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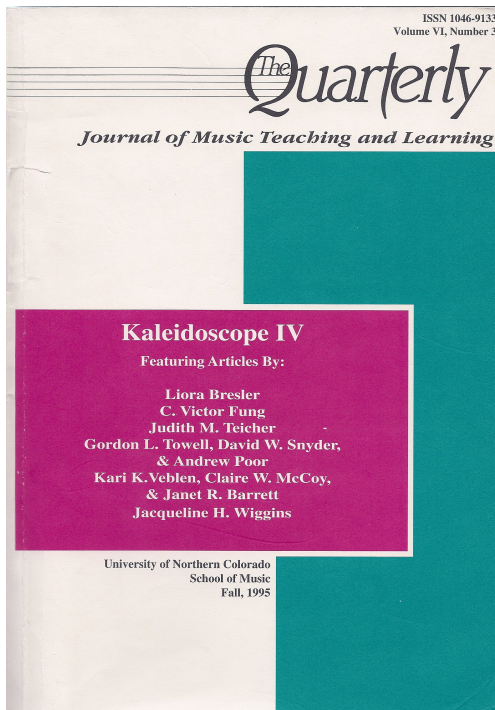
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Building Structural Understanding: Sam's Story

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Learning has been described as developing an understanding of the structure of a particular field of knowledge, and of the nature of the interactions among the various elements that comprise that structure (Bruner, 1966). It would follow, then, that musical learning consists of developing an understanding of the basic elements of music and of the interactions among those elements as they comprise an expressive whole (i.e., the ways in which the aspects of the structure of a work – its contour, modality, duration, dynamics, texture – interact to create the expressiveness of the work) (Clark, 1988; Serafine, 1988; Sloboda, 1985; Swanwick, 1988). The goal of such an approach is for students eventually to possess a framework for understanding musical works such that they can comprehend a work's formal, stylistic and expressive characteristics, and ultimately to make decisions regarding their personal musical values.

In a musical learning situation, students both acquire and reveal their structural understanding of music through performing,

As a profession,
we must begin to
look at more than
discrete activities
in a laboratory
setting in order to
develop effective
music education
practice.

creating and analytical listening experiences (Boardman, 1988; Sloboda, 1988; Swanwick, 1988). A number of researchers have analyzed children's compositional products (Bamberger, 1991; Davidson, 1990; Davies, 1986, 1992; Hedden, 1992; Kratus, 1985, 1989; Swanwick & Tillman, 1986) and interpretations of listening experiences (Serafine, 1988; Shrofel & Browne, 1992), seeking insight into the nature of children's conceptions of music. While the extent of an individual's structural understanding is evident in the products of and responses to his or her interactions with music, there is more to be gained

by also considering the processes used to develop these products and responses. To provide a broader perspective on cognitive processes, the data that form the basis for this paper were collected throughout actual classroom activities as children composed, performed and participated in analytical listening experiences.

This article traces one student's performing, creating and listening experiences in a fifth grade general music classroom over a period of five months. Rather than looking at the work of a representative group of students in a laboratory setting over a short period of time, the intention of this study was to track the cognitive development of one student as it occurred in a learning context over a long

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period of time. The results of this analysis provided insight into the musical learning processes of one student, and documented the growth of his understanding of the structural relationships that constitute musical knowledge.

Methodology

This article is based on a revisiting of data collected for a qualitative study of the musical learning experiences of two fifth grade students as they participated in a general music class (Wiggins, 1992). I conducted the study as a teacher-researcher in the nonexperimental setting of my own general music classroom. Data were collected during regularly scheduled class sessions over a period of five months. Through non-obtrusive data collection techniques designed to provide multiple perspectives (videotape and audiotape recording, field notes, interviews, collection of artifacts from the site), the musical experiences of the two target children were studied within the context of that music class experience.

Each of the target children wore a small tape recorder and clip-on lapel microphone during each music class. In addition, a general recording of the class sessions was made with a video camera to provide three different tapes of each class session: two that reflected the perspectives of the target children and one that reflected the view of the teacher. There were 31 class sessions during the data collection period, producing 28 audiotapes for one target child, 29 for the other, and 20 videotapes. Additional data were also collected, in the form of written papers and charts reflecting work done by the children as they participated in the class sessions. Data were also obtained from a consistent group of students who generally sat near and chose to work with the target children. Other data consisted of field notes of the teacher-researcher and interviews with the target students and their parents.

