

School Psychology Research Collaboration Conference (SPRCC)

Application for Early Career Researcher

Cover Page

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Personal Research Agenda

Treatment integrity (also referred to as intervention integrity, treatment fidelity) has been defined as the degree to which an intervention is implemented as planned (Gresham, 1989). To draw valid conclusions about intervention outcomes, it is essential to assess both student outcomes and treatment integrity (Shadish, Cook, & Campbell, 2002). However, there is growing evidence in the professional literature that (a) few researchers assess treatment integrity (Hagermoser Sanetti & Kratochwill, 2008c), (b) few practitioners assess treatment integrity (Cochrane & Laux, 2008), and (c) many teachers implement classroom-based interventions with a low level of integrity (e.g., Noell et al. 2005). My research agenda for the next 3-5 years is focused on developing systematic lines of research in the areas of treatment integrity assessment and promotion.

Currently available options for assessing treatment integrity (e.g., direct observation, permanent product review) are highly resource intensive and thus do not lend themselves to frequent and ongoing assessment. Teacher self-report has been proposed as “an appealing alternative” to such assessment methods as it is simple, efficient, and unobtrusive (Noell & Gansle, 2006, p. 36); however, research in this area is extremely limited. The available data suggest that teachers overestimate their level of treatment integrity when they complete weekly or monthly self-reports (Noell et al., 2005; Wickstrom, Jones, LaFleur, & Witt, 1998). Research findings from the medical literature indicate individuals shift from reporting specific details regarding a behavior to general estimates of a behavior as the time frame for self-reporting increases (Riekert, 2006). Informed by this research, I conducted an initial study of teacher *daily* self-report of treatment integrity (Hagermoser Sanetti & Kratochwill, 2008b). Results indicated teachers’ accuracy, on average, increased from 20% accurate when they completed weekly self-reports to 95% accurate when they completed daily self-recording; results were replicated in a follow-up study (Hagermoser Sanetti & Kratochwill, 2008a). Currently, I am investigating whether teacher self-recording (i.e., written) or self-reporting (i.e., verbal) on a daily or weekly schedule is a more accurate method for assessing treatment

integrity. To follow-up on these pilot studies, I intend to (a) develop and validate a teacher self-report treatment integrity assessment that could be applied across interventions in a school setting, (b) investigate the utility of web-based applications to facilitate treatment integrity data collection and use, and (c) determine how a multi-method, multi-rater package of treatment integrity assessments can be utilized to feasibly evaluate treatment integrity across different tiers of intervention. Such research will lead to the development and evaluation of efficient, feasible, and psychometrically sound treatment integrity assessments, which will be essential to increasing the prevalence of treatment integrity assessment in school-based research and practice.

With regard to treatment integrity promotion, performance feedback is the only treatment integrity promotion strategy supported by a systematic line of research (e.g., Noell et al., 2005). I am interested in expanding the range of empirically supported behavior change strategies available to educators by identifying strategies that have effectively increased treatment integrity in other fields and adapting those strategies to educational interventions. In the field of health psychology, for example, action planning has been found to be highly effective in translating adults' intention to change their behavior to sustained adoption of new behavior (e.g., Schwarzer & Luszczynska, 2008). In two pilot studies, teachers' treatment integrity levels, across both academic and behavioral interventions, increased and variability in their implementation decreased after implementation of collaborative action planning with a consultant (Hagermoser Sanetti & Kratochwill, 2008a, 2008b). To follow-up on these pilot studies, I intend to develop and further evaluate detailed action planning materials and assessments informed by those utilized in health psychology. Even the best evidence-based intervention will not result in positive student outcomes if it is not implemented. Development and evaluation of additional treatment integrity promotion strategies, such as action planning, will provide educators with tools to *prevent* teachers' level of treatment integrity from declining by addressing barriers to the initiation and maintenance of new intervention-related behaviors prior to intervention implementation.

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Collaborative Multi-Site Research Proposal

Title: Development and Validation of a Teacher Self-Report Treatment Integrity Assessment

Key Personnel:

Lisa Sanetti, PhD, Co-Principal Investigator, Project Director—University of Connecticut

Robert Horner, PhD, Consultant—University of Oregon

Donald Kincaid, EdD, Consultant—University of South Florida

W. David Tilly, PhD, Consultant—Director, Innovation and Accountability, Heartland Area
Education Agency #11, Johnston, IA

Abstract

The purpose of this project is to develop and validate the Treatment Integrity Assessment Scale (TIAS), an innovative, intervention-general measure of treatment integrity that is informed by available implementation research and theory and will allow educators to plan for and monitor key implementation factors. The TIAS will be a brief teacher self-report measure of treatment integrity that includes well-defined constructs and items that can be easily used by teachers implementing interventions. The TIAS will be validated across implementation of multiple research-based interventions within multi-tiered models of academic and/or behavioral service delivery in large school districts in Connecticut, Iowa, Oregon, and Florida. Teacher samples will be used to assess the reliability and validity of the pilot scale (TIAS_p), revised scale (TIAS_r), and final scale (TIAS_f). Construct and item development will focus on defining the constructs from both a strong theoretical and empirical basis. The theoretical basis of the constructs will be accomplished by defining how teachers' treatment integrity is conceptualized in the intervention evaluation literature. The empirical basis of the item and scale development process will be guided by expert and consumer input and exploratory factor analysis of Pilot 1 (TIAS_p) and Pilot 2 (TIAS_r) responses. The TIAS/items and scales will be developed from both a strong theoretical and empirical basis that includes expert input, consumer input, and pilot research. The resulting instrument will be evaluated using confirmatory factor analysis to estimate the relationship between items and underlying constructs and to test how well data collected using the final instrument fit the theoretical model. The reliability of the measure will be examined using test-retest procedures and by studying the consistency of implementation scores across multiple raters. The external validity of the measure will be demonstrated via criterion validity and usability studies. Bias attributed to teacher experience will also be examined.

