommends that students receiving tier 2 interventions be monitored at least once a month (Gersten et al., 2008).
- "If a tier 2 program does not include mastery checks, monitor students' progress weekly, if possible, but no less than once a month (Gersten et al., 2008).
- Students receiving more intensive interventions at a tier 3 level may need more frequent monitoring (e.g., every 1-2 weeks).
- Create a progress monitoring schedule that is **consistent**. This will help you remember to monitor and more clearly show student outcomes.

Lesson: Choosing/Creating appropriate progress measures 9/14 nearpod

Examples of Common Measures for Elementary Students

Reading
- *Phoneme Segmentation Fluency
- *Letter Naming Fluency
- *Nonsense Word Fluency
  - Correct Letter Sounds
  - Whole Words Read
- *Oral Reading Fluency
- *Retell
- *Core Phonics Survey
- *Comprehension (e.g., vocabulary, key concepts, inferences, sequencing, characters)

Writing
- *Curriculum-based Measurement for fluency
  - Total Words Written, Words Spelled Correctly, Correct Writing Sequences
- *Rubric specific to need (e.g., sentence variation, handwriting, format, style)

Math
- *Number Naming Fluency
- *Fact Fluency (+/-/x)
- *Math Concepts & Applications
- *Calculations/Computation

(Fuchs & Fuchs, n.d.)

Lesson: Choosing/Creating appropriate progress measures 10/14 nearpod

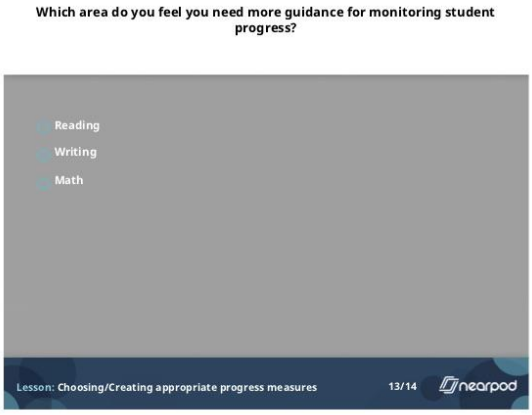
Collaborate!

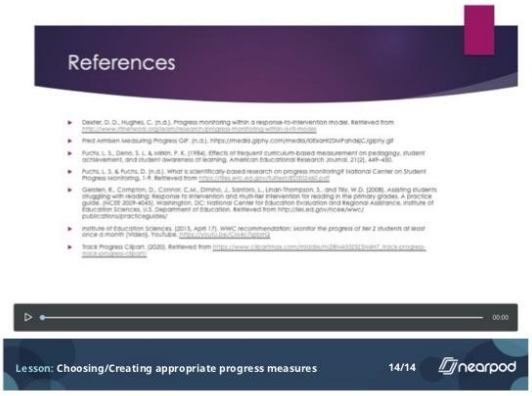
Tracking Progress

Lesson: Choosing/Creating appropriate progress measures 11/14 nearpod

Poll

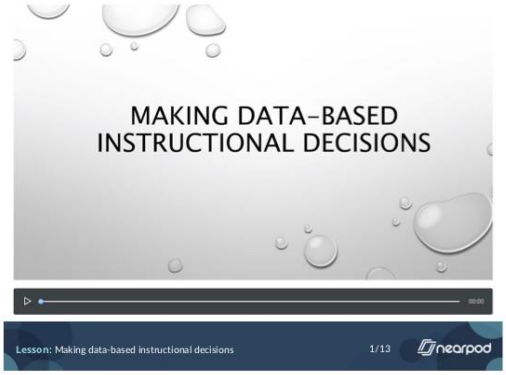
Lesson: Choosing/Creating appropriate progress measures 12/14 nearpod

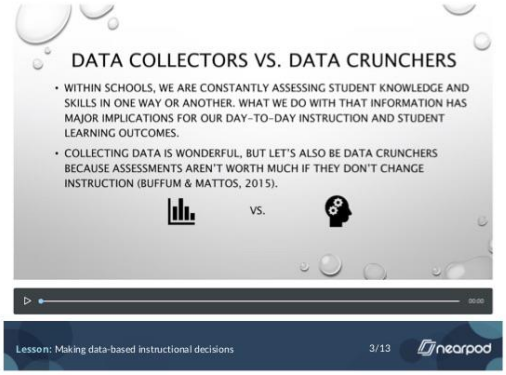

Which area do you feel you need more guidance for monitoring student progress?
Reading
Writing
Math
Lesson: Choosing/Creating appropriate progress measures
13/14
nearpod

