School-Based Consultants as Change Facilitators: Adaptation of the Concerns-Based Adoption Model (CBAM) to Support the Implementation of Research-Based Practices

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The Concerns-Based Adoption Model (CBAM) is proposed as a heuristic for school-based consultants interested in identifying impact points for facilitating implementation of research-based practices and programs in classrooms and schools. The article begins with a discussion of the change facilitator’s role in promoting changes in educational practices and a description of six essential strategies consultants can use to facilitate change. Background on CBAM’s development and its applications in school environments also are provided. In addition, CBAM’s three diagnostic frameworks (i.e., Stages of Concern, Levels of Use, and Innovation Configurations) are outlined and proposals for using CBAM assessment data to support educators’ use of research-based practices are discussed. Limitations of the model and implications for further research are presented.

A major contribution school-based consultations can make to school improvement efforts is to serve as change facilitators in classrooms, supporting teachers and other educators’ implementation of research-based practices. Understanding and dissemination of “best practices” from the educational

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and mental health research, however, is only the first step in this process. The actions and events that influence educators’ use of an innovation are the basis for the change facilitator’s efforts (Hall & Hord, 1987). What actions are essential for school-based consultants to facilitate adoption and implementation of research-based practices?

In an effort to understand how successful instructional leaders facilitated change, Hord (1992) conducted a literature review of research concerning change facilitators’ behaviors and actions. The resulting analysis identified six domains or categories of functions (see Figure 1): (a) developing, articulating, and communicating a shared vision of change (i.e., implementation of improved practices); (b) planning and providing resources to support educators’ implementation efforts; (c) supporting educators’ professional learning and development; (d) checking on progress in use of research-based practices; (e) providing continuous assistance for implementation; and (f) creating a school context supportive of change. These six functions were deemed necessary for making change happen, and they constitute the job description for the change facilitator (Hall & Hord, 2001). School-based consultants’ success in the change facilitator role can be positively influenced through the effort spent communicating with potential adopters, developing rapport

![Figure 1: Six essential functions of change facilitators.](image-url)
and empathy with consultees, and carefully matching research-based practices to consultee and student needs. The Concerns-Based Adoption Model (CBAM) represents one promising framework for supporting school-based consultants’ efforts to serve as change facilitators in their school settings.

THE POLICY CONTEXT SURROUNDING IMPLEMENTATION OF RESEARCH-BASED PRACTICES

Current educational legislation has embraced the necessity of implementing scientifically validated practices in classrooms and schools. Although there can be healthy debate about the definitions of research-based practice, the current policy context clearly places new demands and constraints on educators’ innovation and reform efforts. The term “scientifically-based research” (SBR) is referenced over 100 times in the No Child Left Behind (NCLB) Act of 2001, and this legislation mandates that federal funds be used by schools and to implement instructional programs and materials, assessments, and professional development programs that SBR identifies as “effective.” To support dissemination of research-based practices, the U.S. Department of Education has also created The What Works Clearinghouse (WWC) (http://www.w-w-c.org/). The What Works Clearinghouse’s stated purpose is “to promote informed education decision making through a set of easily accessible databases and user-friendly reports that provide education consumers with ongoing, high-quality reviews of the effectiveness of replicable educational interventions” (WWC, 2008).

In school psychology, a similar interest in identifying and implementing research-based practices led to the establishing of the Task Force on Evidence Based Interventions in Schools by the Society for the Study of School Psychology (SSSSP), Division 16 of the American Psychological Association, and the National Association of School Psychologists (NASP). The Task Force’s goals include improving the quality of research training, extending knowledge of evaluation criteria for evidence-based interventions (EBIs), and disseminating this knowledge to the profession of school psychology and other educators. (Kratochwill & Shernoff, 2004).

The identification and dissemination of research-based practices is only an initial step in realizing improved services and outcomes; facilitating the implementation of new practices and programs is an essential aspect of school-based consultants’ work (Kratochwill, 2002; Kratochwill & Shernoff, 2004). Although many consultants may understand (and even embrace) the value of research-based practices for improving educational and mental health services, our predominant methods of intervention remain indirect and teacher-mediated. Unfortunately, school-based consultants often discover their intervention collaborators are unable or unwilling to implement research-based practices with integrity and fidelity. In fact, recent research on intervention fidelity suggests many students do not receive quality school-based
interventions for their academic and behavioral difficulties (e.g., Flugham & Reschly, 1994; Noell, Witt, LaFleur, Mortenson, Rainer, & LaVell, 2000; Telzrow, McNamara, & Hollinger, 2000).