In selecting the children initially, I established criteria that I hoped would produce two individuals who would be as different from one another as possible, while still being representative of a "typical" student in my music class. The target children will be

identified here as "Sam" and "Lynn." Sam was a boy of African-American heritage, while Lynn was Caucasian. Sam's parents were both professionals, placing him among the upper socioeconomic group in the school. Lynn's family was representative of the middle class population that attended the school. She was a student I had taught throughout her school career, while Sam was a student whom I had never taught before that particular school year. During the month before the study began, my informal observation of the children as they worked in class revealed that they seemed to exhibit different work styles and preferences, Sam often using an aggressive work style, frequently a leader, and Lynn a student who seemed to work very well in small groups, but rarely assuming the role of leader. Sam was identified by two of his classroom teachers as being a "good" student, Lynn as being an "ordinary" student, a "B" or even "C" student. Because of the volume of data involved, this paper will focus on the development of only one of the target children, that of Sam.¹

In the data analysis process, the recorded verbal and musical interactions were transcribed, analyzed, interpreted and coded as an ongoing process throughout as well as after the data collection period. Since the analysis process used in the original study was designed to identify important trends influential in or characterizing the children's cognitive processing across the 31 sets of transcripts, the data were not necessarily handled in a consecutive manner. Therefore, the "story" of each child's individual development, although implied in the report of the study, was not followed along the time line through which it occurred.

If musical learning is viewed as the development of understanding of the underlying structural elements of music and of the interaction of those elements within a musical whole, one ought to be able to assess the extent of a student's learning through tracking the growth of his or her structural understanding across time. As the children's teacher, I had been satisfied that the students in this particular class had indeed become better musicians over the course of the semester, but I wondered whether one could

Musical Example 12



Guys – no – make some music that goes with our music.

This demonstration was Sam's attempt to communicate what he meant about the two motives fitting together.

Kenny: What's your music?

Kenny's response indicates his recognition of the necessity of hearing Sam's motif once again in order to create one that would fit with it. Meanwhile, Kenny was concerned with balance, another aspect of simultaneity.

Kenny (to Sam): You're two loud things. You can't be background. You have the two loudest things! (the cymbals, that is)

Sam tried his same cymbal part again and then said: "You guys'll have to play extra loud then!" At the same time, Kenny, on the slit drum, was looking for a new idea:

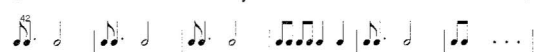
Musical Example 10



Kenny: No, wait, is this good to go with yours?

Musical Example 11

(each on a successively lower bar of the slit drum)



Sam tried to join him with his own cymbal rhythm, but he began somewhere in the middle of Kenny's second measure. At this point, the boys seemed to lack the skills necessary to perform two similar rhythm patterns together. Sam was able to tell that the attempt was not working out and blamed Kenny:

Sam: That's a totally messed up beat. O.K. Wait, wait, wait wait. O.K.

Kenny: What should I do?

Sam sang his idea to Kenny:

(See Musical Example 12 above)

After they had been working for the bulk of the period, Kenny commented to the group, "Do you know how stupid that's gonna sound in front of the class?" There was some discussion during which Sam ex-

pressed that he felt the group was leaving the planning up to him. Eventually, the teacher interrupted to say that the period was ending.

Sam: Guys, guys! How do we start this? How do we do the middle and how do we do the end?

As the class session came to a close, at least two of the four group members had developed motivic ideas for the final product, but little progress had been made in assimilating these ideas into a unified work. Both Sam and Kenny seemed to exhibit a sense of some of the processes involved in such assimilation, but at this point, the group had been unsuccessful in carrying it out.

During the next work session for the same project, Day 3, Sam's group abandoned both the instruments and ideas of the previous class. They decided to use a keyboard that had been vacated by another group. The keyboards were new to their classroom that year, and very much coveted. At first, they experimented with the various capabilities and timbres of the new-found toy, and appeared to have forgotten about the assignment. Suddenly, Sam remembered and said to the group, "We have to put together a piece. We have to put together a piece." A moment later, he spoke to me as I passed by:

Sam: Mrs. W., we forgot what we did.

Teacher: That's why you should make some notes. You know what I mean? Can you do something sort of like it?

Sam: But we don't know what we did.

As I left, he said quietly to his peers, "We'll make it up as we go along." When it was their turn to perform, Sam said to the group, "Just trust me. Trust me. It'll be funny. It'll be funny." He suggested that he would make up a story as they went along, and that the others should use the instruments to provide sound effects as he did so.

Matt: Yeah, but it won't fit the *plan* if it's just gonna be funny!

Musical Example 13

Sam: No. I'm telling the story, right? Just make any sounds that will go with the words that I say. O.K.?

After their performance, other members of the class were highly critical of their work because they had not done the assignment properly. Sam said, in their defense, "But I forgot what... 'cause we had everything all worked out and we forgot."⁵

In this particular instance, I believe that Sam's group was unable to "remember" their plan because they had not as yet developed one. The individual motivic ideas had existed with no master plan for a way in which they would be placed in the final product. As the first work session ended, they had not developed a conceptualized structure for a final product and, therefore, the students were unable to "remember" what they had done.