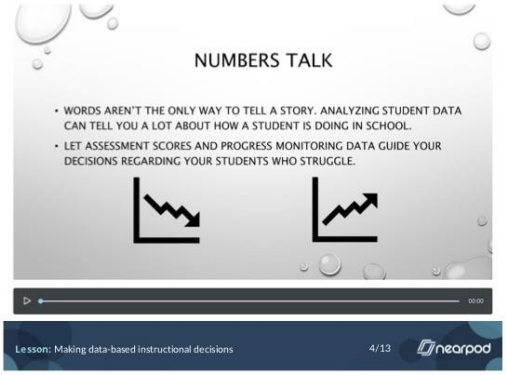

References
00:00
Lesson: Choosing/Creating appropriate progress measures
14/14
nearpod

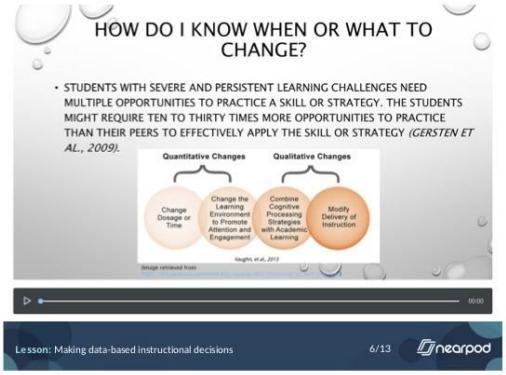
Appendix J

Making Data-based Instructional Decisions. Nearpod slides. https://share.nearpod.com/qr6aWbaJ08

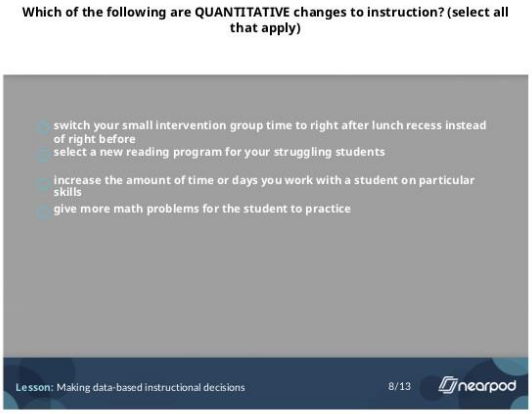


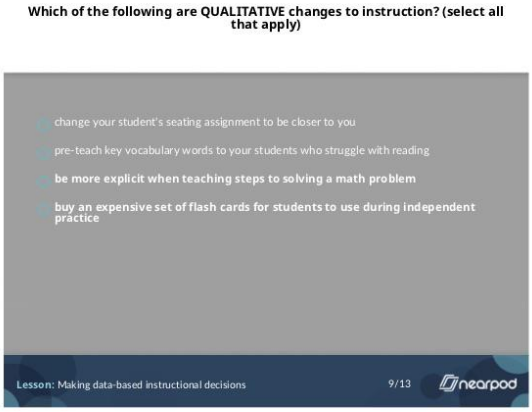




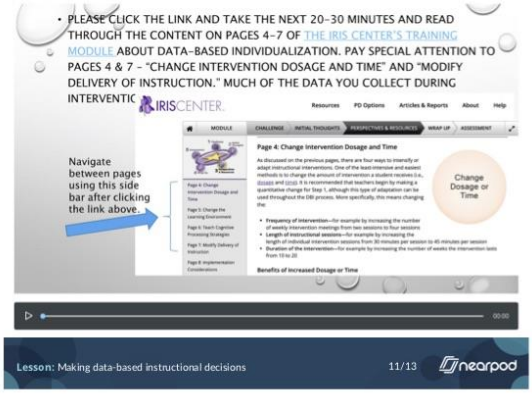


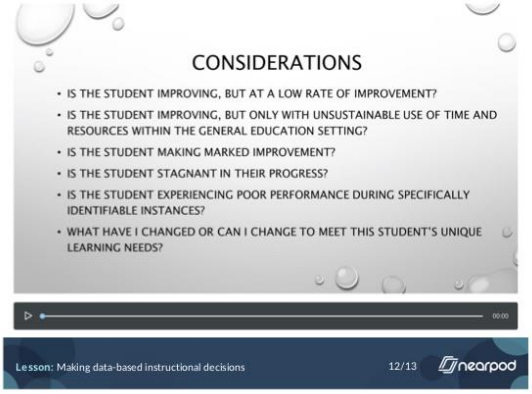

Quiz
Quantitative vs. Qualitative Instructional Changes
Lesson: Making data-based instructional decisions
7/13
nearpod