Since the 1960s, there have been multiple waves of educational innovations designed to “teacher-proof” classroom practices. However, as multiple researchers (e.g., Gallagher, 1967; Rand Corporation, 1975) have demonstrated, successful school-based efforts to impact students’ academic and social-emotional progress are dependent on skillful implementation by teachers and other school staff (Ellsworth, 2000; Hall & Hord, 1987). The purpose of this paper is to introduce and critique one model for assessing and facilitating the implementation process and to identify possible “impact points” for consultation researchers and practitioners to ensure successful implementation of research-based practices in school and classroom settings. Limitations of the empirical support for the proposed model are identified along with suggestions for further research.

THE CONCERNS-BASED ADOPTION MODEL

We chose the Concerns-Based Adoption Model (CBAM) because it has been highlighted by some researchers as a useful framework for understanding the evolution of educators’ questions and concerns during adoption and implementation of research-based practices (see the Collaborative for Academic, Social, and Emotional Learning (CASEL) and the Laboratory for Student Success (LSS), 2003; Osher, Dwyer, & Jackson, 2004). Moreover, some components of the model have been the focus of over 30 years of research and evaluation in school-based implementation projects. CBAM was initially developed in the late 1960s within the context of studies conducted by the Research and Development Center for Teacher Education at the University of Texas-Austin. The model is comprised of three frameworks for describing and evaluating teachers’ engagement with and implementation of proposed programmatic changes or innovations: (a) Stages of Concern, (b) Levels of Use, and (c) Innovation Configurations. The next section of the article describes each of these three frameworks: (a) defining the concepts or constructs underlying the frameworks; (b) identifying potential impact points for consultants using the frameworks, and (c) describing possible areas for research to advance understanding and evaluation of each framework.

Stages of Concern

By studying the perceptions and concerns of preservice and beginning teachers, Fuller, Bown, and Peck (1967) discovered clusters of concerns and attitudes that changed in predictable patterns as teachers became more adept

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1For a review of the literature on educational change, the reader is referred to Ellsworth (2000).
and experienced practitioners. Hall, George, and Rutherford (1979) extended Fuller and her colleagues’ model to address teacher concerns with new instructional practices and school reform efforts. According to this model, concern is defined as “the composite representation of the feelings, preoccupation, thought, and consideration given to a particular issue or task” (p. 5).

The CBAM Stages of Concern framework (see Figure 2) may be a useful heuristic for school-based consultants interested in assessing the attitudes and feelings teachers have towards an innovation, whether it is an individual intervention or a systemic school reform effort. The Stages of Concern describe “the affective dimension of change: how people feel about doing something new or different, and their concerns as they engage with a new

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<tr>
<th>General category of concern</th>
<th>Distinct stage of concern with general description</th>
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<tr>
<td>Impact</td>
<td>Stage 6—Refocusing The focus is on exploration of more universal benefits from the research-based practice including the possibility of major changes or replacement of intervention with a more powerful alternative.</td>
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<td>Stage 5—Collaboration The focus is on coordination and cooperation with others regarding use of the research-based practice.</td>
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<td>Stage 4—Consequence Attention focuses on impact of the research-based practice on students in his or her immediate sphere of influence. The focus is on relevance of the practice for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.</td>
</tr>
<tr>
<td>Task</td>
<td>Stage 3—Management Attention is focused on the processes and tasks of using the research-based practice and the best use of information and resources. Issues related to efficiency, organization, management, scheduling, and time demands are the utmost concern.</td>
</tr>
<tr>
<td>Self</td>
<td>Stage 2—Personal Individual is uncertain about the demands of the research-based practice, his or her inadequacy to meet those demands, and his or her role with the practice. This includes analysis of his or her role in relation to the reward structure of the organization, the decision-making process, and consideration of potential conflicts with existing structures or personal commitments.</td>
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<td>Stage 1—Informational A general awareness of the research-based practice and interest in learning more detail about it is indicated. The person seems unworried about himself or herself in relation to the practice. She or he is interested in the substantive aspects of the research-based practice in a selfless manner such as general characteristics, effects, and requirements for use.</td>
</tr>
<tr>
<td>Unrelated</td>
<td>Stage 0—Awareness Little concern about or involvement with the research-based practice is indicated.</td>
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**FIGURE 2** Stages of concern about a research-based practice. (Figure adapted with permission from the authors. For more information see Hall & Hord, 2006.)
program or practice” (Horsley & Loucks-Horsley, 1998, p. 17). Most models of consultation include identification and awareness of consultees’ concerns as an essential element in establishing a working relationship and problem identification (Gutkin & Curtis, 1999). In fact, effective consultants actively communicate an awareness and understanding of consultees’ concerns and take this information into consideration when selecting intervention strategies (Kratochwill, Elliott, & Stoiber, 2002). Although this Stages of Concern has an intuitive appeal as part of this process, whether the available research supports the Stages of Concern framework merits additional consideration.