Familiar Ground

Through the next three class periods, the children worked in a large-group setting to brainstorm ideas, compose lyrics, establish the style and mood, select a chord progression and compose a melody for a Halloween song. In the third session of this unit, a teacher-notated version of the finished song was distributed and the children worked together to develop an arrangement, evaluate its effectiveness, and finally perform it for the classroom teacher.

As we composed lyrics on Day 4, Sam was an active participant. He was very knowledgeable about the structure of a poem and made many suggestions that the class accepted as parts of the final poem. His suggestions all fit well with and helped the class to determine the meter, pulse and form of the unfolding text. At one point, I pointed out to the children that they had established a pattern where some of the lines had 2 beats and some had 4. I indicated a spot where we needed two 2-beat phrases. Sam then suggested, "Trick or Treat, Ain't it neat?" exhibiting his understanding of my description

of the structure of the poem. He later suggested, "Jack-o-lanterns, Scary phantoms," as another example of the same metric pattern.

On Day 5, as we began to work together to compose a melody for the Halloween song, Sam suggested one melody. He sang:

(See Musical Example 13 above)

Once we had established the melody for the first verse of the lyrics, there was some discussion as to whether the melody of the second verse should be the same or different. Sam expressed concern that a new melody "wouldn't mix in," showing that he understood enough about the ways in which songs are usually constructed to know that they do not usually contain different melodies for different verses. In these two lessons, Sam exhibited, through his comments and suggestions to the class, a basic understanding of the structure of a simple song and of the relationship between lyrics and melody, rhythm and meter in a song.

As we constructed our arrangement of the Halloween song in preparation for our performance for the classroom teacher on Day 6, Sam selected a cabasa from the shelf. Returning to his seat, he sang the first line of the song to himself and practiced punctuating his singing with the instrument: "Black (shhhh) cats (shhhh) and scary bats (shhhh)." As we tried our arrangement, Sam did not sing with the class. He seemed to be concentrating on his cabasa part instead. He played throughout the class' performance – very precisely – sometimes on the beat, sometimes as a fill-in when the vocal line paused, and sometimes to emphasize the rhythm of an important line. He clearly exhibited a sense of the relationship between the part he was creating and its effect within the whole song.

New Paint on the Palette

On Day 7, the children participated in a free improvisatory experience in which they explored alternate means of sound production using a variety of acoustic classroom in-

struments and the piano with its panels removed. Large group improvisations were then developed, under the direction of student conductors who indicated dynamic levels, cues, and “cutoffs” as the children played. The lesson ended with a listening experience, Henry Cowell’s “The Banshee,” as an example of how a professional composer might utilize alternate means of sound production. During this lesson, Sam seemed very excited about what we were doing, but did not say very much. It was difficult to determine what he personally was playing during the group improvisation sessions. He seemed fascinated with the Cowell recording and asked to hear it again.

Building Blocks

The next five lessons comprised an introduction to harmonic structure involving a series of performing and problem solving experiences. These experiences, which were new to these students, included performance of appropriate chords on both Autoharps and synthesizers. On Day 8, we began a lesson on the tonal center of a melody and its relationship to tonic and dominant harmonies. The students were about to try their hands at graphing the melodic structure of the song “Sarasponda,” indicating each time the melody returned to the home tone (tonic). There was some class discussion before the independent work began.

Teacher: In order to be able to find the “1” again, what do you have to do?

Someone: You have to go back to the home tone.

Teacher: How do you go back to it?

Sam (to himself): Instinct. I don’t know. I just do it! (laughs)

Someone else: You drop your voice.

Teacher: You drop your voice, but how do you know where to drop it to?

Sam (aloud to the class): You go down. [He was sliding his voice downwards as he spoke, showing how it would drop.]

Teacher: But how do you find the right note when you are dropping your voice down?

Sam: You keep it in memory! You keep it in your mind! You memorize it!

Teacher: What do you keep in your memory?

Sam: The home thing.

Teacher: You have to remember it! And what do you remember? You can’t just remember that it’s “1.” You have to remember the sound

of it. If you can’t remember the sound of the home tone, you can’t do it. To do what we’re going to do today, you have to be able to remember the sound of the home tone.

In this segment, Sam revealed not only his understanding of the concept of tonal center, but that he possessed strategies for finding it, and further that he could identify and describe those strategies. His graph of the melody revealed quite a high level of understanding of the contour and direction of the melody as well as a good sense of the locations of the tonic.

On Day 9, the students worked in small groups (each group sharing one Autoharp) to determine where tonic and dominant sonorities could be used to harmonize the song, “A Ram Sam Sam.” As they began work, a fellow group member accidentally turned off Sam’s microphone so there is no record of his process during the solution of this problem. The next day, in a follow-up interview, I asked whether he could recount how his group had proceeded.