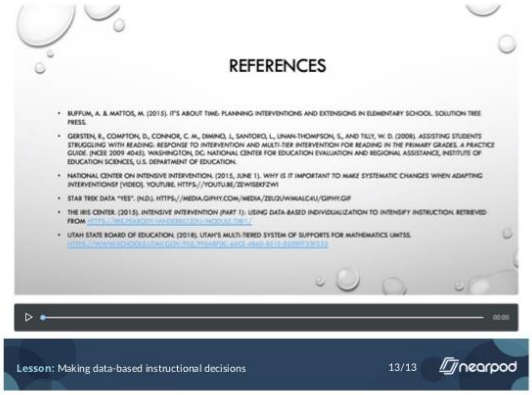

Which of the following are QUANTITATIVE changes to instruction? (select all that apply)
switch your small intervention group time to right after lunch recess instead of right before
select a new reading program for your struggling students
increase the amount of time or days you work with a student on particular skills
give more math problems for the student to practice
Lesson: Making data-based instructional decisions
8/13
nearpod


Which of the following are QUALITATIVE changes to instruction? (select all that apply)
change your student's seating assignment to be closer to you
pre-teach key vocabulary words to your students who struggle with reading
be more explicit when teaching steps to solving a math problem
buy an expensive set of flash cards for students to use during independent practice
Lesson: Making data-based instructional decisions
9/13
nearpod


DECISION TREE
PROVIDE CORE INSTRUCTION AND ASSESS
PROVIDE CORE INSTRUCTION WITH SUPPLEMENTAL INTERVENTION FOR STRUGGLING STUDENTS AND CONTINUE TO ASSESS
PROVIDE CORE INSTRUCTION AND ADAPT SUPPLEMENTAL INTERVENTION TO BE MORE INTENSIVE FOR STUDENTS WHO DO NOT RESPOND TO TARGETED INTERVENTIONS. CONTINUE TO ASSESS PROGRESS.
Data-based Decision Making
(Utah State Board of Education, 2018)
Lesson: Making data-based instructional decisions
10/13
nearpod


PLEASE CLICK THE LINK AND TAKE THE NEXT 20-30 MINUTES AND READ THROUGH THE CONTENT ON PAGES 4-7 OF THE IRIS CENTER'S TRAINING MODULE ABOUT DATA-BASED INDIVIDUALIZATION. PAY SPECIAL ATTENTION TO PAGES 4 & 7 - "CHANGE INTERVENTION DOSAGE AND TIME" AND "MODIFY DELIVERY OF INSTRUCTION." MUCH OF THE DATA YOU COLLECT DURING INTERVENTIC
IRISCENTER
Navigate between pages using this side bar after clicking the link above.
Page 4: Change Intervention Dosage and Time
Change Dosage or Time
Benefits of Increased Dosage or Time
Lesson: Making data-based instructional decisions
11/13
nearpod


CONSIDERATIONS
IS THE STUDENT IMPROVING, BUT AT A LOW RATE OF IMPROVEMENT?
IS THE STUDENT IMPROVING, BUT ONLY WITH UNSUSTAINABLE USE OF TIME AND RESOURCES WITHIN THE GENERAL EDUCATION SETTING?
IS THE STUDENT MAKING MARKED IMPROVEMENT?
IS THE STUDENT STAGNANT IN THEIR PROGRESS?
IS THE STUDENT EXPERIENCING POOR PERFORMANCE DURING SPECIFICALLY IDENTIFIABLE INSTANCES?
WHAT HAVE I CHANGED OR CAN I CHANGE TO MEET THIS STUDENT'S UNIQUE LEARNING NEEDS?
Lesson: Making data-based instructional decisions
12/13
nearpod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STAR TREK DATA "YES". (N.D.). HTTPS://MEDIA.GIPHY.COM/MEDIA/ZEUZUWMALC4U/GIPHY.GIF
THE IRIS CENTER. (2015). INTENSIVE INTERVENTION (PART 1): USING DATA-BASED INDIVIDUALIZATION TO INTENSIFY INSTRUCTION. RETRIEVED FROM
UTAH STATE BOARD OF EDUCATION. (2018). UTAH'S MULTI-TIERED SYSTEM OF SUPPORTS FOR MATHEMATICS UMTSS.
00:00
Lesson: Making data-based instructional decisions
13/13
nearpod

Appendix K

Trainer Fidelity Checklist

Week # Topic:	Highlight one
a. Trainer clearly stated and gave a summary of the week's topic from the module.	1 2 3
Notes:	
b. Trainer asked for and answered participant questions throughout session.	1 2 3
Notes (may tally number of questions asked and answered):	
c. Trainer presented case studies to participants and facilitated group discussion.	1 2 3
Notes:	
d. Trainer gave feedback to participants regarding case studies.	1 2 3
Notes:	
Other observations:	

Scoring criteria:

1 – Trainer did not do this.
2 – Trainer partially did this.
3 – Trainer did this.