CBAM’s conceptualization of Stages of Concern provides a potential evaluative framework for considering teachers’ attitudes at all stages of implementation. Although school-based consultants are generally able operationalize and observe the components of a research-based practice and its effects, it is more difficult to predict and understand the meaning and subjective experiences of teacher implementers (Rogers, 1995). However, understanding this subjective perception of a proposed change is essential because it may have profound effects on fidelity and sustainability. The Stages of Concern framework could be viewed as an extension or refinement of the concept of intervention (or treatment) acceptability. Research on the relationship between acceptability and implementation has been somewhat inconclusive; that is, some teachers may find a new practice or program acceptable, but have difficulty implementing and sustaining the required procedures (Telzrow & Beebe, 2002). In comparison to the unidimensional continuous measurement of acceptability done at the beginning and end of implementation (or in analog research), CBAM’s use of the developmental stage model allows ongoing evaluation of users’ concerns during the implementation process. In addition, the Stages of Concern framework allows for comparisons between the behaviors and cognitions of groups of implementers with various concern profiles, facilitating the identification and design of specific consultation and support strategies to address the needs of implementers at different stages of concern.

Hall and Hord (1987) outlined three methods for assessing teachers’ Stages of Concern: (a) one-legged conferences, (b) open-ended concerns statements, and (c) the Stages of Concern Questionnaire. One-legged conferences are a form of “on-the-fly” consultation that typically happens in school hallways, staff lounges, and parking lots. School-based consultants can use these one-to-two minute interactions to ascertain teacher’s attitudes and concerns about interventions. Hall and Hord (1987) suggest the following steps in conducting these interviews: (a) begin with an open-ended question (e.g., “How do you feel about the intervention we set up for Jane?”); (b) probe to clarify the particular topics and areas of concern; (c) analyze the teacher’s comments in relation to the Stages of Concern continuum; and (d) plan to provide consultation or assistance with implementation based on the teacher’s concerns.
Effective use of one-legged conferences requires that the school-based consultant be seen as an accessible and informed member of the school community. Regular use of these informal interviews would be one method for school-based consultants to gather useful information for evaluating and supporting implementation. Moreover, if school-based consultants could adequately see research-based practices though the eyes of mediators, including a better understanding of why a practice was adopted or not adopted, researchers and practitioners may have a clearer idea of how to support intervention implementation (Rogers, 1995; Truscott, Cosgrove, Eidle, & Meyers, 2000).

Teachers’ stages of concern have also been evaluated using open-ended statements of concern. This technique, which involves teachers’ written responses to open-ended prompts, has been used in various research projects on instructional innovation and is manualized to facilitate its use by school-based consultants, administrators, or others interested in assessing teachers’ stages of concern (see Fuller & Case, 1972; Newlove & Hall, 1976). A blank sheet with the open-ended prompt is given to teachers who are implementing a particular intervention (e.g., the top of the sheet might read, “How do you feel about peer tutoring? What are your concerns about it?”). In comparison to one-legged conferencing, open-ended written statements of concerns are not dependent on face-to-face interaction between consultants and consultees and also provide a written record of teachers’ concerns. Conversely, the written statements are time-consuming to complete and analyze, and some teachers’ responses will be too brief to be accurately classified into the appropriate stage (Hall & Hord, 1987; 2001).

The Stages of Concern Questionnaire (SoCQ) would appear to be the most time-efficient alternative for assessing teachers’ concerns and may be particularly attractive to researchers and school-based consultants evaluating large-scale program implementation or school reform efforts. Developed by Hall, George, and Rutherford (1979), the questionnaire consists of 35 items that ask respondents to describe their attitudes, feelings, and concerns about an intervention on a 7-point Likert scale. The scale takes approximately 10 to 15 minutes to complete and can be scored by hand or computer. The results provide a profile for each respondent that represents “the Stages of Concern on the horizontal axis and the relative intensity of concerns on the vertical” (Hall & Hord, 2001, p. 65). Analysis of the questionnaire results involves consideration of the “peak” concerns in the respondent’s profile.