Introduction and Purpose

To make valid conclusions about intervention outcomes, it is essential to assess both student outcomes and *treatment integrity* (also referred to as intervention integrity, treatment fidelity), the degree to which the intervention is implemented as planned (Gresham, 1989). However, there is growing evidence in the professional literature that a vast majority of teachers implement classroom-based interventions with a low level of treatment integrity and few practitioners or researchers assess treatment integrity (e.g., Cochrane & Laux, 2008; Noell et al., 2005). This is particularly concerning in light of research indicating that low levels of treatment integrity, in general, are associated with worse intervention outcomes (Noell, 2007). Currently available options for assessing treatment integrity (a) are highly resource intensive and thus do not lend themselves to frequent and ongoing assessment and (b) do not provide data regarding barriers to implementation and thus have limited utility related to working with teachers to increase their implementation. The purpose of this project is to develop and validate the Treatment Integrity Assessment Scale (TIAS), an innovative, intervention-general measure of treatment integrity that is informed by available implementation research and theory and will allow educators to plan for and monitor key implementation factors.

Specific Questions to be Addressed

The development and validation of the TIAS will occur over three phases. Specific research questions for phase one, *construct and item development*, are: (a) Does the TIAS reflect a strong contemporary and theoretical basis? (b) Is the TIAS feasible for teachers to complete in a brief amount of time? (c) Do the TIAS's items and proposed constructs (i.e., interventionist and recipient contributions, context and process variables) relate to important school outcomes? and (d) Do the TIAS's items reflect strong internal consistency reliability indices? Specific research questions for phase two, *structural validation*, are: (a) Does internal structural evidence support the construct validity of TIAS? (b) Do scores on the TIAS reflect strong reliability over time (test-retest reliability)? (c) Do scores on the TIAS reflect

strong reliability across raters (inter-rater reliability)? (d) Are scores on the TIAS free of teacher experience bias? Specific research questions for phase three, *external validation*, are: (a) Do teachers rate the TIAS as useful for assessing treatment integrity? (b) Are scores on the TIAS associated with other measures of treatment integrity? (c) Do scores on the TIAS predict important student academic and behavioral outcomes?

Participants and Sites

The TIAS will be designed for K-5 teachers. To validate the TIAS as an intervention-general measure, three teacher samples (i.e., Pilot 1, Pilot 2, and Pilot 3) will be collected from culturally diverse school systems in Connecticut, Iowa, Oregon, and Florida. More specifically, teachers who are implementing multiple research-based interventions within multi-tiered models of academic and/or behavior intervention will be recruited. Robert Horner, Donald Kincaid, and David Tilly have agreed to support this project and facilitate access to and data collection in schools across these states. We will target 150 elementary schools and 1800 teachers. The samples will be used to assess the reliability and validity of the pilot scale, *TIAS_p* (e.g., ~90 items), revised scale *TIAS_r* (e.g., ~60 items), and final scale *TIAS_f* (e.g., ~40 items).

Data collection will be coordinated by the investigator. The project coordinator will serve as the contact between site coordinators and the investigator. A local teacher or pupil personnel staff (e.g., guidance counselor, school psychologist, positive behavior supports coordinator) at each of the participating schools will be identified as a site coordinator and will serve as the contact between participants and the project coordinator.

Project Outline

The following procedures related to the development and validation of the TIAS will occur over 4 project years. The theoretical basis of the constructs will be accomplished by defining how teachers' treatment integrity is conceptualized in the intervention evaluation literature. The empirical basis of the item

and scale development process will be guided by expert and consumer input and exploratory factor analysis of Pilot 1 (TIAS_p) and Pilot 2 (TIAS_r) responses. The TIAS_f items and scales will be developed from both a strong theoretical and empirical basis that includes expert input, consumer input, and pilot research. Structural validation of the TIAS will involve conducting confirmatory factor analysis on the final draft of the TIAS_f. The reliability of the measure will also be examined using test-retest procedures and by studying the consistency of implementation scores across multiple raters (Nunally & Bernstein, 1994). Bias that can be attributed to teacher experience will be assessed using Differential Item Functioning (Hambleton, Swaminathan, & Rogers, 1991). The external validity of the measure will be demonstrated via criterion validity and usability studies. Multiple measures of treatment integrity will be used as criterion measures (e.g., Individual Student Systems Evaluation Tool). Teacher ratings on the Usage Rating Profile (URP; Chafouleas, Briesch, Riley-Tillman, & McCoach) will gauge the usefulness of the TIAS.

Estimated Brief Budget for 4 Year Project

Category	Brief Description	Amount
Salaries	1 faculty, 1 project coordinator, 3 graduate assistants	\$634,000
Supplies	Equipment and participant support costs	\$126,000
Travel	Travel to data collection sites to recruit participants and collect data.	\$40,000
Other	Indirect costs @ University of Connecticut rate of 26%	\$208,000
Total		\$1,008,000

Advantages and Challenges of Multi-Site Research

Development and validation of a measure such as the TIAS requires a large and diverse sample of teachers who are implementing a variety of evidence-based interventions. Collaboration with scholars in different parts of the country facilitates (a) development of relationship development with school districts across the country, (b) recruitment of an adequate and representative sample of teachers, and (c) data collection throughout the study. Despite these, and many other advantages, multi-site collaboration is challenging as it requires extensive planning, coordination, and travel to execute the project.

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