



**Title:** Tracing Reflective Thinking in the Performance Ensemble

**Author(s):** Lyle Davidson and Larry Scripp

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*It is with pleasure that we inaugurate the reprint of the entire seven volumes of The Quarterly Journal of Music Teaching and Learning. The journal began in 1990 as The Quarterly. In 1992, with volume 3, the name changed to The Quarterly Journal of Music Teaching and Learning and continued until 1997. The journal contained articles on issues that were timely when they appeared and are now important for their historical relevance. For many authors, it was their first major publication. Visions of Research in Music Education will publish facsimiles of each issue as it originally appeared. Each article will be a separate pdf file. Jason D. Vodicka has accepted my invitation to serve as guest editor for the reprint project and will compose a new editorial to introduce each volume. Chad Keilman is the production manager. I express deepest thanks to Richard Colwell for granting VRME permission to re-publish The Quarterly in online format. He has graciously prepared an introduction to the reprint series.*

# Tracing Reflective Thinking In the Performance Ensemble

By Lyle Davidson and Larry Scripp

*Harvard Project Zero and  
New England Conservatory*

**T**he band has finished rehearsing for the day. Although a concert is coming up the next week, the director asks the members of the band to take time out of the period to listen to a tape of the rehearsal. They discuss a particularly tricky section of their music. Several points are made concerning the quality of performance—the dynamics, tempo, and articulation of various parts of the score are mentioned—and practice plans for the entire ensemble are discussed. The period ends abruptly with the sound of the bell.

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*“Few musicians, ourselves included, would question the premise that performance provides a superior context within which to observe musical thinking. We seek to extend the field of musical thought by observing and assessing how students talk about their work, what they notice in performances, how self-aware they are during performance, and the degree to which they are aware of how their work fits into the larger context of music.”*

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After the players have left, a slip of paper found on the floor contains the following scribbled note: “It stinks. Needs more practice.” At first glance, its meaning seems clear enough: “Take the music home and spend more time going over it.” The band director may be initially disappointed by its severity and limited scope, but because such comments are

common in the everyday life of musicians, that is only one of many possible interpretations.

The critique “Needs more practice” may take on very different meanings. For example, if the message is written by a theorist who normally commands a rich vocabulary of musical terms and concepts, the comment might mean “Bring out the principal line of the melody”. On the other hand, if the writer is a rehearsal coach who is attending to the critical thinking, perception, and problem-solving skills needed to produce performance changes, “Needs more practice” might mean “Continue to keep blend, dynamics, and vibrato in balance”. “Needs more practice” could conceivably refer to historical practice, professional standards, and the implications of a particular interpretation.

Emanating from a master musician, “Needs more practice” may mean many different things, ranging from a simple exhortation to repeat the passage, paying special attention to the fingerings; or attend more carefully to the articulations, the expression, the feeling of the piece, or to simply learn the notes. In these cases, the writer and “critical thinker” will be one who is musically and cognitively equipped to respond to and coordinate multiple views of the ensemble, the music, and the performance. Whatever the underlying purpose of comments and critiques, they are somehow understood to be specific and appropriate to a given context.

Normally we “read” a critical remark like an arrow, pointing to the object of the criticism, the performance. If we take a different stance and “read” the message for what it says about the writer, another

value emerges. If the comment is from an expert, appropriateness or utility is attributed to the message. If, on the other hand, the author of the scribble is a beginner, the import of its message changes.

What the message says about the writer is enormously important to the teacher. Understanding that the message may be an index of the writer's understanding may completely revise the role that verbal reflection plays in ensembles. Taking this notion further, we begin to see the band rehearsal in a new context with respect to music education. The band director is not merely training students to perform well for the final concert, but is serving a much richer educational objective. As the role model for the musical expert—one who demonstrates, thinks, and integrates musical perceptions that result in more musical understanding in performance—the activities demonstrated by the ensemble director become the educational focus for the student. From this view the student is not limited to functioning solely as a "cog in the machine of the ensemble". Instead, the student is invited and guided by the director to assume greater musical responsibility as the focus expands from "learning an instrument" toward the skill necessary for directing the ensemble.

Taking an active role in the musical dialogues that inform decisions about the music, students begin to think of the ensemble rehearsal in a broader context of revision, practice strategies informed by a variety of perspectives all modeled and practiced by the director. Focusing on more than improving instrumental skills, the ensemble becomes an arena for developing a wider range of musical expertise. The ensemble is an opportunity for students to begin an apprenticeship into musical activities that include critique, comparison, coaching, and directing skills.

### **Modeling and Metaphor: Student/Conductor Interactions in the Rehearsal Process**

The ensemble teacher presents two perspectives to students, one explicit and the other implicit. The director tends to the obvious facts of music, the correctness of

pitch, rhythm, dynamics, and all the other aspects which contribute to a good performance. This is what every conductor does explicitly.

A great deal more than that is modeled, although it is more difficult to see. The conductor also—perhaps without thinking about it—uses skills on which explicit modeling depends. Requiring a more comprehensive perspective, these more reflective skills include the ability to make unambiguous criticisms, to identify problems and offer effective solutions, to make comparisons of different readings, to coach individual students with sensitivity, and to coordinate the entire ensemble in a way which will effectively allow students to achieve their best work. In short, the director demonstrates how musicians work and think.