Several researchers have used the SoCQ to examine changes in implementers’ concerns brought about by the provision of training or on-going experiences with implementation. Van den Berg, Sleegers, and Geijsel’s (2001) evaluation of a program to support implementation of the adaptive teaching (i.e., differentiated instruction) in Dutch primary schools indicated teachers who participated in a teacher support program experienced a statistically significant decrease ($p < .01$) in their reported self concerns (Awareness, Informational, and Personal) as well as a significant increase ($p < .01$) in their
impact concerns (Consequence and Collaboration). Rainforth (2000) demonstrated similar results in her evaluation of a graduate course on inclusive education for students with disabilities. Course participants' greatest concerns were reported in the “self” category at the beginning of the semester, but those self concerns were decreased by the conclusion of the course with a corresponding increase in student impact concerns (i.e., Collaboration and Refocusing).

Aneke and Finch (1997) used the SoCQ in their evaluation of the High Schools That Work (HSTW) program. A post-hoc Student-Newman Keuls multiple range test conducted on survey results from 673 teachers' indicated that teachers in the third year of HSTW implementation had significantly lower ($p < .05$) mean concerns at the Awareness and Informational stages than teachers with two or fewer years of implementation experience. Similarly, a post-hoc test indicated statistically significant differences ($p < .05$) between the mean levels of concerns at the Awareness, Informational, and Personal stages for teachers with less than 15 hours training (the mean) and those who had received more than 15 hours training. These results suggest that, as hypothesized by the CBAM model, experience with a program and meaningful training or professional development result in a shift from self-oriented concerns to concerns about the potential impact(s) of the program being implemented.

Future research considerations. Although the convenience of the Stages of Concern Questionnaire is appealing, research is needed to provide additional evidence for the validity and reliability of the results (Bailey & Palsha, 1992; Cheung, Nattie, & Davis, 2001; Shotsberger & Crawford, 1999). For example, Hall and Rutherford (1976) hypothesized seven distinct stages of concern, but the exact dimensionality of the concerns construct is unclear (Cheung, Nattie, & Davis, 2001). Confirmatory and exploratory factor analyses of seven-stage model have led some researchers to question the factor structure underlying the SoCQ (Cheung, Nattie, & Davis, 2001; Shotsberger & Crawford, 1999). In response, researchers have applied exploratory factor analysis to develop alternative models with differing numbers of items and Stages of Concern (Bailey & Palsha, 1992; Shotsenberg & Crawford, 1999). Of these efforts, Cheung, Nattie, and Davis (2001) produced promising results using a 22-item, five-stage revision of the SoCQ. In addition, van den Berg et al. (2002) in the Netherlands and Belgium have had success with a 52-item scale that measures a revised seven-stage model of concerns. Additional investigations using these alternate forms of the SoCQ are needed to provide evidence for validity and reliability of results as a measure of teachers' concerns.

Possible impact points at different Stages of Concern. Identifying teachers' Stages of Concern regarding research-based practices could guide school-based consultants' efforts to promote and facilitate their implementation. For example, when the proposed practice is unfamiliar to teachers, they may express high levels of Personal or Information concerns. These concerns may
be particularly common among new teachers, who are struggling to establish basic classroom management and instructional routines. Tschannen-Moran, Wollfolk Hoy, and Hoy’s (1998) review of teacher efficacy measures suggest teachers’ sense of self-efficacy contributes to their ability to implement new practices and to facilitate increased student achievement. Diffusion of innovation research in the public health domain (e.g., AIDS prevention) also supports this conclusion: “Someone with relatively low self-efficacy would not possess the self-confidence to think they could adopt the innovation” (Rogers, 1995, p. 170). Teacher support groups are one promising method for supporting teachers with high levels of Personal and Informational concerns. As an example, Babinski and Rogers (1998) describe their use of consultee-centered group consultation to facilitate new teachers’ problem solving about instructional and classroom management challenges.

Hall and Hord (1987) suggest the initial implementation of interventions generally results in heightened Management concerns. Providing “how-to” workshops and additional information could potentially help teachers feel more knowledgeable and efficacious in implementing research-based practices. Additionally, using integrity checklists (e.g., the Innovation Configuration Checklists described later in this article) may provide teachers with a heuristic for monitoring their own progress in implementation of complex new procedures and programs.