Sam: Well, first we just kept trying “D” (the tonic chord) and see if it fit in and when it sounded wrong, we just put in “A” (the dominant). We tried “A.” So one time, they both sounded bad, so we just put what one sounded better.

Teacher: Do you remember what the part was where you weren’t sure?

Sam: The part where it’s like (sang) “A ra-fi” ‘cause we thought it was “A A” and it was “D D.”

For our work on Day 10, the children needed to transpose “A Ram Sam Sam” from D major (the key used in the previous lesson) into C major to make it easier to play the harmonic background of the song on keyboards and diatonic xylophones.

Teacher: If C is the I chord, what letter is the V chord?

There were various answers around the room, some correct, some not. Then:

Sam: It’s G! It’s so simple!

Someone else: But it’s G7 ‘cause it’s A7.

Someone else: It’s G because it’s C D E F G.

Teacher: How will you find the C chord on the keyboard?

Sam: You start on C and then you skip a note.

Sam was very confident about his ability to accompany songs with chords on the key-

Musical Example 14



Musical Example 15



Musical Example 16



board. For a non-pianist, he seemed to be quite comfortable doing so. During this class session, he showed that he could accurately accompany his own singing with the appropriate chords. He also provided help for peers who needed further instruction than that provided by the teacher. Some of this help was provided before the class performance of the song and some during. He was able to successfully keep track of the rhythmic and harmonic placement of his own chords, performing while chanting instructions to the boy who shared his keyboard when he sensed that he needed help. Sam sang the letter names of the roots of the chords for his partner whenever the partner lost his place.

Eureka!

Our study of harmonic structure was followed by a unit that dealt with with bi-thematic works. On Day 13, although Sam was absent from school, the children worked in a whole class setting to analyze a familiar song for places where the melody was the same and where it differed. The labels of "A" and "B" were then applied to a thematic analysis of the "Trepak" from *The Nutcracker*.

In the following two classes, Days 14 and 15, the children were asked to work in small groups, using any combination of acoustic and/or electronic instruments, to complete

the following assignment:

1. With a group of 4 or 5, using either acoustic or electronic instruments, compose a piece that moves in ABA Form.
2. Please be sure that the A section is exactly the same when it returns.
3. You may add an accompaniment, an introduction, a bridge or a coda.
4. Please notate your piece in any way you are able.
5. We will videotape the finished products.

Sam began the first work session at an alto metallophone working to develop a melodic motif for the piece. He did not speak as he worked alone in the initial stages. He played in succession, pausing only momentarily in between versions of the idea (see Musical Example 14 above), and then he said to the group: "Guys, we need stuff for a melody. We need to make up a melody," revealing his perception of the starting point in creating a piece with contrasting themes. He played again, a completely new idea this time (see Musical Example 15 above), and then announced: "I have something. I have something, wait!"

Mark replied: Yo, Sam! You, Matt and Michael will be the "B" part. Me and David will be the "A."

Mark's comment can be viewed as procedural, but it also implies the beginnings of a vision of the texture of the final work. Mean-

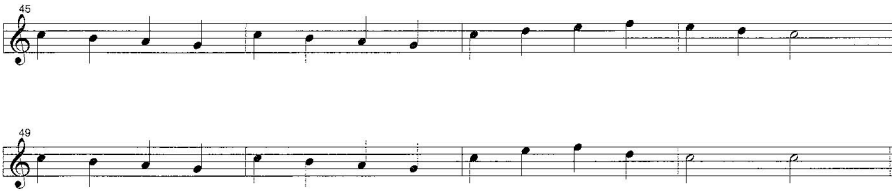
Musical Example 17



Musical Example 18



Musical Example 19



while, Sam was still at work developing his melodic motif.

(see Musical Example 16 above left)

Sam: I have an idea. Matt, listen! I have an idea.

(see Musical Example 17 above)

Michael: Well, that's for your part. Now for me and Matt . . . I know . . . "A" will be very light and then "B" will be like strong. All right?

Sam: But I have an idea for "B!"

Negotiation began. When peers work together, it becomes necessary for individuals to express, clarify and justify their ideas and to evaluate one another's ideas before they can be assimilated into a unified work. This was where Sam's group had fallen apart during the earlier composition assignment. This time, they seemed to be attending to issues related to merging ideas at a much earlier stage in their compositional process.

Michael: No, but that's a lighter thing. This is a . . . "B" will be softer. So you play down here. You too. You see . . .

Sam was playing on lower notes of the xylophone. As he played his melody with the timpanist, he instructed him to, "Keep the beat . . . a little faster. . . Wait . . . Slow down a little bit. O.K. It's fine. Go." Sam was successfully performing his melody in synchronization with Michael's drum part, something he had been unable to do with Kenny on

Day 2. Further, in the earlier attempt both boys were playing the same rhythm pattern and were unable to get them to coincide. In this later work, the two parts had different rhythm patterns, although the drummer was basically keeping a steady beat.

