

BRINGING THE ART OF REHEARSING INTO FOCUS:

THE REHEARSAL FRAME AS A MODEL FOR
PRESCRIPTIVE ANALYSIS OF REHEARSAL CONDUCTING

Robert A. Duke

Abstract

Analyses of teaching and conducting have viewed rehearsals from very near and very distant perspectives, from detailed analyses of verbal feedback to global evaluations of overall effectiveness. I propose in this essay that much of the art of rehearsal conducting may be seen in the "middle ground," and with this in mind, I outline a framework for observing and analyzing the act of rehearsing—one that is predicated on the premise that any useful observation framework must consider the rehearsal process in relation to the accomplishment of musical goals. The framework I describe certainly includes very specific aspects of behavior; but, more importantly, the framework focuses attention on the process of effecting positive change in the performance of a musical work. The nexus of the model's structure is the musical outcome—the achievement of tangible musical goals. By categorizing the various performance episodes that occur during the course of a rehearsal in terms of their function in reaching musical goals, the Rehearsal Frame illuminates aspects of a rehearsal's structure that may not be apparent to some observers and may not be captured by other forms of observation.

In music performance, as in most disciplines, evaluation is easy; prescription is hard. Many individuals, even those with limited training and experience, can differentiate between good and bad performances, sometimes with high levels of discrimination. But there are many fewer who can identify precisely which characteristics differentiate performances of varying quality. Fewer still can prescribe accurately what is required to turn a poor performance into a good one, or how to turn a good performance into an excellent one.

The art of rehearsal conducting poses special problems with regard to prescription, because the process of conducting effective rehearsals comprises such a vast array of musical, intellectual, perceptual, physical, and communication skills, all of which work in concert to inform, instruct, direct, motivate, inspire, evaluate, chastise, praise, and ultimately coordinate and lead a group of musicians in the performance of a musical work. Most would agree that rehearsal conducting is an act of teaching, but, although extensive research has examined the skills of pedagogy in a variety of settings and disciplines, fewer systematic investigations have attempted to document and analyze the skills of rehearsal conducting in particular.

Many of the problems inherent in the observation, analysis, and assessment of rehearsal conducting are much like the problems that inhere in the assessment of teaching effectiveness in general, the most important of these being the large number of variables that are involved in both academic instruction and conducting. Perhaps one of the most interesting findings concerning the assessment of teaching effectiveness is that knowledgeable observers, who seem to be able to differentiate reliably between effective and ineffective teaching, seem quite unable to reach a consensus regarding the critical attributes of teachers' behavior on which their judgments of effectiveness are based (Madsen, Standley, Byo, & Cassidy, 1992). Although it has been demonstrated that more- and less-effective teaching can be identified with a high measure of consistency, specification of the precise nature of effective teaching behavior—precise in the sense that the information is useful for the purposes of prescription—remains an elusive goal.

The problem [in providing useful and meaningful prescriptions] does not arise because of difficulty in observing effective teachers in their natural settings and determining what it is they do that is effective or ineffective; nor does the problem arise because specific effective ingredients are not subjected to experimental testing and subsequent confirmation; the problem comes from trying to put the best of research findings together in order to instruct future teachers. (Madsen & Duke, 1993, p. 10)

Understanding the many complexities of the teaching-learning process consumes enormous amounts of time, effort, and energy on the part of those devoted to improving the process of education. For many observers, however, the relationships between students, teachers, subject matters, and environments seem so highly interactive and complex that any systematic description of the specific elements of the process is viewed circumspectly and deemed inadequate or reductionist. In fact many who have found it impossible to construct explanations that can predict learning outcomes with any precision have resorted to declaring teaching an "art" that, as such, comprises ineffable qualities that are not amenable to empirical investigation or operational definition (Dawe, 1984; Eisner, 1983; Gage, 1984; Rubin, 1985).

Admittedly, anyone who has attempted to operationally define any single aspect of the teaching-learning process and to assess its relationship to other variables in the mix will find arguments about the "artistic" (and, therefore, indefinable) nature of teaching persuasive. Unfortunately, however, our inability to identify and describe with accuracy the relevant variables associated with teaching excellence diminishes our ability to assist novice teachers and conductors in improving their skills in the classroom or rehearsal hall.

