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Developing a Scale to
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Abstract

Response to Intervention (RTI) is an educational model required by the No Child Left Behind Act and the Individuals with Disabilities Education Act (IDEA). This multi-tiered approach integrates ongoing assessment of individual student progress with targeted instruction, a process previously reserved for students with special needs. Educators are required to use RTI to monitor all children, even those not identified for special services. Effective educators need training in selecting appropriate instruments and conducting accurate assessments. This presentation describes the development of a scale to measure self-efficacy of educators using RTI to better identify areas in which educators need additional support.

Developing a Scale to Assess Self-Efficacy for Response to Intervention Practices in Schools

Response to Intervention (RTI) is an educational model required by the No Child Left Behind Act and the reauthorization of the Individuals with Disabilities Education Act (IDEA). This multi-tiered approach integrates ongoing assessment of student progress with instruction (Cannaday, 2008). Each stage of intervention is closely monitored by teachers. Frequent, individualized student assessment is a familiar process to special educators. RTI, however, is designed to support all children, even those who have not been identified for special services. Effective educators need training in selecting appropriate instruments and conducting accurate assessments (Frey & Fisher, 2004). How confident are these educators that they make good decisions and ensure fidelity of protocol when they implement these highly prescriptive interventions? While there are many scales available to measure self-efficacy in education, they typically measure students' self-efficacy or the teachers' confidence in delivering content-specific material in math or science. There is no scale that measures the educators' self-efficacy with using the RTI model in schools. It is important to know how these educators perceive themselves and the impact they are making (Gersten, Chard & Baker, 2000). This paper describes how the researchers developed the RTI Self-Efficacy Scale (RTISES) and are now using the scale to identify the needs of these educators. This research also informs teacher educators in higher education programs who prepare future educators and provide professional in-service training to those who are required to use the RTI model in schools.

Scale Development Method

The RTI Self-Efficacy Scale (RTISES) is a measure of the level of self-efficacy educators have as they implement the various RTI methods. Considered an indirect measure, because one cannot directly observe self-efficacy, the scale complements other available measures such as observed changes in teacher behavior. The scale development process follows the guidelines recommended by DeVellis (2003).

Deciding What to Measure and Generating an Item Pool

The first steps in these guidelines are to 1) determine what to measure and 2) generate an item pool. The authors want to gain an understanding of the level of self-efficacy of educators implementing the RTI problem-solving approach to instruction. The scale consists of a set of items generated through an iterative process starting with core principles (Barnes & Harlacher, 2008) of RTI: universal design that supports access to learning opportunities for all students; using evidence-based practices to inform intervention strategies; providing intervention in tiers to match the needs of the learner; working collaboratively with other professionals and families; solving problems in systematic ways; and using assessment to inform decision making. Effective implementation of the RTI model depends heavily on the ability of teachers to find information to address a variety of problems that impact learning. Because this skill set is crucial to the success of the approach, researchers use the Information Literacy Competency Standards for Higher Education (1999) endorsed by the American Association of Higher Education and the Council of Independent Colleges to inform the development of items addressing that component.

Researchers initially drafted between seven and fifteen items addressing efficacy in each of these core RTI areas. The researchers then investigated other self-efficacy scales addressing general self-efficacy (Chen, Gully & Eden, 2001; Schwarzer & Jerusalem, 1993) and teacher self-

efficacy (Erdem & Demirel, 2007) to see if there were items there that might better address the areas identified or that would add a beneficial element of redundancy with respect to the substantive content to the initial pool.

Format the Measurement

The third step in the DeVellis guidelines is to determine a format for measurement. Self-efficacy has been measured using various measurement formats (Maurer & Andrew, 2000). Bandura (1986) suggests that asking the subjects to respond whether they believe they can perform a particular a task and then to report the level of confidence that they have in their ability provides the best measurement. Maurer and Pierce (1998) concluded that a Likert scale is acceptable way to capture the dimension of confidence. For the current study, researchers selected the Likert scale method because it is simpler and the respondents are familiar with the format.

Have Item Pool Reviewed by Experts

The next step in the scale development process is to have the initial item pool reviewed by experts. In this study, the researchers sought expertise in two areas, psychometrics and content.

The measurement experts. The researcher asked advanced graduate students in a doctoral program in measurement and assessment to review the scale and provide their input regarding scale properties at various stages of the scale development process. Initially, they reviewed the scale for item quality by examining each item for clarity. They also reviewed the response options to determine if the selections could capture the information that the researchers hoped to gather. Recall that the researchers hope to use the instrument for two purposes, to assess what kinds of professional development teachers believe they need to effectively

implement the RTI approach and to measure a change in the level of self-efficacy before and after professional in-service support using the RTI methods.