Sam: We did it! We did our part. Now you do your part.

David: We need to make up something.

Michael: Wait a minute, Sam. I might be drowning you out too much. I might have to play a little softer.

They had already established what would eventually be the "B" section of the final work. Note that even at these early stages, Michael was concerned with balance and its importance in ensemble performance. They practiced a bit longer. Then Sam set out to develop a motif for the "A" section.

(see Musical Example 18 above)

Sam: "I got an idea! I got an idea! Wait . . ."

(see Musical Example 19 above)

In this segment, Sam seemed to be seeking on the xylophone the pitches he could hear in his head. He played the first two pitches, paused, then the next three, paused again, but once he found the tonic, he proceeded to perform, with no hesitation, the entire melody in a form very close to the way in which it appeared in the final product (See Appendix-Sam's Group's ABA Piece). Once he had established the melody, he immediately taught Matt to play it.

Musical Example 22

Sam: Yeah. We'll go up. It sounds different. It goes (plays a few notes of theme)

Matt: Two down (that is, two phrases or chunks descending from C)

Sam: And then one up (one phrase or chunk ascending from C)

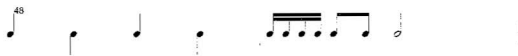
Matt: And then one up.

Sam: And then go back down.

Matt: Yeah. And that's our "A" part.

The group then discussed which part should come first. In this first 20 minutes of work, Sam had developed two themes for his group's piece, practiced one of the themes with an accompanying percussion part, taught the new theme to a peer, and begun to establish the overall plan for the work. At this point, one group member said to Michael, the timpanist,

"You are the background. Make an introduction." Michael began to play:

Musical Example 20

Matt did not think it would fit with what they had done so far.

Michael tried:

Musical Example 21

Matt: Yeah! Now, you just do that three times and then me and David will start.

Sam: No. It's usually four (times).

This comment reflects Sam's familiarity with the symmetry often found in western music. At this point, the boys informed me that they had their idea, but that they had not tried it out as yet or written it down. In their comments to me, they implied that they possessed a plan of how the individual ideas would eventually fit together, even though they had not as yet attempted to assemble all the parts. The boys then began to practice

the piece according to their plan, pausing occasionally to criticize one another's performances, attending most frequently to problems in balance, tempo and simultaneity.

I stopped the class momentarily to indicate that the period was ending and that they ought to make note of what they had done, if they had not done so already. Remembering his earlier experience of "forgetting" what he had made up, Sam insisted that he needed to write down his melody. He played the first phrase and began to write down the letter names of the pitches. He sang the pitches as he wrote. Then there was silence. He wrote the remainder of the letter names from memory without playing or singing them. The ability to do this is an indicator of the extent of his internalization of the structure of his melodic idea (See Appendix-Sam's ABA Piece Notes).

On Day 15, nearly a week later, they continued their work. Before they even took their instruments from the shelf, Sam mentioned to Matt, regarding his cabasa part, "Matt, at the end of the coda . . . it fades out. You have to fade out. It's hard to fade out with that thing (the cabasa), but try." His concern shows the extent of his vision of the final product. He had already conceived of how he wanted the ending to sound, and he was anticipating balance problems that might arise because of the nature of the cabasa. As soon as they retrieved their instruments, each of the group members immediately began to play the part he had created during the previous class. No one asked me for the copy of the written version they had made. This time, there was no problem remembering what they had done because of the extent to which it had been planned during the previous class session. They did not converse at first. Instead they practiced independently, each assuring himself that he had remem-

bered what he had done the week before.

Sam was playing an alto xylophone this week (see Musical Example 22 above left). He stopped abruptly in the middle of his performance (indicated here by the rest in measure 2) and said to the drummer, "What do you do? What do you do? Do it." Michael played his part as Sam listened. He needed to be reminded of how his motif would fit with his peer's. Sam then played his "B" theme and returned to the "A" theme. Suddenly, the group decided that time had come to assemble the pieces and try the whole work.

Matt: We're the "A" part. O.K.? Yo guys! (The call to order)

Sam: Guys! Let's do our *whole* thing. Our *whole* thing. Mike!

Matt: Try the ending of your "A" part.

Sam: I know . . . What beat? [I believe he means tempo.] Mike! We have to listen to the whole thing. Go!

Michael and Matt began the drum and cabasa introduction. Sam was immediately concerned with balance. As he had anticipated, the cabasa proved to be a problem.

Sam: You have to do it quietly so you can hear us play. Go.

Michael: Matt. Matt, come in softer. Ready?

Sam: Ready go. Go.