What to look for?—Where to look?

Observers for decades have searched for elegant methods to describe the critical attributes of effective teaching, and their efforts to capture the essential elements of the process of education have viewed teachers and

learners through many different lenses, each focused on different aspects of the process itself, looking from different perspectives, and obtaining varying degrees of clarity and resolution. Of course, the goal of finding something is helped immeasurably by knowing where to look. But, when observers look for excellence in rehearsal conducting, what is it that they see? On which aspects of the conductor's behavior do they base their assessments of quality or effectiveness? Which aspects are considered inconsequential? Which aspects are ignored or unnoticed entirely? Undoubtedly, individuals' perceptions vary widely, depending upon their own experiences, interests, biases, and levels of expertise. In fact, different observers may contend adamantly that a given conductor's effectiveness, about which they all agree, is attributable to strikingly different factors in terms of what they observe.

When it comes to observing conducting, this issue is particularly troublesome, because there are so many things to look at and so many ways of looking at them. Given that there are simply too many variables present at any one time to address them all adequately—especially the relationships among them—what information should be included in the observation of rehearsal conducting? How should the myriad events that take place in a rehearsal be categorized? Once categories have been determined, how should the now-categorized behaviors be measured? According to frequency, rate, duration, magnitude, latency, proportion? Should certain behaviors be evaluated in relation to other behaviors? If so, which ones? The complexity of the interactions between conductors and musicians engaged in the process of rehearsing precludes simple answers to these questions, but their critical nature is apparent, because whatever decisions are made concerning the definitions of observation will illuminate certain aspects of the process and obscure certain others.

Regardless of the level of structure in an observation, an observer's attention, in large measure, is determined by what he or she has learned to look for, and decisions about "where to look" may be based simply on the aspects of the rehearsal that appear most salient to the observer at the moment. If observers have particular expectations about what is important (i.e., what matters most) or about what is likely to occur, then they are more likely to "see" those aspects of the rehearsal that they can anticipate or for which they have a label, and they are less likely to see other aspects that they may not be looking for in particular.

Systematic observation procedures that focus on the behavior of conductors and ensemble musicians may be thought of as lenses through which observers view the teaching-learning process in the rehearsal hall, and, to the extent that the procedures define precisely what is to be observed, they reflect the approaches, interests, and biases of the individuals who design them. This issue is extremely important, because observers are likely to see only what the procedure permits them to see, regardless of whether the procedure is a formalized observation with an elaborate system of behavior coding or an informal visit to the rehearsal of a guest conductor or a colleague. Since every observational procedure (formal or informal) includes some *a priori* determination of what will be observed, the familiar adage, "When all you've got is a hammer, everything around you starts to look like a nail," seems particularly relevant with regard to the tools of observation.

One of the principal benefits of a systematic observation procedure, therefore, is that it can direct an observer's attention to the most important aspects of the target of the observation. But the procedure itself must focus attention in a way that facilitates one's understanding of relationships that contribute to successful outcomes. It seems that we have yet to define the skills of effective rehearsal conducting in a way that (1) increases the likelihood that they will be seen and understood by aspiring novices and (2) provides a framework for practicing these skills systematically.

The purpose of this essay is to outline a proposed "unit of analysis" for observation of rehearsal conducting. Systematic research concerning the effectiveness of teachers and conductors has considered various elements of teacher and student behavior from different perspectives and "degrees of magnification." Whereas some research has viewed conducting from an extreme close-up view, focusing narrowly on a specific aspect of the conductor's behavior or the ensemble's performance, other research has viewed the process of rehearsing from a broader, wide-angled perspective, considering several aspects of behavior simultaneously and in relation to one another.