Expert feedback from psychometricians. As is often the case, the same measure cannot accomplish both functions. The experts provided suggestions on how to reframe the item stems and response options to provide the teachers a way to express their interest in more training or more information without openly admitting that they do not already understand or use some of the strategies known to be best practices. They also suggested adding a neutral level to the scale. This group of experts is also conducting a back translation. During this process, the experts will assign each of the randomly presented items to one of the domains or constructs the researchers are hoping to assess, without referring to mapping design created by the scale developers, what is known as the test blueprint.

Subject area experts. The second group of experts in this development process are the subject area experts. Teachers, principals, counselors, and central office school administrators participated in focus groups. In this particular case, however, researchers take advantage of the opportunity to add to the item pool by first asking these experts to participate in a discussion about the dimensions of self-efficacy in the RTI approach that they believe are important and then invite them to create items they believe measure it. After these professionals generate their items, the researchers share the items previously generated and get feedback on these initial items.

Feedback from content experts. All items are reviewed for quality. Items that are too lengthy, negatively worded, double barreled, ambiguous or otherwise unclear are either removed or revised. Content experts were instrumental in detecting potentially confusing items. Two item pool review teams recommended that several items using special educational jargon be

revised and that some items be completed removed. The rich discussion also resulted in the identification of a new dimension of RTI not assessed by the initial item pool – collaborative planning.

Consider Validation Items

After creating items to measure the construct of interest, DeVellis describes the fifth step, to consider including validation items. The RTISES includes two types of validation items. Some items are included to reduce response bias and some are included to add evidence of construct validity. Respondents who may be motivated to present themselves in the most positive light, a motivation known as social desirability (SD), may introduce response bias. In spite of assurances that their responses are anonymous and confidential, educators may believe that their responses may be linked to their performance reviews or some other measure of their competency. One way to try to reduce the effects of SD during the test administration stage is to identify and eliminate items that correlate highly with social desirability scores on concurrently administered Social Desirability Scale (Crowne & Marlow, 1964).

Approaches to reduce the effects of social desirability. The researchers, however, used other approaches during the test construction stage. First, as mentioned earlier, respondent are told in the test instructions that their responses were anonymous and that they should answer honestly. Additionally, the researchers explain to the respondents that future training opportunities and support will be designed based on their responses on the RTISES. Another method to address this concern is to provide “safe” response options wherein the respondents can comfortably express their level of need without appearing to be deficient. This is the approach used in the current instrument. Response options include “I’ll take anything,” “I’m starting to get it, but I want lots more,” “I do this, but I could benefit from more,” “I don’t feel the need for

more,” and “I feel ready to help others.” Additionally, items that measure general self-efficacy (Chen, Gully & Eden, 2001), but that are not related to RTI, are also included in the RTISES in order to add to the evidence supporting the validity of the inferences made from the scores from this new scale.

Administer Items to a Developmental Sample

Participants. Administering items to a developmental sample is the next step in the scale development process. Researchers initially piloted the scale with a developmental sample of pre-service teachers and educators. The pre-service teachers were all completing their licensure requirements within the year. Many were student-teaching or doing other practicum field placements in schools using the RTI approach. None of these pre-service teachers had extensive formal RTI training. Some had one class session on the RTI topic. The pre-service teachers and educators were all working in public elementary schools in a mostly rural area in one mid-Atlantic state, and as such, they were not representative of all educators required to use RTI approaches.

Evaluation of Items

Researchers are preparing to perform the seventh step, the evaluation of items. The scale has now been administered to educators in three school districts. The respondents include elementary teachers, special educators, building principals, and other stakeholders such as school psychologists, speech pathologists, guidance counselors, and librarians. Currently, researchers have fewer than 50 completed responses, however, preliminary results are encouraging. Respondents are using all levels of response options.

Final Steps in Scale Development

After a large enough number of subjects has responded, (300+), then the scale developers can make better inferences about the adequacy of the items and determine the optimal length of the scale, the final step in the process. Researchers will perform a factor analysis to determine if the set of items constitutes a unidimensional set. Finally, the reliability coefficient alpha will serve as an indicator of the scale's quality and internal consistency.

Conclusion

The item review process is time and labor intensive, but the authors find that each iteration is an improvement over the earlier versions. Perhaps the most important lesson learned is that one instrument will not serve the purposes of a needs assessment and a training evaluation. Even though the general construct of interest, self-efficacy using RTI approaches, is essentially the same, the contexts and purposes are different. Interpretations of the data will be much more meaningful when the items are designed to measure precisely what the researchers want to know. First, in what dimensions of RTI do the teachers express the lowest levels of self-efficacy and the highest need for additional support or information? Secondly to what degree to the RTI trainings impact the teachers' self-efficacy?

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Appendix

RTI Assessment tool is available for viewing at:

http://jmu.qualtrics.com/SE?SID=SV_8jqaXRkzRZrQJQU&SVID=Prod

No password required.