They continued to practice. At one point during the practice session, Sam told David and Mark, who were playing the "A" theme, that they were rushing. Through demonstration, he showed them how to fit their melody into the tempo in which he had been playing the "B" theme. Evident here is his sense of both metric organization and tempo. At one point during their practice session, Sam realized that the drummer was still not playing in the same tempo as the two xylophone players who were responsible for the "A" theme. He told the drummer to, "Slow down!" and then when he performed his own "B" theme, he used exaggerated motions as if to model for the others how to stay with the tempo of the drum beat. I was aware of the ways in which he used his body to regulate the tempo of the performance, because the group members had asked me to be an audience for this particular run-through.

On Days 16, 17 and 18, the final products were shared with classmates, videotaped,

and then shared with all of the children on the grade level. From their evaluative comments made regarding one another's work, and their voiced approval of particularly successful pieces, the children exhibited a keen understanding of the elements and problems involved in this particular assignment. After a rather unsuccessful performance by one of the groups in his class, Sam commented, "All they did was just spend their time fooling around on their instruments. We organized it and *then* fooled around. We're smart!" The comment reflects his understanding of the necessity for organization in producing a successful work.

In the culminating lesson in this unit, Day 19, the children were asked to work independently to apply what they had learned to analyze the form of Bizet's "Farandole." As we analyzed the form, Sam exhibited his understanding of various structural elements of the work, as is evident from the following vignette.

Students often mistake the second presentation of the "A" theme in this piece for the "B" section. This is probably because the orchestration and tessitura both change and the theme is played in canon. The teacher attempted to clarify:

Teacher: Now . . . what I would like you to do please is to listen to number 2 and see if you can figure out why some people are unsure. There is something unusual about the "A" theme in box number 2. . . that makes a lot of people not know it is "A." Do you know what it is?

Sam: It's the same thing but it's in a different . . . pitch. (I believe he was trying to describe the difference in tessitura.)

Teacher: Is it a different pitch?

Someone: It's a different sound.

Teacher: It is a different sound.

Someone: A different chord.

Someone else: A different instrument.

Teacher: It's not a different chord. It *is* different instruments, but that's not what confuses people.

Sam: It's the same notes. (Because of his next statement, I believe he meant the same melody, and therefore it was still the "A" theme, which is what he had written on his own chart.)

Teacher: It is the same notes.

Sam: And that's how I knew . . . it was "A."

This statement indicates his understanding of

Musical Example 23

the criteria for the identification of an “A” theme.

Matt: It was higher and lower.

Kenny: It's octaves!

Teacher: Very good! There is a place that's in octaves, but there's something else that you haven't found yet.

Later, after we had listened to the whole work several times trying to get the complete formal structure on paper, I had asked whether or not anyone knew at this point what had happened in box number 2. Sam announced, “It's a round! There's a round!”

On Day 20, we continued our analysis of “Farandole,” expanding beyond our formal analysis. The children were asked to work in small groups to develop a list of any additional characteristics they could detect in the various sections of the piece. Sam made comments to his group regarding tempo, dynamics, orchestration, melodic direction, range, and repetition of thematic material.

Working with the Tools of the Trade

The next unit of lessons took what the children had learned about harmonic structure, thematic development, repetition and contrast and form and applied these ideas to a study of the blues. Activities included listening to, performing and improvising blues songs over a standard blues progression, as well as improvising blues solos using chord tones and “blue notes” (using resonator bells). The harmonic background was established by students using both keyboards and xylophones.

On Day 23, the children in the class used what they had learned about tonic, dominant and sub-dominant sonorities to identify the chords in the blues progression played by

the teacher on the piano. They then performed the chords and bass line of the progression while teams of two students improvised melodic solos on resonator bells arranged in patterns of chord tones, as they had done earlier in the semester using a different chord progression. During the lesson on Day 24, the students learned a blues song, “The Joe Turner Blues,” and performed it in the manner employed in the previous class, with different students responsible for chords, the bass line, the drum part and improvised solos embellishing the song. Sam and Mark teamed for one of the improvised solos. (See Musical Example 23 above)

The complexity of this performance is a clear indicator of the extent to which the two boys were able to conceive spontaneously of and plan out the structural aspects of a musical event. It is a strong indicator of the extent of the development of Sam's understanding of the melodic, harmonic, rhythmic, formal structure and stylistic characteristics of a musical work. It also exhibits the boys' ability to plan spontaneously in relationship to one another's ideas with a seeming awareness of the overall effect of the whole musical idea they were producing. The activity required that they listen as the chord progression was played, anticipate when they were supposed to play, and perform their own melodic ideas in the appropriate places.