School-based consultants have unique skills that could facilitate teachers’ development in Impact, Collaboration, and Refocusing stages. Providing teachers with time-efficient methods of tracking student outcomes can help them clarify the impact of their efforts, share their results with peers, and determine whether an intervention should be modified or generalized for use with other students. Curriculum-Based Measurement (CBM) and goal attainment scaling (GAS) represent two methods that are particularly appropriate for teacher use at these Stages of Concern. Rogers (1995) indicates success in securing the adoption of innovations by clients is positively related to increasing client ability to evaluate innovations. Similarly, Noell et al. (2000; 2005) found that, although intervention plans generally decline to very low levels of implementation without structured follow-up, school-based consultants’ provision of performance feedback (including graphic presentation of treatment integrity and child performance data) appears to improve and sustain teachers’ implementation (Noell, Witt, Slider, Connell, Gatti, Williams et al., 2005; Noell et al., 2000).

Levels of Use

Educators’ orientations to potential intervention strategies can range from disinterest and active resistance to full support and engagement. The failure to account for this variance may be the reason why many studies find that the treatment has no significant effects or why the comparison group achieves
better outcomes (Hall & Loucks, 1977). Describing implementation of a research-based practice demands categories or stages of use that transcend the traditional use/non-use distinctions made in many studies of educational programs and psychological treatments. Moreover, information about a practice or program’s level of use needs to be collected from teachers because principals and other educational leaders (due to their relative isolation from actual classroom practice) tend to provide less reliable data on intervention use (Hall & Loucks, 1977).

Research in schools and universities led Hall and his colleague’s to develop the Levels of Use (LoU) framework (see Figure 3) for evaluating this important element in implementation. School-based consultants often experience difficulties in demonstrating “whether, and to what extent, (new practices) have been implemented in the classroom. With its focus on actual classroom actions, the Levels of Use framework fills this gap, offering a rigorous way to describe the change process that answers decision makers’ need for accountability” (Ellsworth, 2000, p. 150). In contrast to Stages of Concerns, the LoU framework focuses on the behaviors and actions of teachers and other educators as they implement a research-based practice. Hall and Hord (1987) identified eight levels of implementation that can be divided into two separate categories: three levels that represent non-use and five levels of representing use of a new practice or program. Hall and Hord (2001) suggest there is a typical progression through the LoU continuum (see Figure 3) for implementers, but that this progression may not necessarily include each level. In their research, educators generally progressed in sequence from Level I (Non-use) to Level IVa (Routine Use). Longitudinal studies of program implementation utilizing CBAM suggest at least “60 to 70 percent of the first time users … will be at LoU III (Mechanical Use) in which use is disjointed, inefficient, and associated with a short-term focus on planning” (Hall Alquist, & Hendrickson, 1999, p. 4). In addition, Anderson (1997) indicated that consultees who attain Level IVa (Routine Use) typically continue use of a new practice, but only some educators will progress to more sophisticated use (e.g., Level IVb [Refinement] or Level V [Integration]). Whether consultees move the “higher” LoUs may be dependent on a variety of variables: school context, individual skills and attitudes, support from change facilitators (e.g., school-based consultants), and awareness of the impact and efficacy of their efforts (Evans & Hopkins, 1988; Hopkins, 1990; Hall & Hord, 1987). For example, school-based consultants might help educators collect and analyze data to evaluate the effectiveness of their practices. Considerations of this data and identification of potential areas for improvement could provide an impetus for educators’ movement to LoU IVb (Refinement).

In an evaluation of a mathematics curriculum, Hall et al. (1999) used the LoU construct to track teachers’ use of instructional plans and materials. Thorton, West, Alquist, Hendrickson, Johnson, Hall, et al. (1999) reported
<table>
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<th>Level of use</th>
<th>General description of levels and decision points</th>
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<tr>
<td>Nonuse</td>
<td>The user has little or no knowledge of the research-based practice, no involvement with the practice, and is doing nothing to become involved.</td>
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| **Level I—Orientation** | The user has recently acquired or is acquiring information about the research-based practice and has recently explored or is exploring its value orientation and its demands upon the user.  
*Decision Point A:* Takes action to learn more detailed information about the research-based practice. |
| **Level II—Preparation** | The user is preparing for first use of the research-based practice.  
*Decision Point B:* Makes the decision to use the research-based practice by establishing a time to begin. |
| **Level III—Mechanical Use** | The user focuses most effort on the short-term, day-to-day use of the research-based practice with little time for reflection. Changes in use are made more to meet user needs than student needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the practice, often resulting in disjointed and superficial use.  
*Decision Point C:* Changes, if any, and use are dominated by user needs. |
| **Level IVa—Routine Use** | Use of the research-based practice is stabilized. Few if any changes are being made in ongoing use. Little preparation or thought is being given to improving the practice or its consequences.  
*Decision Point D1:* A routine pattern of use is established. |
| **Level IVb—Refinement** | The user varies the use of the research-based practice to increase the impact on the students within immediate sphere of influence (e.g., the target group in the classroom). Variations are based on knowledge of both short- and long-term consequences for these students.  
*Decision Point D2:* Changes use of the research-based practice to increase student outcomes based on formal or informal evaluation. |
| **Level V—Integration** | The user is combining his or her efforts to use the research-based practice with related activities of colleagues to achieve a collective impact on students within their common sphere of influence.  
*Decision Point E:* Initiates changes in use of research-based practice based on input of and in coordination with what colleagues are doing. |
| **Level VI—Renewal** | The user reevaluates the quality of use of the research-based practice, seeks major modifications or alternatives to the practice to achieve increased impact on students, examines new developments in the field, and explores new goals for self and the system.  
*Decision Point F:* Begins exploring alternatives to or major modifications of the research-based practice presently in use. |