Accordingly, comments in lessons and rehearsals are made for many different reasons (Davidson, 1989). Some are made to correct and address specific issues, others to act as a catalyst to spark a new insight, and some are meant to encourage and spur greater effort. Although there may always be a gap between the conductor's description and student's grasp of what the description means, questions are constantly tailored to specific students' needs and problems. These questions may:

- direct attention
- present a broader and more abstract perspective in the guise of a concrete and specific instance
- ground a student's generalization with a concrete example
- expand on a student's example, or
- create a "safe" area within which a student can explore, invent, and construct without fear.

Throughout this process, two techniques of teaching and learning are in constant play, modeling examples and using metaphors as catalysts for development and learning. From this view, active participation in the ensemble involves:

- selecting the most important features of the demonstration to imitate
- inventing ways to control external or internalized actions in order to grasp the model, and

- coordinating the multiple states of sensory-motor, discursive, and conceptual knowledge to produce the actions necessary to replicate, exaggerate, or expand from the demonstration.

This interplay of modeling, questioning, and using metaphors provides a rich occasion for nurturing musical development.

Taking a more cognitive perspective, the rehearsal requires an impressive integration of musical skills drawing on the ability to select, invent, and coordinate multiple views of performance. In addition, ensemble directors value written comments as essential opportunities to view and assess the development of reflective thinking skills that provide a richer profile of students' growing musical understanding. This view of the performance ensemble in relation to reflective thinking skills is currently supported by Arts Propel, a collaboration between Harvard Project Zero, the Educational Testing Service, and the Pittsburgh Public Schools.

### **Arts Propel: Linking Perception and Reflection to Performance**

The Arts Propel approach to arts education is based on the assumption that the core of artistic experience is contained in the activity of making the art. Arts Propel music teachers taking this approach create what are called domain projects (a specific set of activities focusing on various aspects of the curriculum) in order to better view and assess artistic production. Production in the Arts Propel classroom or rehearsal is an inclusive concept. It may take many forms. For example, playing an instrument or singing may be one form, composing may be another, making a graphic representation or a notation a third, and keeping a notebook of thoughts while listening is still another way in which production is evident.

Production by itself, however, is insufficient. Although production forms the center of the activity, it must also be buttressed by the student's perceptions and thoughts about the decisions taking place. Accordingly, domain projects are based on the premise that production, perception, and reflection must all be present in significant learning.

Perception, for example, plays an important function in artistic production for two reasons. First, any art form requires a highly refined sense of sensory discrimination for both appreciation of finished work as well as factors in re-evaluating or refining current work. Second, perception reflects that aspect of one's work which is deeply social and interpersonal. Perception at this level reflects one's understanding of work in relation to others, taking in criticism or offering criticism to others.

On the other hand, musicians must also possess a highly developed sense of self and a knowledge of their individual working process, strengths, and weaknesses. Therefore, Arts Propel domain projects place a high value on reflection as an essential intrapersonal aspect of understanding one's work in the domain in terms of self-knowledge and self-assessment.

An ensemble provides the occasion of music learning which extends far beyond the mechanics of playing the instrument. Accordingly, the Arts Propel approach to assessment in ensemble performance is based on both the explicit and implicit skills which a conductor must possess in order to:

- identify and diagnose problems in the performance with respect to the musical score
- critique one's own performance with respect to the performance of the entire ensemble
- construct and implement practice strategies appropriate to the perceived problems, and
- chart the progress of the ensemble by making comparisons among different performances over time.

In addition, the ensemble director also takes responsibility for coordinating all these skills while finding or creating suitable repertoire, conducting rehearsals and performances, and simultaneously effectively working with the students on their individual objectives and monitoring their role in the changing social structure of the ensemble. Small wonder ensemble directors so often garner loyal and committed students, students dedicated to



their responsibilities and improving their station in the ensemble.

Overall, domain projects provide teachers with a means of tracking students' reflections about how they play, how the ensemble plays, and what rehearsal strategies students would suggest to address the problems they perceive. It provides a way of tracing the growth of an entire spectrum of activities that support the emergence of integrated skills demonstrated by the ensemble director. A set of domain projects represents this sequence of skills.

**1. Ensemble rehearsal critique.** The first domain project is the ensemble rehearsal critique. This domain project offers a structured way to develop the critical skills necessary to evaluate and revise performances in music. At this level of development, students have time to discuss their perceptions, reflect, and then write out their conclusions just after taping a preliminary performance. These written comments may form the basis of discussion or result in practice strategies tried out in later rehearsals. Critiquing is encouraged from multiple perspectives (e.g., identifying the relation of personal to ensemble performance problems, or speculating on the relation of articulation and rhythmic errors).

**2. Ensemble rehearsal comparison.** The basic skills of critique need to be held in mind over extended lengths of time in order to form a stable basis for making on-the-spot decisions typical of the conductor. This domain project maintains the focus on the dimensions of the Ensemble Rehearsal Critique Project, but adds the burden of making comparisons between two different performances captured on tape.

**3. Ensemble rehearsal section or individual coaching.** The ensemble coaching project brings the skills developed earlier into the activity of rehearsing an ensemble section or individual. Section leaders and other outstanding students are asked to listen to a reading of a piece, and then immediately address the issues the performance raises for the ensemble section or individual within the section. They are encouraged to document the results of their coaching other

students. As they learn to do this, they become candidates for the final domain project in this series, directing the ensemble.