Methods of systematic observation applied in music research and elsewhere include (1) a wide variety of time-sampling observation instruments designed to record specific aspects of teacher and student behavior and instructional progress (Duke & Madsen, 1991; Madsen & Madsen, 1974;

Madsen & Yarbrough, 1980), (2) written typescripts of verbalizations that include event timing and behavior categorization in terms of sequential patterns of instruction (Byo, 1994; Price, 1983; Yarbrough & Price, 1981, 1989), (3) coded analyses of scripted curricula in which teacher and student behavior are categorized in terms of "learn units" (Greer, McCorkle, & Williams, 1989; Ingham & Greer, 1992), (4) computerized recording of teacher and student behavior and the timing of progress through instructional sequences (Duke, 1991; Siebenaler, 1992; Younger Flores, 1995), and (5) calculation of timing and event probabilities associated with patterns of teacher and student behavior (Hawkins, Sharpe, & Ray, 1994). Still other research has approached the observation and analysis of teaching and conducting from what is perhaps the broadest perspective possible, considering overall, or "global," evaluations of effective teaching and rehearsing (Byo, 1990; Cassidy, 1990; Madsen, Standley, Byo, & Cassidy, 1992).

Of course, these observational procedures provide different kinds of information and serve different purposes. It is fascinating to consider that a given experience (e.g., ensemble rehearsal, private lesson) may appear very differently when viewed through each of the lenses (i.e., observation procedures) described above. An important, but unresolved, question concerns the perspective and level of magnification that are most appropriate for bringing the "art of rehearsal conducting" into focus for the aspiring novice. This question is rather complex but certainly answerable.

Analyses of teaching and conducting have viewed rehearsals from very near and very distant perspectives, from analyses of verbal feedback to global evaluations of overall effectiveness. I propose in this essay that much of the art of rehearsal conducting may be seen in the "middle ground," and with this in mind, I outline a framework for observing and analyzing the act of rehearsing, one that is predicated on the premise that any useful observation framework must consider the rehearsal process in relation to the accomplishment of musical goals. The framework I describe certainly includes very specific aspects of behavior, but, more importantly, the framework focuses attention on the process of effecting positive change in the performance of a musical work. The nexus of the model's structure is the musical outcome—the achievement of tangible musical goals.

The Rehearsal Frame

The Rehearsal Frame is a model for observing and analyzing the structure of the teaching-learning process in music performance and in other complex skills. As described in this essay, the model outlines the course of action that takes place between a conductor and an ensemble engaged in the process of effecting changes in various aspects of performance. The explanation that follows describes an idealized instance of making such changes, meaning that substantive change certainly may occur without the appearance of all parts in the model. Nevertheless, the model provides a framework within which teachers of conducting and pedagogy may begin to address the salient aspects of effective teaching with students who are just beginning to acquire the many skills that comprise the conductor's art.

Of course, in many circumstances a succinct comment or a nonverbal gesture by the conductor is all that is required to elicit a positive change in an ensemble's performance, but frequently, effecting change involves a more elaborate instructional process in which the conductor leads the ensemble musicians through a sequence of performance episodes in an effort to improve some aspect of the performance of a piece. By categorizing the various performance episodes that occur during the course of a rehearsal in terms of their function in reaching musical goals, the Rehearsal Frame illuminates aspects of a rehearsal's structure that may not be apparent to some observers and may not be captured by other forms of observation.

The idealized Rehearsal Frame is organized in three main parts, each of which may contain any number of performance episodes. A Rehearsal Frame begins when the conductor first identifies a problem in need of correction in the ensemble. The problem may involve the entire ensemble or may be specific to a single performer. During subsequent performance episodes, the conductor may direct either the entire ensemble or some portion of the ensemble to perform a sequence of tasks toward the goal of remediating the identified problem and thus improving the quality of the overall performance. The Rehearsal Frame ends when the identified problem is performed in its original context by the full ensemble. A brief outline of the model is given below.

Rehearsal Frame Outline

Part 1A (conductor verbalization)—Identify the Target

- prioritize aspects of performance that require attention
 - tone/intonation
 - rhythm/articulation/precision
 - style/character
 - phrasing/dynamics
 - balance/blend

Part 1B (performance episode[s])—Limit

- reduce the magnitude and complexity of the stimulus
- locate individuals who require attention

Part 2A (performance episode[s])—Decontextualize/Remediate

- select rehearsal ensemble that facilitates remediation
- determine how far out of context to rehearse
 - slow practice
 - partial practice
 - altered practice
 - related exercise

- encourage transfer through successive approximations

Part 2B (performance episode[s])—Demonstrate the Target

- have the Rehearsal Group demonstrate that they can perform the Target successfully and independently

Part 3 (performance episode[s])—Recontextualize

- determine how much of the original context should be performed
- insist on maintenance of changes

One example of a Rehearsal Frame might look something like the following:

(Part 1:) The conductor identifies a precision problem in a passage performed by the clarinets in the ensemble and

(Part 2:) directs the clarinets to perform the passage alone several times. Each of these performance episodes may involve variations of the original context of the passage (e.g., slower tempo, simplified articulation, a small segment of the passage, or a more comfortable dynamic level than will eventually be required in the performance of the piece). Following the period during which the clarinets are directed to perform alone,

(Part 3:) the full ensemble performs a section of the piece that includes the clarinet passage in its original context. This last performance episode marks the end of the Rehearsal Frame.