**FIGURE 3** Levels of use of a research-based practice. (Figure adapted with permission from the authors. For more information see Hall & Hord, 2006.)
that the majority of teachers (59%) were at LoU III (Mechanical Use) at the end of the first year, suggesting their use was disjointed and choppy because they were still attempting to master the tasks required to use the curriculum. By the subsequent year, however, the percentage at LoU III had dropped to 32%. Conversely, the majority of teachers (54%) were at LoU IV (Routine) in year 2 of implementation, an increase from 25% at the conclusion of the first year of implementation. This suggested that use of the program became routine for many of the teachers by the end of the first year of implementation.

In a subsequent evaluation of the same program, George, Hall, and Uchiyama (2000) found that average fall to spring change in student achievement on the GOALS standardized mathematics test indicated was greatest in classrooms where the teacher was at LoU V (Integration). Average GOALS scores in these classrooms increased from 12.0 to 21.8 (out of 30 points). Students in classrooms taught by teachers at LoU IVa (Routine) had the next highest achievement gains on the GOALS test, increasing 6.2 points from 13.7 to 19.9. In addition, students in LoU IVb (Refinement) teachers’ classrooms also demonstrated more progress on the GOALS test than LoU III (Mechanical) teachers’ students. T-tests analysis indicated a statistically significant difference ($t = 2.67, p < .01$) between the GOALS test scores of the students of teachers who had progressed beyond LoU III (Mechanical) in the use of the standards-based curriculum and those whose teachers had not. In addition, George et al. (2000) found that teachers who participated in professional development activities reported higher LoU levels than their peers while also facilitating greater increases in their students’ GOALS test scores (an increase of 6.1 points vs. 4.8). This suggests that teachers’ LoU levels were predictive of program effectiveness (i.e., increases in student achievement), and that LoU can be facilitated via professional development.

**Future research considerations.** Hall and Hord (1987) suggest the transition from one LoU to the next is generally marked by a “decision point” or action that represents increasing commitment and utilization of the intervention. Recognizing and attending to these decision points may make it possible for school-based consultants “to use one key behavior as a basic discriminator of each Level of Use” (Hall & Hord, 1987, p. 87). Assessing teachers’ LoU may be accomplished using a brief branching interview (outlined in Figure 4), which focuses on each of the decision points. Additional research is needed to establish the reliability (e.g., inter-rater agreement) and validity of the branching interview process for identifying teachers’ levels of use.

CBAM researchers have developed a focused interview procedure (Foster & Nixon, 1975; Loucks, Newlove, & Hall, 1975) that represents a more sophisticated, research-validated process for evaluating LoU. In recent research (Thorton et al., 1999), reliability coefficients for this procedure have been acceptable (.78 to .86). Unfortunately, the extensive training and preparation needed to complete the focused interview procedure may make its use less feasible for school psychology practitioners and researchers. Additional
research is needed to establish the validity and utility of the focused interview procedure for identifying educators’ levels of use.

**Possible impact points based on Levels of Use.** Co-teaching and coaching may provide impact points for school-based consultants to advance educators’ levels of use. Co-teaching might involve school-based consultants entering classrooms to assist in implementing research-based practice. Another approach to co-teaching would be to team two educators together to support each other’s implementation efforts. A recent meta-analysis of co-teaching research (Murawski & Swanson, 2001) produced a mean effect size of 0.40 for the studies included in the sample. Although based on a relatively small number of articles, these results suggest “co-teaching is a moderately effective procedure for influencing student outcomes” (p. 264). One might infer from
these findings that, by providing access to models for the use of classroom management or instructional strategies and collaborating with teachers as they implement these techniques, school-based consultants can give teachers an opportunity to “grow into” new practices. Co-teaching seems like an especially promising strategy for consideration by school “problem-solving teams” as they design and provide assistance to classroom teachers.