During the lesson on Day 25, the class members worked briefly with peers to create their own blues lyrics, which would then be performed by the whole class. As his group worked to develop their lyrics, it was Sam who kept track of whether or not the number of beats per line would fit with the 12-

During the last four class sessions of the data collection period, the students worked in small groups, each group responsible for developing one variation of the melody of

This was to be followed by each of the three playing his allotted portion of "America." They performed it, following Sam's instructions, as he explained his idea. He suggested that they might also end with the same drum rhythm. Sam told the group that he wanted the introductory drum pattern to go from softer to louder and the final statement to go from louder to softer. Within moments of the beginning of the planning session, he had conceived of an entire structural plan for the group's variation, including a plan for changes in dynamic levels. (He did not, however, realize that the melody moves in threes; his drum part moves in twos.) After some negotiation about the dynamic level of the drum part (Mark wanted to have a loud finish to the section), Sam stated that he would play his rhythm pattern twice through for the introduction, gradually getting louder as he did, and he then agreed to play it only once at the end, with a decrescendo, to be followed by one loud crash on the drum, after which Mark wanted to hit the gong loudly. Eventually, after trying their arrangement, Sam said that he had originally meant that their individual performances of the melodic phrases should be followed by all three playing their respective phrases at the same time, in a polyphonic texture. After only about 10 or 15 minutes of work, the group talked about the fact that they had finished the project and were ready to play it for the class. Sam seemed to have conceived of the

entire plan in his mind before actually hearing it. The group, after some disagreement and negotiation, eventually used his idea as he had conceived it, with one alteration. The other boys wanted the drum part to function as a bridge section as well, placed between the initial statements of the melodic phrases and the polyphonic section. There was no “wasted” time in this work session. The work was constant and intense, and there was far more playing than discussion.

Day 30 began with some time allotted to those groups who had not finished their planning in the previous class. Sam had brought in his brother’s electronic drum and was manually performing last week’s rhythmic motif on the drum pads in order to determine which timbres he would use. He remembered the rhythm pattern accurately from his first attempt of the day. The boys, recognizing that they were essentially finished with the planning of the variation, spent the bulk of the planning time experimenting with the timbres of the drum machine and practicing their individual parts of the melody line on their xylophones. During their last run-through before sharing with the class, Sam advised the others, “Don’t stop when you mess up,” exhibiting his understanding of the role time plays in ensemble performance.

We then listened to one another’s variations to characterize what each group had done and to make some decisions as to how the variations should be assembled into the larger work. We would eventually tape record the larger work and share with the other classes on the grade level. As he listened to the other groups’ work, Sam was already planning what the larger assembled work would sound like. He thought it would be “awesome” if at the end of the whole work, everyone sang, “Let freedom ring,” and then someone crashed the cymbals, so that they would ring.

On Day 31, they performed and recorded the final product. Sam had forgotten to bring the electronic drum from home. The group spent some time trying various acoustic drums to determine what would best be able to take its place. In the final arrangement, Sam opted to be one of the players who per-

formed the opening theme on a keyboard and then joined his group for their variation for drums and xylophone.

Findings

We have witnessed Sam’s journey from the unsuccessful first project, through the web of classroom experiences, to the point where he was able to envision a wide spectrum of possibilities, consider the merits of each and successfully carry out the avenue he chose to pursue. One important issue in this developmental process seemed to be a growth in the ability to conceive of and carry out ideas in relation to other ideas, be they one’s own or someone else’s. Growth in this area was evident in both Sam’s compositional and improvisatory work.

While Sam’s initial comments during the first composition project represent a rather simplistic level of structural understanding, even at these early stages it is evident that he was concerned with the need for an overall plan, variety in timbre and the need for some kind of organizational “beat” or rhythm that would produce some form of simultaneity. He seemed to possess an image of how he thought the final work should sound. He had no trouble inventing thematic material for the piece, but was unsuccessful in placing his themes into a larger design. The analysis of this particular segment illustrates the importance of looking at process in addition to product. In this case, the children’s final product (the story with sound effects) did not in any way reflect the musical interactions that had occurred or the musical decisions made by the children during the two previous work sessions.

At the midpoint of the study, in his work on the ternary piece, Sam demonstrated a high level of skill at developing thematic material and placing those themes into a larger plan. This was probably in part because, in this assignment, the plan was the given information. His group, however, exercised the option of using additional sections (introduction, bridge and coda) and rather quickly developed one of the more complex final products of those produced by the members of the class. In their practice sessions, Sam showed concern for balance, tempo and si-

multaneity, and functioned as a strong group leader in his efforts to be certain that attention was given to these elements. Much of Sam's planning for this piece was mental planning, carried out *before* he performed his ideas. The complexity of his spontaneous blues improvisation was a further indication of the growth in his ability to conceive of and carry out musical ideas in relation to ideas of others. Sam's ability to conceptualize plans before and during performance is indicative of the holistic nature of his conception of musical ideas, a conception that includes a diversity of musical elements with a rather sophisticated understanding of how those elements will function together in the musical product.