**4. Ensemble rehearsal directing.** In this project, a selected student is guided toward assuming increasing musical responsibility by directing the ensemble through a rehearsal. Using critical skills and reflective understanding of musical rehearsal, problems are identified and addressed during the rehearsal. Selected students might prepare a piece for a concert, oversee ensemble sightreading, or rehearse an original arrangement or composition for the ensemble.

## **Building Student Reflection into the Rehearsal**

Looking at the first domain project, ensemble rehearsal critique, we see how a class activity suggests individual trajectories of critical thinking that the performance itself does not capture. Documenting reflective thinking through this domain project, we see rehearsals as a learning environment where concepts, planning, and multiple perspectives increasingly become a measure of participation in the ensemble.

Ensemble rehearsal critique is designed to allow students to record their perceptions of their own playing, their perceptions of the entire ensemble, and importantly, what they would recommend as practice strategies to ensure improvement of the performances. In this critique project, students assess their own performance and their reading of the selection three or more times during a marking period or semester. Focusing on the central skills for musicians at any level; this domain project may be used in any junior or senior high school performing group in the normal rehearsal space. It can be adapted to any rehearsal process which takes place over an extended period of time.

This domain project, like all Propel projects, includes the three necessary components of production, reflection, and perception. In this case, production is addressed through performance and revision in performance, as well as through demonstration of errors. Reflection is

addressed through written student comments, facilitated by group discussion, and their formulation of rehearsal strategies. Perception is addressed through monitoring the relevance of the student's judgments (as marked on the comment sheets and scores) and through monitoring students' abilities to discriminate among musical dimensions with the specified vocabulary.

## Implementing Ensemble Rehearsal Critique in the Pittsburgh Public Schools

The teacher chooses a piece on the basis of the curriculum objectives, the level of the band, and the concepts to be covered in the rehearsal. Typical factors include ensemble problems of dynamics or balance, coordinating entrances, attending to intonation, rhythmic and tonal accuracy or nuance, etc. The ensemble

works with only a small section of the piece, because it is important to keep the demands on students' memory within a workable load.

The teacher introduces the project by leading a discussion of the piece, reviewing the focal issues, concepts, and skills which are the point of the selection. During the discussion, the teacher establishes the vocabulary of terms to be used in the critiques. Some teachers put a list of terms on the blackboard and give examples of each; others rely on the more informal use, which involves through participating in discussion; some teachers lead students through a series of warm-up exercises which are based on the musical materials of the piece.

The teacher then hands out and explains the student evaluation sheet, drawing attention to the musical terms on top of the page and to what is meant by "particular location" and "whole piece".

Name \_\_\_\_\_ Date \_\_\_\_\_  
 Period \_\_\_\_\_ **ENSEMBLE REHEARSAL CRITIQUE** Piece \_\_\_\_\_  
 Instrument \_\_\_\_\_ 3/23/89 version

Write down your critique of the ensemble performance specifying LOCATION [where you performed particularly well or need to improve] and MUSICAL DIMENSIONS [such as rhythm, intonation, tone, balance, articulation, phrasing, interpretation, etc. or any dimension specified by the teacher]. Using words such as "because" be sure to mention any links between your own or your section's performance and the ensemble as a whole. Also include remarks concerning REVISIONS OR PRACTICING STRATEGIES for yourself or the ensemble. Be sure to include the main problem in terms of its dimension and location in the piece you or the ensemble should practice on before or during the next rehearsal.

CRITICAL COMMENTS		REVISIONS OR PRACTICE PLANS	
Location	Dimension	My (Section's) Performance (filled out immediately after performance)	For Myself (My Section)
Location	Dimension	Ensemble's Performance (filled out after listening to recorded performance)	For the Whole Ensemble

ARTS PROPEL assessment form    Specifies ☐    Suggested Revisions ☐    Critical Perspective ☐  
 USE OTHER SIDE OF PAGE FOR ADDITIONAL COMMENTS

Figure 1

Name James Pittman Date 2-7-89  
 Period \_\_\_\_\_ Piece Jefferson County  
 Instrument T. Sax

**ENSEMBLE REHEARSAL CRITIQUE**

Write down your critique of the ensemble performance specifying LOCATION [where you performed particularly well or need to improve] and MUSICAL DIMENSIONS [such as rhythm, intonation, tone, balance, articulation, phrasing, interpretation, etc. or any dimension specified by the teacher]. Using words such as "because" be sure to mention any links between your own or your section's performance and the ensemble as a whole.

	Location	Dimension	My (Section's) Performance <small>(filled out immediately after performance)</small>	Ensemble's Performance <small>(filled out after listening to recorded performance)</small>
C R I T I Q U E	<u>57-8</u>	<u>all</u>	<u>Practice it more</u>	<u>Practice it more</u>
	Also include remarks concerning REVISIONS OR PRACTICING STRATEGIES for yourself or the ensemble. Be sure to include the main problem in terms of its dimension and location in the piece you or the ensemble should practice on before or during the next rehearsal.			
R E V I S I O N				

ARTS PROPEL assessment form    Specifics ☐    Suggested Revisions ☐    Critical Perspective ☐  
 USE OTHER SIDE OF PAGE FOR ADDITIONAL COMMENTS

Figure 2

The teacher explains that students will be expected to assess the ensemble from several different critical perspectives. Students are expected to distinguish between "How did I sound?" and "How did the ensemble sound?" Finally, students are expected to suggest revisions that are appropriate to the critique, adopting the viewpoint of the director. The teacher may also supply copies of the conductor's score (with the student's own part highlighted) so that students can link their comments to specific locations in the music.