Thus, the Rehearsal Frame "follows" the correction of the precision problem in the clarinets from the point at which it is first identified (even vaguely) by the conductor through the various out-of-context performances intended to improve the problem, and concluding with the performance of the passage in the context of the entire ensemble.

The elaborated descriptions below explain the nature of each part of the Rehearsal Frame model.

Part 1A (conductor verbalization)—Identify the Target

- *prioritize aspects of performance that require attention*
- tone/intonation*
- rhythm/articulation/precision*
- style/character*
- phrasing/dynamics*
- balance/blend*

The first part of the Rehearsal Frame is the conductor's identification of a specific musical-instructional goal; that is, the identification of some aspect of the performance that is in need of change. For purposes of this description, the goal is labeled the Target. Examples of Targets include: obtaining rhythmic precision in the trombones in a given two-measure

passage; creating an appropriate balance in the voices of a given chord; and unifying the releases in an articulated passage. The conductor's verbalization may not identify the problem explicitly at first, but may be only an implicit indication that something about the performance requires attention.

Goals for the improvement of performance (i.e., Targets) should not be selected merely on the basis of what appears to be the most salient problem at a given moment in the piece. Rather, the identification of momentary performance goals should reflect a hierarchy of musical importance that is clear to the conductor before the rehearsal begins. The conductor thus prioritizes the aspects of ensemble performance that may be in need of change, so that the most far-reaching, obtainable goals (i.e., those that will most greatly affect the overall performance) are addressed before those that are more idiosyncratic or situationally specific. The apparent hierarchy of musical importance may vary among conductors, and the same conductor's hierarchy may vary depending upon the skill and experience of the ensemble, specific aspects of the work to be performed, the conductor's familiarity with the ensemble, and available rehearsal time (including a given rehearsal's proximity to the performance).

Part 1B (performance episode[s])—Limit

- *reduce the magnitude and complexity of the stimulus*
- *locate individuals who require attention*

A conductor at first may realize only that "something needs to change here," but may find it difficult to identify precisely where the problem in the ensemble resides. The texture may be too complex for the conductor to ascertain what is incongruent with his or her idealization of the music. At this point it may be advantageous to limit the number of parts in the texture or to limit the number of musicians performing so that a more precise diagnosis can be made.

It is also possible during this part of the Rehearsal Frame to identify individual musicians who may require attention. Especially with younger, less-experienced musicians, it is often necessary to provide individualized technical assistance regarding fundamental aspects of playing—directions about embouchure formation, breath control, fingering, articulation—in

addition to providing directions about the musical effect that one is trying to bring about.

Part 2A (performance episode[s])—Decontextualize/Remediate

- *select rehearsal ensemble that facilitates remediation*
- *determine how far out of context to rehearse*
 - slow practice*
 - partial practice*
 - altered practice*
 - related exercise*
- *encourage transfer through successive approximations*

This segment of the Rehearsal Frame comprises directed practice under the guidance of the conductor. In effect, the conductor "practices the musicians" by leading them through a sequence of performance episodes that facilitates the correction of the pinpointed problem. Two important decisions by the conductor precede the actual performance by the musicians in this part of the Rehearsal Frame.