School-based consultants also can engage in coaching or mentoring to help teachers move to higher levels of use. Mentoring or coaching is powerful because it provides the new intervention user with “real-time” support, feedback, and problem-solving guidance (Robbins, 1999). Coaching and mentoring could be focused on helping teachers plan for use of a research-based practice, observing their implementation of a new program, or analyzing their use of an intervention. According to Russo (2004), coaching typically consists of a curricular and instructional expert working alongside individual (or small groups of) teachers to implement new classroom practices and improve student performance. Multiple researchers have indicated teachers are more likely to implement and sustain use of new practices when they are concurrently involved in a coaching program or relationship (Sparks & Bruder, 1987; Valencia & Killion, 1988; Williamson & Russell, 1990). In many ways, effective coaching draws upon the consultation skills most school-based consultants acquired as part of their training and continue to refine as a result of their day-to-day experiences in schools.

Innovation Configurations

Innovation Configurations are the third diagnostic framework in CBAM. The underlying assumption of Innovation Configurations is that individual users’ patterns of implementation for an intervention are not identical. Hall and Hord (2001) suggest the primary purpose of Innovation Configurations is the recognition that “in most change efforts, (a) (program) adaptation will occur; (b) there is a way to chart these adaptations; and (c) these adaptations have direct and indirect implications for facilitating and assessing change processes” (p. 39). In some cases, implementation of a research-based practice may be optimal; in others, the actual practice may be diluted or distorted to the point on ineffectiveness.

A national survey of educators implementing new practices found that over two-thirds had modified aspects of these practices. Moreover, 20% of the educators in the study had made major changes to the innovations they adopted (Nastasi, Varjas, Schensul, Silva, Schensul, & Ratnayake, 2000; Power, Blom-Hoffman, Clarke, Riley-Tillman, Kelleher, & Manz, 2005; Rogers, 1995). Adopters may modify the new practices to facilitate their “match” to features of the target population or contextual variables, and to increase their acceptability. Schmidt and Taylor (2002) report that most studies of manualized treatments indicated the need for additional training and support to achieve fidelity and the “capacity to match the ‘ideal’ use of the (program)
found in research settings with the ‘reality’ of clinic pressures and demand on a therapist” (p. 485).

Innovation configuration maps may represent an assessment technology for determining and facilitating this “match.” An innovation configuration map is a checklist or rubric that describes the essential “building blocks” or components of an intervention. Variations of each component or element are described in behavioral terms. In some situations, intervention developers may decide to place the variations for each intervention component along a continuum from optimal to unacceptable practices. The following three questions (adapted from Hall & Hord, 2001, p. 49) can be used to guide the development of innovation configuration maps for research-based practices:

1. What does the research-based practice look like when it is in use?
2. What would I see in classrooms where it is used well (and not used as well)?
3. What will teachers and students be doing when the research-based practice is in use?

An example of an innovation configuration map for a hypothetical instructional program is provided in Figure 5. Innovation configuration maps have been used as self-report measures, interview protocols, or observation records (Anderson, 1997). Information on teacher behavior, however, may be most reliably collected through direct classroom observation methods.

In their evaluation of a mathematics curriculum, George et al. (2000) found a statistically significant relationship between student achievement test scores and fidelity of implementation as measured by Innovation Configuration Maps. Cluster analysis was used to group each participating teacher into one of three groups (i.e., low, medium, and high fidelity of implementation groups on the basis of their innovation configurations map (Alquist & Hendrickson, 1999). A subsequent ANCOVA procedure indicated a significant difference among the implementation groups for the slopes of the regression lines for fall and spring GOALS classroom averages ($F = 3.61$, $df = 3$, 36, $p = .02$). Post-hoc analyses indicated that GOAL regression lines for the medium and high implementation groups were not statistically different from each other, but the regression lines for the GOAL results of the low fidelity implementation group was significantly lower than the other two groups. George et al. (2000) suggest these results indicate teachers’ fidelity of implementation can have a significant effect on student performance, especially in classrooms with low initial achievement scores.