Upon completing the performance of the chosen section of the piece, some teachers lead a short discussion about what the students think about their own individual performance and the performance of their section. Students are then asked to write down their evaluation of their own performance and some suggestions about what they might work on the next time they read it.

As soon as students have completed filling out the left side of the reflection assessment forms, the teacher plays the tape of their reading. This may be followed by another short discussion of what they hear, what to correct, and what strategies they would use to improve or correct the

ensemble's performance. If they have copies of scores, the students identify where they perceived problems by marking their scores while listening to the recording. At the end of the rehearsal, the teacher or a student collects the evaluations and observations written on the assessment sheets and/or the music scores and puts them in the students' folders.

Below are two examples taken from early rehearsals of a new band piece. The first is typical of most first responses to the task, whether made by a high school or middle school student. The second is more typical of high school students who have been in the ensemble for several years and have practiced filling in the critique forms several times previously.

### Interpreting Student Responses

Looking at Figure 1, the succinct and ever-relevant point is well taken: One can always practice more. As we suggested earlier, this message might convey very different meanings depending on whether it had been written by a musical novice or a world-famous musician. In this case, the context is the eighth grade ensemble. Although directed to include more specific comments, the student leaves an extremely lean bit of advice. By using the

questioning strategies “how, what, or why?”, the teacher can begin to form an understanding of the musical perception or concepts that may inform the comment (e.g., How does the student use terminology? What perspective or connection does the student make between ensemble and personal performance? Why are specific practice strategies offered?). In the case of beginning students, we have little to go on: no terminology, differentiated perspective, or practice plans.

In contrast, Figure 2 shows the considerable development in musical reflective skills typical of a more experienced player. Walt, a three-year member of the ensemble, may not always provide a rich response to the task, but he is able to offer contextually relevant remarks. He contributes to the ensemble a set of possibilities worth considering in any performance.

His highly articulated comments using

vocabulary (dynamics, articulation, rhythm, and ensemble performance) describe what he perceives (“too loud”, “too short”, “work on rhythms so they fit the piece”). Particularly impressive are the multiple perspectives suggested by the remarks and their relation to practice strategies. Rather than commenting purely on the quality of loudness, Walt reflects on the complex dynamic balance of the ensemble in relation to his own playing (“I sounded too loud at the G.P. The other trombone and tuba weren’t playing loud enough.”). In addition, Walt relies on differentiating between live and recorded performance to test his views (Sounded much worse on the tape than live; [the taped performance] confirms that I was too loud. Need to be softer”). Specific musical terms and locations are provided for additional context.

Rehearsal plans reflect the ability to

Name W. Summerfield  
Period 7 (6)  
Instrument Trombone

## ENSEMBLE REHEARSAL CRITIQUE

Date 2-6-89  
Place SEAQUATE 13-58

Write down your critique of the ensemble performance specifying LOCATION [where you performed particularly well or need to improve] and MUSICAL DIMENSIONS [such as rhythm, intonation, tone, balance, articulation, phrasing, interpretation, etc. or any dimension specified by the teacher]. Using words such as “because” be sure to mention any links between your own or your section’s performance and the ensemble as a whole.

Location	Dimension	My (Section's) Performance (filled out immediately after performance)	Ensemble's Performance (filled out after listening to recorded performance)
26-48	ACCENTS	NEED TO BE GIVEN APE HARDER TONGUE. SOUND MORE LIKE VOLUME.	SAXES NEED TO BE TOGETHER ON THE EIGHTH IN THIS SECTION.
13	DYNAMIC	I sounded too loud at the G.P. THE OTHER TROMBONE AND TUBA WEREN'T PLAYING LOUD ENOUGH.	SOUNDED MUCH WORSE ON THE TAPE THAN LIVE. NEED TO BE MUCH SOFTER AT [12] UPSTAIR
13-58	DYNAMIC	I WAS MUCH TOO LOUD THROUGH THE WHOLE SONG	CONFIRMED THAT I WAS TOO LOUD. NEED TO BE SOFTER
Also include remarks concerning REVISIONS OR PRACTICING STRATEGIES for yourself or the ensemble. Be sure to include the main problem in terms of its dimension and location in the piece you or the ensemble should practice on before or during the next rehearsal.			
26-48	EIGHTH NOTES	TOY PLAYING ALL OF THE SHORT THEM WORKING IN THEM IN	ON RHYTHM SO THE FIT THE PIECE,
27	RHYTHM	LONNIE NEEDS TO PRACTICE THAT PART A LITTLE MORE HE SEEM UNSURE OF THE PART.	
26-48	EVERY-THING	NEED TO CONCENTRATE MORE ON CERTAIN PARTS MORE THAN OTHERS. BA STILL NEED TO WORK	

ARTS PROPEL assessment form Specifies ☐ Suggested Revisions ☐ Critical Perspective ☐  
USE OTHER SIDE OF PAGE FOR ADDITIONAL COMMENTS

Figure 3

redirect the focus on the music toward solving complex problems. Speculating on the effect of creating new performance procedures related to the score, certain problems can be addressed. Providing specific locations and combining musical concepts in ways not explicitly provided by the music, Walt, for example, recommends exaggerating articulation to focus on rhythmic problems (“try playing all of them eighth notes short then working on them”). In addition, his criticisms include individual (“Lonnie needs to practice that part a little more. He seems unsure of the part”) and section performances (“measures 26-48, saxes need to be together on the eights in this section”) as well as remarks that address the entire ensemble. Walt’s proposed practice strategies add dimension to the use of his reflective comments.