Week # 1 Topic: Outline/Basics of RtI	Highlight one
e. Trainer clearly stated and gave a summary of the week's topic from the module.	1 2 3
Notes:	
f. Trainer asked for and answered participant questions throughout session.	1 2 3
Notes (may tally number of questions asked and answered): Provided clear opportunities for questions/comments and provided positive responses to questions and comments. Validated their concerns with the process and how to best help children. Also referred to future modules and what they would address.	
g. Trainer presented case studies to participants and facilitated group discussion.	1 2 3
Notes: N/A – reviewed key concepts of RtI.	
h. Trainer gave feedback to participants regarding case studies.	1 2 3
Notes: N/A – reviewed key concepts of RtI.	
Other observations:	

Week # 2 Topic: Identifying Struggling Students	Highlight one
i. Trainer clearly stated and gave a summary of the week's topic from the module.	1 2 3
Notes: Trainer specifically began with a summary of the week's topic. She also addressed a participant questions related to the topic. Pace was excellent; participants were engaged and their comments indicated interest and learning of concepts.	
j. Trainer asked for and answered participant questions throughout session.	1 2 3
Notes (may tally number of questions asked and answered): Question asking and answering began at 1 minute and 30 seconds. Trainer expertly handled a question that could be potentially difficult (we have been told by the district …). Trainer acknowledge the real-life situation of the participants, validating their experiences and knowledge; this occurred throughout the training. Trainer Questions: 11111 Participant Questions: 111111111	
k. Trainer presented case studies to participants and facilitated group discussion.	1 2 3
Notes: Trainer discussed trend lines of student growth, indicators of risk factors, Information presented was accurate and important. At 16 minutes, chart with student data was presented. When a general comment was provided about the case study, trainer asked the participant to provide specific feedback about student progress; this is important for participants to do in order to provide appropriate instruction to students.	
l. Trainer gave feedback to participants regarding case studies.	1 2 3
Notes: Trainer discussed each of the five case studies and gave verbal and written feedback.	
Other observations:	

Week # 3 Topic: Selecting Evidence-based Interventions	Highlight one
m. Trainer clearly stated and gave a summary of the week's topic from the module.	1 2 3
Notes: Yes, trainer named the module, noted the importance of the topic, pointed out some issues with current practices, and asked for participant thoughts about the links and information provided.	
n. Trainer asked for and answered participant questions throughout session.	1 2 3
Notes (may tally number of questions asked and answered): Question asking and answering began at the end of the summary statement of topic. Trainer asked authentic questions about participants' work and experiences. Trainer Questions: 11111 Participant Questions: 1111	
o. Trainer presented case studies to participants and facilitated group discussion.	1 2 3
Notes: Case studies were well constructed and represented circumstances that could likely occur in elementary classrooms. Trainer also presented several useful resources for participants that could be implemented to assist students in their classrooms.	
p. Trainer gave feedback to participants regarding case studies.	1 2 3
Notes:	
Other observations: Trainer discussed shared some personal experiences to assist participants with their instruction.	

Week # 5 Topic: Making Data-based Instructional Decisions	Highlight one
q. Trainer clearly stated and gave a summary of the week's topic from the module.	1 2 3
Notes:	
r. Trainer asked for and answered participant questions throughout session.	1 2 3
Notes (may tally number of questions asked and answered): This was the last session, so prompted a discussion/Q&A on the entire training. Positive and supportive responses to questions and concerns.	
s. Trainer presented case studies to participants and facilitated group discussion.	1 2 3
Notes: Presented and explained progress monitoring data for each of the case study students. Participants were engaged and asked questions using the context of their own classrooms and experience.	
t. Trainer gave feedback to participants regarding case studies.	1 2 3
Notes:	
Other observations:	

Appendix L

Participant Feedback Survey

Feedback Survey

Please rate the following:

	Not easy to use	Somewhat easy to use	Easy to use
Ease of use of training materials	○	○	○

	Not useful at all	Somewhat useful	Very useful
Usefulness of the content to your teaching practice	○	○	○

Please share any comments or suggestions on how to improve this training.

Appendix M

Participation Survey

Participation Survey

Please indicate the number of modules you viewed/completed in their entirety.

- 1
- 2
- 3
- 4
- 5

Please indicate the number of group discussions you *completed.
(*If you were present for all of a discussion or watched the full recording for any session missed at a later time, count this as completed.)

- 1
- 2
- 3
- 4
- 5

Please type your name.

_____