First, the conductor selects the group of musicians who will take part in this guided practice (i.e., the Rehearsal Group). The number of musicians who participate will depend upon the nature of the problem identified as well as the skill and independence of the musicians themselves. The Rehearsal Group may encompass all of the musicians in the full ensemble or any combination of players. Or correction may best be facilitated by having a single musician perform alone. Hearing fewer people play may facilitate not only the conductor's understanding of the problem, but may also help the musicians hear one another better, having stripped away other parts of the texture that may limit the clarity of the part or parts that require attention. Also, this rehearsal group need not comprise typical sections (e.g., trombones, low brass, woodwinds), but should include the combination of voices that will best bring about the change that the conductor intends to make. For example, concerning an intonation problem in a multi-voice texture with several players on a part, it may be beneficial to have several small groups perform, each group comprising one player from each voice in the texture. Or, a rhythmic precision problem that involves complex syncopation may be addressed by hearing the voice in which the

Target rhythm resides together with another voice that performs consecutive beat subdivisions.

Second, the conductor must determine the extent to which the original context of the problem should be changed in order to correct the problem most efficiently. Such contextual changes concern not only "who plays" but also what is played and how it is practiced. The conductor must consider carefully the extent to which the original context of the Target needs to be altered in order to bring about improved performance efficiently. How large a section of music needs to be played in order to remediate the problem? What should be the tempo? Would it be beneficial to alter the performance in some way to help focus attention on a particular aspect of the performance (e.g., play the excerpt slurred rather than tongued, or at a louder, more comfortable dynamic level)?

The extent to which the positive changes will remain when the original context is eventually restored is directly proportional to the similarity between the original context and the context in which the problem is rehearsed. Thus, the conductor should alter the context in which the passage is rehearsed only to the extent necessary to effect the change(s) desired, and no further.

The appropriateness of these two decisions will become evident once the musicians attempt to play the passage. Ideally, the players will be able to execute the intended decontextualized Target within two or three repetitions. If, following a number of repetitions, the players are not able to perform the Target as the conductor intends, it may be necessary to further reduce the complexity/difficulty of the Target by making some additional modification(s) in the performance context (e.g., slowing the tempo, or playing a shorter portion of the passage than was first attempted). The objective here is to avoid numerous repetitions that show little evidence of progress toward the intended goal. Since the task involves practice of a specific skill, repetition is certainly appropriate and beneficial; however, multiple unsuccessful repetitions, during which the musicians involved are unable to execute the Target with any sign of improvement, indicate a need to further modify the context in which the Target is being rehearsed. It should be possible, within several repetitions, for the musicians to perform a reasonable approximation of the Target, however limited the context. From that point (i.e., the point at which the musicians demonstrate

successfully that they are able to do what is being asked of them), it is possible to increase the complexity/difficulty of the Target context in successive trials, leading eventually to the successful performance of the decontextualized Target by the Rehearsal Group. By successively approximating the original context—that is, by directing the musicians to perform the target over a number of repetitions, each of which is a closer approximation of the original context—the conductor increases the likelihood that the changes made in contextual isolation will become a more “permanent” part of the ensemble’s performance of the piece.

Part 2B (performance episode[s])—Demonstrate the Target

- *have the Rehearsal Group demonstrate that they can perform the Target successfully and independently*

The last out-of-context performance of the Target by the Rehearsal Group (prior to performing the Target with the entire ensemble) should provide an unambiguous demonstration that the musicians in the Rehearsal Group are able to perform the Target correctly and with some measure of independence. The conductor should evaluate carefully whether all aspects of the Target that had been rehearsed in Part 2A (e.g., intonation, rhythm, articulation, phrasing) are performed accurately. In this part of the Rehearsal Frame, the musicians in the Rehearsal Group perform the target exactly as it will be performed in the context of the full ensemble. Recalling that improvements that had been achieved during the remediation procedure(s) in Part 2A will likely diminish when the Target is performed in its original context with the entire ensemble, this aspect of the Rehearsal Frame is particularly important. Both the conductor and the musician(s) should be confident in this performance episode that the musicians in the Rehearsal Group can perform the Target reliably (i.e., consistently) *before* the Target is performed in its original context with the full ensemble.

Once the musicians in the Rehearsal Group have performed the Target correctly, it is necessary to transfer the new skill to the original context with the full ensemble in a way that maintains the critical elements of the successful change.

Part 3 (performance episode[s])—Recontextualize

- *determine how much of the original context should be performed*
- *insist on maintenance of changes*

Recontextualization of the Target is the linchpin of the Rehearsal Frame. However pithy or insightful the conductor’s verbalizations, however attentive and cooperative the musicians, the work that takes place during the course of a Rehearsal Frame is meaningful only to the extent that the improvements made become a lasting part of the ensemble’s performance of the piece. In this last part of the Rehearsal Frame, the Target is performed in the context from which it had been removed in Part 2. Most often this performance episode will involve the full ensemble.