Comparing these two examples, we see how reflective comments suggest relevance beyond simple measures of accuracy. While the middle school student may only parrot the explicit pronouncements made during the last rehearsal, the high school student explicitly suggests the context of musical thinking implied by remarks made by the band director. Selected from the range of models and metaphors, these students have encountered in rehearsal, their remarks become significant as they are used to coach or direct sectionals in future domain projects for the ensemble. Currently, they form the basis of evaluating reflective thinking relevant to performance.

From the perspective of ensemble rehearsal critique, we see the significance of the scrap of paper on the floor containing the message “It stinks. Practice it more”. We now understand that, although the writer may be new in the band, we can anticipate the path of possible development of musical thinking. By tracking student reflections over time, we have a record of the broad range of musical thinking which increasingly knits understanding and performance together.

### **Measuring Development of Reflective Thinking**

Research design from developmental psychology, if imported into education,

can be highly useful for assessing students’ learning. In conventional education practice, assessment typically is linked specifically to a unit or moment of instruction. Psychologists, however, are interested in how children perform a specific task over wide varieties of conditions. When this model is imported into educational settings, it becomes possible to see how learning varies across different ages as well as levels of complexity. Using this approach to evaluate the critique domain project, we can trace the development of reflective comments over time, curriculum, and levels of difficulty in the repertoire.

Researchers have demonstrated that the level of achievement on a task depends on two external aspects: the degree of support provided, and the complexity of the task. These findings should come as no surprise to educators. Reading instruction, for example, fails miserably without adequate external support (e.g., vocabulary learning, stimulating questions about content, etc.) or sensitivity to levels of complexity (graded levels of books in terms of readability or cultural context). This perspective underscores the interdependency of learning, task, and context.

Recent research in developmental psychology suggests how this concept may be applied to educational assessment. One approach, skill theory (Fischer, 1980), casts intellectual development in terms of commanding increasingly sophisticated cognitive skills. Whether looking at children’s growing understanding of social roles (Fischer & Canfield, 1986) or grasp of abstract mathematical concepts (Fischer & Kenny, 1986), cognitive development proceeds from single actions or representations to more complex coordinations of abstract systems or principles. Single representations are defined as understanding actions carried out by another; an example of the related skill is describing what a doctor does or what a father does. Representational mapping is the coordination of two perspectives; an example of a related skill is to show how a doctor may talk to a daughter, and how a father may talk to his daughter. Representation systems are defined as coordinations of



multiple representational mappings; a skill example is to show how a doctor may treat his daughter when she is sick. A single abstraction is defined as understanding a system of multiple representational mappings as a single abstraction; an example of the skill is to describe what it means to be a doctor or a father in our society.

Skill theory is designed to chart cognitive development in any domain. Although development may occur at different ages in different domains, the order and structure of these levels remains invariant. Interpreting instrumental performance in terms of skill theory, for example, reading skills develop from single “note to note” decoding of the third clarinet part toward reading the entire ensemble score including transpositions, key structure, and form. In the ensemble rehearsal critique project, critical comments may also suggest underlying development of reflective thinking skills. Critical comments may change from diffuse com-

ments about a single dimension (“missed notes” to articulate and more coordinated relational views about the performance (“The sopranos were too loud in measure 4 and they didn’t notice we were a beat behind”). Finally at the level of coordinated actions, systems, and abstractions, high school students may comment on practice strategies related to key signatures, formal aspects of the music, or complex interactions of performance detected in balance or rhythmic problems (see Figure 4).

Indeed, critiquing musical performance is a compellingly rich arena for charting musical cognitive growth. But how can music educators spur this development? According to skill theory, development may not occur or may occur undetected if the environment does not support new levels of skill acquisition. In other words, without optimal support conditions, students may not perform at the limit of their cognitive development. Domain

Levels of Cognitive Skills related to  
Levels of Reflective Comments about Ensemble Performance

	Cognitive Skills	Performance/Reading Skills	Reflective Thinking Skills
Level 1	<u>Single Representations:</u> understanding a system of sensori-motor actions in terms of a single representation	Ability to decode from notated pitch to fingering on the instrument or control the durational value according to the notated rhythm	Ability to comment on a single dimension such as notated pitch in relation to performed pitch or notated rhythms in relation to performed rhythm
Level 2	<u>Representational Mapping:</u> ability to map or coordinate two representations	Ability to coordinate pitch and rhythmic values simultaneously in relation to one another	Ability to coordinate critical comments across two dimensions or two perspectives such as the effect of articulation on rhythm, the difference between the ensemble and one's own performance
Level 3	<u>Representational Systems:</u> ability to map or coordinate two or more sets of representations	Ability to coordinate pitch and rhythmic values with respect to dynamics, articulations or phrase markings in the score	Ability to coordinate critical comments across two or more dimensions or perspectives such as the effect of articulation on rhythm, the difference between the ensemble and one's own performance, or the effect of a practice strategy on ensemble performance
Level 4	<u>Single Abstractions:</u> ability to understand systematic relations of representations in terms of a single abstraction	Ability to understand music in terms of tonality, meter, phrasing or other formal considerations	Ability to formulate critical comments in terms musical concepts such as the effect of articulation on style, effect of a practice strategy on intonation or balance in ensemble performance