**Future research considerations.** Using Innovation Configuration Maps in large-scale implementation studies also might allow researchers to determine the effects of treatment integrity or fidelity on effectiveness. In both cases, use of innovation configuration maps would require purposeful training to ensure results with acceptable reliability and validity.
Innovation configuration map for research-based math curriculum (RBCM)

<table>
<thead>
<tr>
<th>Objectives used for planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher uses RBCM Resource Guide objectives and district curriculum guide for planning.</td>
</tr>
<tr>
<td>Teacher uses math textbook objectives and district curriculum guide for planning.</td>
</tr>
<tr>
<td>Teacher uses objectives from other materials for planning.</td>
</tr>
<tr>
<td>Teacher does not identify objectives.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use of RCBM objectives sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher uses RBCM objectives largely in sequence within preassigned units.</td>
</tr>
<tr>
<td>Teacher uses RBCM objectives out of sequence.</td>
</tr>
<tr>
<td>Teacher does not use RBCM objectives.</td>
</tr>
<tr>
<td>Teacher does not identify objectives.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instructional resources used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional materials and resources include RCBM activity kits, manipulatives, games, math learning centers, calculators, and computers.</td>
</tr>
<tr>
<td>Instruction materials include RCBM activity kits, calculators, and manipulatives.</td>
</tr>
<tr>
<td>Instructional materials and resources include math textbook, calculators, and manipulatives.</td>
</tr>
<tr>
<td>Only textbook and worksheets are used.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment includes observation, open-ended questions, group projects, math journals or learning logs, math assignments, RCBM tests and quizzes.</td>
</tr>
<tr>
<td>Assessment includes observation, math journals or learning logs, math assignments, and a combination of RCBM and math text tests and quizzes.</td>
</tr>
<tr>
<td>Assessment includes observations, math assignments, and test and quizzes from math textbook.</td>
</tr>
<tr>
<td>Assessment includes tests and quizzes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grouping strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher uses multiple grouping strategies based on interest, performance, and activity.</td>
</tr>
<tr>
<td>Teacher uses one or two grouping strategies based on performance or activity.</td>
</tr>
<tr>
<td>Teacher uses small groups to facilitate remediation of math skills.</td>
</tr>
<tr>
<td>Teacher does not use any grouping strategies.</td>
</tr>
</tbody>
</table>

**FIGURE 5** An example of an innovation configuration map for a hypothetical math curriculum. (Adapted from Hall & Hord, 1987, p. 294.)

Researchers and practitioners might analyze Innovation Configurations Maps in a variety of ways. One option would be to group individuals’ implementation configurations (i.e., innovation configuration map results) according to their characteristics: high fidelity or “best practice” implementations, medium fidelity or acceptable implementations, and low fidelity or...
unacceptable implementations. Additionally, each variation of an innovation component could be assigned numerical values, in essence creating a Likert scale or convergent evidence scale for each intervention component. Scale scores for each component could be summed and a standard score for implementation fidelity could be created for each intervention user. Finally, levels of implementation on separate intervention components or elements could be recorded and correlated to intervention outcomes, allowing researchers to determine which components are truly essential to successful implementation of research-based practices.

*Impact points using innovation configuration maps.* Confusion or lack of understanding about the steps and processes involved in implementation can occur whenever a new program or technique is introduced to teachers on an individual or systemic level. Innovation configuration maps may provide school-based consultants with a useful tool for impacting the implementation of research-based practices in school and classroom settings. Innovation configuration maps (if demonstrated predictive of successful outcomes in research studies) could be used for formative evaluation, program planning, and consulting with teachers and other implementers.

By analyzing innovation configuration maps for a school or a group of teachers implementing a research-based practice, school-based consultants might determine which intervention components are being used successfully and which are being implemented with less integrity. This information could provide the impetus for designing professional development efforts to address the components that proves most difficult to implement. With individual teachers, school-based consultants may use innovation configuration maps as a heuristic for conducting implementation-focused observations. Innovation configuration maps also have been used as a organizing structure for pre-observation/post-observation conferencing (Hall & Hord, 2001).

**SCHOOL-BASED CONSULTANTS AS CHANGE FACILITATORS**

Hord's (1992) job description for change facilitators, which was presented at the beginning of this article, is daunting. The argument can be made, however, that school-based consultants are uniquely qualified to serve in this capacity. Identification and dissemination of research-based practices can make an important contribution to enhancing the effectiveness of school-based consultation services. However, successful implementation of effective practices requires an individual who will ‘energize’ and oversee the adoption process: A “champion” of research-based practice who is passionate and knowledgeable, comprehends the short- and long-term actions required for program adoption, and is able to articulate a goal or vision of improved services (Schmidt & Taylor, 2002).
With additional appropriate training and practice using strategies like the CBAM’s evaluative tools, school-based consultants may be able to impact teachers’ implementation and enhance the effectiveness of teacher-mediated interventions. To meet these goals, additional investigations of the CBAM framework are needed to establish the model’s utility for consultation researchers and practitioners interested in promoting and supporting the use of research-based practices.

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