The conductor must decide how much of the original context (i.e., how large a section of the music) should be performed in order to demonstrate that the changes in the Target will maintain in subsequent, full ensemble performances of the piece—in the current rehearsal and beyond. It may be sufficient to perform only a few measures with the entire ensemble (e.g., the introduction of a march to the downbeat of the first strain), or further practice and maintenance of the changes may require performance of a larger section of the piece (e.g., the entire statement of the first theme of a sonata-form movement). In most cases, the recontextualized performance(s) by the full ensemble will not begin with the Target itself, but will begin at a point in the music prior to the Target, so that the musicians have an opportunity to practice preparing to perform the Target while playing the music that precedes it. This recontextualization may comprise several repetitions (some of which may be incomplete as a result of the conductor’s halting performance when problems reappear) in order to establish that the changes accomplished during the remediation procedure and demonstrated by the Rehearsal Group will maintain at the same level of quality when the Target is performed in its original context by the full ensemble. If the musicians are unable to perform the Target successfully with the full ensemble following several repetitions, then it may be necessary to return to the performance of the Target by the Rehearsal Group (Part 2B) or to the remediation procedures (decontextualized performance episodes) in Part 2A.

The Rehearsal Frame ends at the conclusion of the first complete, in-context, full ensemble performance in Part 3; that is, when the ensemble has successfully incorporated the changes accomplished in Part 2 into a larger section of the piece. This culminating performance of the Target in context is the best proximate indicator of the success of the conductor's instruction in accomplishing the musical goal identified at the beginning of the Rehearsal Frame.

Applications of the Rehearsal Frame in Teaching and Research

The Rehearsal Frame model is intended as a "temporary scaffold" to be employed in the process of developing skills in rehearsal conducting. It is not a definition of how one must, or even should, accomplish change in the context of rehearsals. But, for the purposes of instruction in a highly complex activity, some logical starting point is necessary—in this case, a cogent description of a sequence of activities that leads to substantive change (i.e., learning) on the part of performing musicians in an ensemble. When applied in the instruction of young conductors, the Rehearsal Frame model defines a manageable unit within which to instruct, guide, and practice making changes in ensemble performance.

Using Rehearsal Frames as a basis for observation and analysis of rehearsal skills reduces the complexity of what must be considered by a student observer by focusing attention on the process by which specific changes are accomplished by the conductor. The unit of analysis outlined in this model is both small enough to be manageable and large enough to be understood as "rehearsing." For the novice, observation of skilled rehearsing using this procedure may provide insight into the conductor's decision making process: Because each performance episode is associated with some specific musical goal, the observer may come to understand *why* the conductor makes certain decisions about what to play and how to practice with the ensemble.

As the conducting student prepares to assume the podium, the Rehearsal Frame model may be of assistance in organizing rehearsal time. Defining specific performance goals and outlining plans for their accomplishment undoubtedly will lead to more efficient and effective rehearsing. When it comes time to analyze one's own success in rehearsal, the

Rehearsal Frame may provide a basis for examining critically the approach taken to accomplish each musical-instructional goal.

In a recent review of research on instructional patterns in rehearsal, Byo (1995) challenged those who prepare prospective conductors in the art of rehearsing to consider how they go about teaching novice conductors "to rehearse—not conduct, not detect performance errors, not select literature, but rehearse" (p. 73), suggesting that the education of young conductors often omits explicit instruction in how to bring about meaningful change in the performance of an ensemble—change that is substantive and lasting.

Effective rehearsal conducting encompasses a wide range of skills and knowledge, but at the heart of professional competence is the ability to bring one's skills and knowledge to bear in rehearsing the performance of a musical work. There seems to be ample evidence that possessing skills (e.g., baton technique, error detection) and knowledge (e.g., formal analysis, performance practice) is a necessary, but not a sufficient condition for effective rehearsal conducting. There is an element of teaching at the heart of skilled rehearsing, but this aspect seems all too often overlooked in the preparation of prospective conductors, perhaps because of the difficulty in organizing the study of teaching and rehearsing in a meaningful way.