Figure 4

projects provide such support. Not only do instructors model vocabulary and performance comments continuously in rehearsal, but the Arts Propel forms make support concrete organizationally. Explicitly asking for location, dimension, and for multiple perspective ("How you sound, how the ensemble sounds"), students who can coordinate these views offer rich and rewarding critiques.

Is there evidence for individual development within the academic year? Our earlier examples suggest that distinctly more sophisticated critical responses can occur with experience and maturity. On the first take, however, ensemble rehearsal critique responses of middle school students and high school students are not significantly different. Each, for example, is likely to reiterate the adage "Practice makes perfect" or "The whole piece needs more work". With optimal support, however, evidence of the students' development appears. After students get used to writing their critiques and trust that instructors value and refer to their comments later in discussion or rehearsal, their critical thinking takes on a life of its own. For middle school students, this may mean becoming aware of other sections of the ensemble by looking at the score. Their comments begin to map musical terminology appropriately with their perceptions and practice strategies:

"The clarinets didn't count right—we got lost"

"The notes weren't short enough—I need to tongue better"

For high school students, development in reflective comments is more dramatic:

"The entry was good towards B, however I dropped out. The song [as a whole] is coming together a lot better, but we still have to make our notes sound shorter and more clear."

Comments are at once more rich, practice plans more constructive, and most impressive from a cognitive point of view, the perspectives are considerably more sophisticated. Continuing from above, this high school trombone player advocates the tape recorder for addressing the needs of his particular session:

"We could go over and tape us playing to where we have to change our accents or bring it out more—by listening to a tape of us playing it—helps us where the dynamics were missing or the playing is soft."

Damen, a quiet and unassuming freshman in rehearsal, anticipates the coaching strategies through his written comments. With further support, it is easy to imagine Damen eventually becoming a section coach or directing an ensemble rehearsal by senior year.

The sequence of the performance domain projects makes it possible to investigate the functional levels of reflective thinking. The context remains stable, while the specific scaffolding provided by the domain project becomes less intrusive. In the early highly supported condition of the ensemble rehearsal critique, the demands on memory are relatively small when compared to the relatively open condition of the domain project, directing the ensemble. There the student must not only be able to evaluate an ensemble's performance on the spot, critique and offer strategies for improvement with tact and effectiveness, but be able to do all this while actually attending to the flow of the music in performance.

In sum, the rehearsal critique project is a vehicle for assessing situated cognition, that is, reflective thinking in the context of a rehearsal. In the Arts Propel rehearsal, this knowledge is tapped in the context that learning and knowing occurred. In other words, it is our position, along with other researchers, that cognition occurs within a specific situation with a particular domain (Brown, Collins, & Duguid, 1989). As with the research in skill theory, we must attend to cognitive development in the context and conditions under which it occurs, not as an abstract, decontextualized construct. In terms of music education, this perspective places the context of use directly into the context of examining that knowledge. Accordingly, the situation in which learning occurs must be part of the assessment of what students know.

Although reflective thinking may suggest an independent cognitive skill, we see how it is rooted in the domain by

way of now a musician learns to critique, coach, and eventually direct an ensemble. Many practitioners question the validity of any presentation outside the normal performance of music as valid indices of musical achievement. Thoughtful analysis, however, of master classes, lessons (Schoen, 1987), and practice habits (Blum, 1986) indicates that there can be a close relation between reflection and performance.

Few musicians, ourselves included, would question the premise that performance provides a superior context within which to observe musical thinking. We seek to extend the field of musical thought by observing and assessing how students talk about their work, what they notice in performances, how self-aware they are during performance, and the degree to which they are aware of how their work fits into the larger context of music.

What, therefore, is the role of accuracy in assessing the development of reflective thinking? Because of the enormous complexity of ensemble performance, reflective thinking occurs more often as "hypothesis testing" than as a matter of accuracy. What direction one band director would take to correct an ensemble problem may differ considerably from the tack of another. From critiquing to coaching, musicians learn to apply musical thinking in a social context. Whereas discrimination plays a role in identifying problems, reflective thinking suggests strategies for dealing with them. Critical judgments are made, tested, and verified as to their utility in enriching the course of the ensemble rehearsal. While performance remains as an essential demonstration of musical comprehension, reflective thinking drives the course of inquiry explored by the ensemble.

### **Broad Implications for Music Education and the Performance Ensemble**

There is little doubt that the band director contributes a great deal in shaping the raw talent in the band. The environment of the rehearsal, created by the conductor and the students, provides an arena rich with interactions which extend far beyond the mechanical and mundane. It is important that a replete view of the

domain of music support the implicit and explicit skills modeled by the conductor. The assessment of music and learning should include what practitioners actually do, how they rehearse, and how they think. This awareness and perspective yields fruitful insights into what actually takes place in a band rehearsal.

The Arts Propel assessment strategy for ensembles is based on this sequence of domain projects which provide a structured way of developing the skills of the conductor. It is important to design assessment measures which can be ordered in a developmental sequence. This makes it possible to evaluate the relative efficiency of instruction and learning in ways not possible to see otherwise.

### **Changes in the Rehearsal Learning Environment**

Pittsburgh teachers report the effects of domain projects on the atmosphere of the rehearsal class. Although ensemble rehearsal critique exacts considerably more time devoted to written reflections, the dynamics of the ensemble appear to change. First, student thinking is more visible. Although discussions do take place in many ensembles, written comments often do not, nor are they systematically collected for viewing development. From our view, class discussions serve well to get students started in their thinking, while written comments, supported by examples and deliberately calling for articulate and richly dimensional comments, better capture each individual's thinking. Viewing videotapes of students marking full scores to trace their perceptions clearly suggests the contribution of their critical responses, judgments, and ensuing rehearsal suggestions to the ensemble.

Second, changes in the ensemble rehearsal critique class behaviors occur as a result of students taking time out to fill in the critique forms. Not all these changes may be welcomed by the ensemble director. For example, students more frequently challenge the authority of the director or composer. Students may take the perspective of the conductor in making critical judgments about the ensemble performance: "At measure 3, we need a

much clearer cue to keep the meter in sync.” or, perhaps later in the class discussion, the music may be challenged: “this trumpet part seems wrong to me—can I play an F instead of the G at the end of this section?” While these types of comments sometimes occur in other ensemble rehearsals, they more frequently appear after teachers begin using the ensemble rehearsal critique sessions.

This leads to the third change, the realization of the director/author as end-state of music education through performance. Granted, students participating in ensembles enjoy applying their instrumental skills in concert with their peers. They also enjoy the social comraderie. What occurs with giving students voice in the direction of the ensemble is something else. Given cause to reflect about their own performance and the ensemble, students become more self-directive. Rather than looking at section leading, arranging music, or conducting a rehearsal as added workload, students begin to see these activities as being the goal of being in the ensemble over many years. Traditionally, the most experienced and gifted students become the drum majors or leaders of the ensemble. The domain projects make the path to authorship more visible and accessible to every member of the group. Reflective thinking serves as the entry point in this path toward the musicianship skills of the director.

Finally, the relationship of the director to the ensemble members is made more interactive. Music education in the performance ensemble proceeds not by lecture but by active participation in group problem-solving. The director in this context can serve more as a coach or guide than as an absolute authority figure. The structure of the mentor/apprenticeship relationship is made concrete by a constant exchange of views of the problems being experienced in the ensemble.

In this way, reflective thinking serves both ends of the relationship. On the one hand, students need advice on how to think about their music and related performance problems. On the other hand, by knowing how the student formulates musical concepts and seeks to transform performance problems, the director knows

what level of advice to offer. Gradually, the director can implement the views of the ensemble members toward better musical effect, as well as offer guidance and insight about the music in rehearsal.

## **A Comprehensive View of the Performance Ensemble**

In sum, through the Ensemble Rehearsal Domain Project, the teacher can assess development and learning along several musical and cognitive dimensions. First, this domain project provides students a context within which they can develop a working vocabulary for tracking their musical perceptions. Second, students’ performance of repertoire is informed by increasing their awareness and critical judgment. Third, the student’s reading skills can be monitored, especially with reference to musical score sheets. Fourth, students’ knowledge of rehearsal skills and strategies for improvement can be tracked throughout the period. Finally, in the perception task (marking errors on their parts and/or on copies of scores), students gain experience in identifying errors in performance in relation to the score.

The teacher can expect to watch students’ general cognitive development as well. First, students develop critical observation skills from increasingly complex perspectives. Secondly, the ability to make critical decisions based on observations specifically related to musical perception is developed through the use of the domain-project materials. Third, students develop the ability to demonstrate those decisions, either verbally or by marking scores. Finally, students develop the ability to take a critical perspective about their own work in relation to the whole ensemble.

In our example of a teacher scoring key, Figure 5, we see how reflective thinking in the ensemble is assessed. This assessment strategy allows music educators to trace the development of musical thought in addition to conventional performance evaluation. This domain project captures musical thinking as it becomes more sophisticated, relational, and abstract with experience and maturity. Of course, it remains the task of the expert

# DOMAIN PROJECT: ENSEMBLE REHEARSAL CRITIQUE

ENSEMBLE OR CLASS \_\_\_\_\_

[june 23 1989 version]

TEACHER \_\_\_\_\_

GRADE LEVEL(S) \_\_\_\_\_

STUDENT \_\_\_\_\_  
[SCORE HIGHEST INSTANCES\*]