Defining the relevant variables associated with effective rehearsing and offering meaningful prescriptive information to conductors at all levels of expertise are daunting goals, which require considerably more research that takes account of the aspect of structure in the teaching-learning process. By using an organized framework for observation and analysis, students, educators, and practicing conductors may view rehearsal conducting in a new light, and aspects of the process that might otherwise be "invisible" to the observer, as a result of his or her own biases, expectations, and experiences, may be brought more clearly into focus.

REFERENCES

- Byo, J. L. (1994). Tracing the evolution of a research line: The role of sequential patterns in structuring the rehearsal. *Journal of the World Association of Symphonic Bands and Ensembles*, 1, 67-79.
- Byo, J. L. (1990). Recognition of intensity contrasts in the gestures of beginning conductors. *Journal of Research in Music Education*, 38, 157-163.
- Cassidy, J. W. (1990). Effect of intensity training of preservice teachers' instruction accuracy and delivery effectiveness. *Journal of Research in Music Education*, 38, 164-174.
- Dawe, H. A. (1984). Teaching: Social science or performing art? *Harvard Educational Review*, 54, 111-114.
- Duke, R. A. (1991, November). *Observation of instructional procedures in music: Documentation of temporal relationships between teacher and student behavior*. Research presented at the meeting of the National Association for Music Therapy, San Diego, CA.
- Duke, R. A., & Madsen, C. K. (1991). Proactive versus reactive teaching: Focusing observation on specific aspects of instruction. *Bulletin of the Council for Research in Music Education*, 108, 1-14.
- Eisner, E. W. (1983). The art and craft of teaching. *Educational Leadership*, 40, 4-13.
- Gage, N. L. (1984). What do we know about teaching effectiveness? *Phi Delta Kappan*, 66, 87-90.
- Greer, R. D., McCorkle, N., & Williams, G. (1989). A sustained analysis of the behaviors of schooling. *Behavioral Residential Treatment*, 4, 113-141.
- Hawkins, A., Sharpe, T., & Ray, R. Toward instructional process measurability: An interbehavioral field systems perspective. In R. Gardner, III, D. M. Sainato, J. O. Cooper, T. E. Heron, W. L. Heward, J. W. Eshleman, & T. A. Grossi (Eds.), *Behavior analysis in education: Focus on measurably superior instruction* (pp. 241-255). Pacific Grove, CA: Brooks/Cole Publishing.
- Ingham, M., & Greer, R. D. (1992). Functional relationships between supervisors' observations of teachers in observed and generalized settings. *Journal of Applied Behavior Analysis*, 25, 153-164.
- Madsen, C. K., & Duke, R. A. (1993). Selection and development of prospective music teachers. *Journal of Music Teacher Education*, 3(1), 5-11.
- Madsen, C. H., Jr., & Madsen, C. K. (1974). *Teaching/Discipline: A positive approach for educational development* (Expanded second edition for professionals). Boston: Allyn & Bacon.
- Madsen, C. K., Standley, J. M., Byo, J. L., & Cassidy, J. W. (1992). Assessment of effective teaching by instrumental music student teachers and experts. *Update: Applications of Research in Music Education*, 10(2), 20-24.
- Madsen, C. K., & Yarbrough, C. (1980). *Competency-based music education*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Price, H. E. (1983). The effect of conductor academic task presentation, conductor reinforcement, and ensemble practice on performers' musical achievement, attentiveness, and attitude. *Journal of Research in Music Education*, 31, 245-257.
- Rubin, L. J. (1985). *Artistry in teaching*. New York: Random House.
- Siebenaler, D. J. (1992). *Analysis of teacher-student interactions in the piano lessons of children and adults*. Unpublished doctoral dissertation, The University of Texas at Austin.
- Skinner, B. F. (1965). The technology of teaching. *Proceedings of the Royal Society, B*, 162, 427-443.
- Yarbrough, C., & Price, H. E. (1989). Sequential patterns of instruction in music. *Journal of Research in Music Education*, 37, 179-187.
- Younger Flores, K. (1995, April). Comparison of a computer assisted systematic observation instrument to independent, global measures of instructional effectiveness. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.