## TEACHER SCORING KEY

<p>Ability to offer specific references to musical elements while making critical comments and/or suggested revisions throughout the critique</p>	<p><b>IDENTIFICATION OF MUSICAL ELEMENTS IN CRITICAL JUDGEMENTS ABOUT PERFORMANCES</b></p> <p>NR= no response or not enough statements given</p> <p>1= DOES NOT REFER TO MUSICAL ELEMENTS IN PERFORMANCE (e.g., 'bad'; 'great'; 'much better'; 'keep together')</p> <p>2= REFERS TO ISOLATED MUSICAL ELEMENTS and/or MAKES OVERLY BROAD, SOMETIMES INAPPROPRIATE OR IRRELEVANT REFERENCES TO THE PERFORMANCE (e.g., 'out of tune'; 'sloppy rhythm'; 'trumpets too soft')</p> <p>3= REFERS TO MUSICAL ELEMENTS WITH INCREASED SPECIFICITY, COHERENCE AND RELEVANCE TO MUSICAL DIMENSIONS (e.g., 'the flutes played the eighth notes like quarter notes [rhythm]'; 'the accents in the trombones need more punch [dynamics]')</p> <p>4= MAKES MANY SPECIFIC AND APPROPRIATE REFERENCES TO MUSICAL ELEMENTS IN THE PERFORMANCE (e.g., 'the trumpets came in late and too loudly on measure 16 and never caught up until the end'; 'I forgot to give the half notes two beats on measure 3 but I held the quarter notes longer to make up for it')</p>
<p>ability to suggest REVISIONS or PRACTICE PLANS linked with critical comments</p>	<p><b>ABILITY TO SUGGEST REVISIONS OR PRACTICE STRATEGIES FOR IMPROVING PERFORMANCES</b></p> <p>NR= no response or not enough statements given</p> <p>1= DOES NOT REFER TO SPECIFIC MUSICAL ELEMENTS WHILE SUGGESTING HOW TO IMPROVE THE PERFORMANCE (e.g., 'practice'; 'take your instrument home'; or 'listen to Mr. Daller')</p> <p>2= OFFERS OVERLY BROAD, SUPERFICIAL OR UNCONSTRUCTIVE SUGGESTIONS (e.g., 'play more in tune'; 'find the bad spots and practice them'; 'don't play sloppy')</p> <p>3= SUGGESTS MORE SPECIFIC AND CONSTRUCTIVE REVISIONS OR PRACTICE PLANS SOMETIMES LINKED TO CRITICAL COMMENTS ON THE FORM (e.g., 'the flutes should use a hard and crisp tone'; 'the drums should tap their feet for better rhythm'; 'violins should practice with separate bowings')</p> <p>4= SUGGESTS HIGHLY ARTICULATED PRACTICE STRATEGIES AND REVISIONS CLEARLY LINKED WITH SPECIFIC CRITICAL COMMENTS ON THE FORM (e.g., 'the flutes should play staccato like the trumpets do in the first version'; 'the percussion should practice the hard parts 3 times slowly, then at the tempo marked for more precision')</p>
<p>critical perspective developed through musical elements or practice plans increasingly coordinated with critical comments</p>	<p><b>CRITICAL PERSPECTIVE(S) ASSUMED BY STUDENTS WHILE DISCUSSING THE INDIVIDUAL AND ENSEMBLE PERFORMANCE(S)</b></p> <p>NR= no response or not enough statements given</p> <p>1= RESPONSE INSUFFICIENT FOR DETERMINING CRITICAL PERSPECTIVE (e.g., 'very bad'; 'good'; or 'practice')</p> <p>2= DESCRIPTION OF ONE OR MORE SINGLE POINTS OF VIEW NOT COORDINATED WITH MUSICAL DIMENSIONS (e.g., 'I was too loud'; 'we were out of tune'; 'the drums dragged')</p> <p>3= EVIDENCE FOR SINGLE COORDINATION OF MUSICAL DIMENSIONS BETWEEN TWO POINTS OF VIEW (e.g., 'Trumpets were too loud; I couldn't be heard'; or 'sopranos missed their entrance; we didn't')</p> <p>4= EVIDENCE FOR MORE COMPLEX COORDINATION OF TWO OR MORE POINTS OF VIEW AND CAUSAL RELATIONS ACROSS ONE OR MORE MUSICAL DIMENSIONS (e.g., 'after the sopranos came in the tenors got louder and I started singing flat; the second time I sang softer and it was much better in tune')</p>

[\*highest instance= score the highest level of achievement demonstrated by the student]

## ARTS PROPEL ASSESSMENT FORM

Figure 5



music director to interpret the student remarks in the context of the individual rehearsal.

The format of our scoring system suggests developmental levels of ability (with considerable support) without implying that professional musicians must always function at optimal levels. Validity eventually informs production skills, yet the presence of critical, musical thinking appears as a useful indication of musical development.

To conclude, we return to our opening story of the band director's discovery of a student's scrap of paper with the written comment "It stinks. Practice it more". Whether this remark is made by an expert or a novice is impossible to tell unless we consider the context of the remark, the role and level of expertise of the author, and the possible range of the author's intended meaning. But these remarks signal something important in music education: the path toward musical thinking implicit in expert musical direction. By making the meaning more explicit, more contextual, and eventually implementable, the student must develop a musical understanding that supports the enormously complex task of actively participating in the ensemble.

Catalyzing the mental states of the "articulate theorist" (using appropriately rich vocabulary and concepts); the "reviser, interpreter, or rehearsal director" (mapping critical thinking, perception, and problem-solving skills to produce intended performance changes); and the "critical thinker" (one who is musically

and cognitively equipped to coordinate multiple views of the ensemble, the music, and the performance), Arts Propel provides an opportunity for elucidating the role of reflective thinking in musical performance. □

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