In the final lessons of the study period, Sam's work on his variation reflected the depth of his ability to sense possibilities, to construct them and carry them out. He considered altering the rhythm of the theme by sustaining some of the pitches, playing it in retrograde, adding chords, altering the timbre, experimenting with monophonic and polyphonic settings, and eventually adding an introduction, bridge and coda. The plan eventually used by the group was Sam's, an idea conceived before any performance took place. As the boys worked on this project over three class sessions, they never forgot any part of their plan, although none of it was written down. The extent to which the boys internalized their ideas is indicative of the breadth of their understanding of the musical ideas.

Sam and his peers learned through their earlier experiences that developing thematic material was not enough; they needed a greater plan in order to organize those ideas into a unified work. In the early project, motifs were discarded as "bad" ideas when the children had difficulty combining them. During the ternary project, they concerned themselves with issues related to merging ideas at a much earlier stage in their compositional process. As they worked on both the ternary piece and the variations project, motivic material was developed quickly, remembered easily, and expertly woven into the larger work. The children's experiences in the five months of classroom lessons seemed to enable them to make better use of their ideas.

The ability to organize ideas in relation to those of fellow group members represents a growth in the understanding of structural relationships in music and therefore, in the ability to function as a musician. As his teacher, I was pleased to see that interpretation of these data provided evidence that Sam was moving along a continuum towards musical independence by developing an increasingly more complex understanding of the structural interrelationships found in music and by improving his proficiency in performance, composition, improvisation, listening and evaluating, reflecting the curriculum goals I had set for these fifth graders.

Some of the key findings of the original study are also visible in this "story," among them those that characterize the holistic nature of the children's compositional strategies. The children most often seemed to proceed with some sort of preconceived image of what the final work would be. They most often conceived of rhythmic and melodic motifs independently from the group and then shared these ideas with the group. These motifs were always performed in "chunks" and quite often also appeared relatively unchanged in the final work. In the later projects, some of the children engaged in quite extensive development of their original ideas, but the initial statements were still complete ideas and not fragmentary in nature (Wiggins, 1994). These data that comprise Sam's "story" also reflect many instances where peers explained or clarified ideas for one another or coached one another as they worked. The importance of opportunities for peer interaction in the learning process figured prominently in the larger study as well.

Enculturation is also a contributing element to Sam's decision-making process. His life experience with music is reflected in his beliefs about what is important in a musical work. He approached compositional projects with a vision of a product in which various motifs fit together with some kind of simultaneity, where some ideas are main ideas and others are "the background," where "your music has to go with our music" in its style, metric organization, tempo, balance and appropriateness in producing the desired effect of the work. His cultural and school experi-

ence is also reflected in his understanding of the structural aspects of a poem and of the relationship between text and musical setting of that text, in terms of number of beats per line, metric organization and norms generally followed in the setting of verses. As Sam merged what he learned from his school experiences with what he brought to class from his life experiences, his structural understanding of musical ideas became more and more complete.

Implications for Practice

One of the most important findings of both this and the original study dealt with the children's apparent holistic conception of musical ideas. In practice, this would imply that lessons ought to be based on whole pieces of music and not on discrete ideas, that material should be presented within a musical context, and that lessons should be designed to flow from whole to part. It would seem that a molecular, bottom-up approach that emphasizes discrete skills might be in conflict with the children's natural conception of music. In addition, the children seemed best able to reveal the nature and extent of their understanding during problem solving activities, particularly during compositional and improvisational activities. It would be difficult to study children's musical learning processes without the windows provided by problem solving situations, both for research purposes and for assessment of understanding in the context of the normal teaching/learning setting. The kinds of information gleaned from these data speak to the importance of including such activities in the music curriculum.

Working as a teacher-researcher, analyzing one student's performing, creating and listening experiences in my own music classroom, has helped me to develop a lens through which I can better understand what it is to learn in my classroom from a students' perspective. Coming to understand Sam's learning processes has helped me to know what other students may require when they are involved in similar circumstances. I have become more sensitive to the kinds of comments that reveal the extent of students' structural understanding. When participants

in small group composition projects ask for help, I know more about the strategies of successful problem solvers and am better equipped to offer advice. For example, when students tell me they have no ideas, I need to ask them about the ideas they began developing and then discarded, and to investigate why they chose to eliminate them. What I have learned from observing Sam and his friends at work has improved my overall effectiveness in the classroom.

The extent and nature of what can be learned from long-term study of musical learning processes as they occur in a natural setting points to the importance of continuing to conduct studies of this nature. As a profession, we must begin to look at more than discrete activities in a laboratory setting in order to develop effective music education practice. The techniques used to interpret the data in this study are more formalized versions of techniques I use regularly in my classroom as a means of assessing student understanding. As students participate in musical problem-solving situations, I listen carefully to their verbal and musical statements looking for clues about the extent of their understanding of the ideas and material with which we are dealing. As a teacher, I make moment-to-moment adjustments in my instructional strategies in response to what I am able to learn about the students' perspective at any given time during a lesson. On a broader level, the lessons taught during this five-month period were developed in an ongoing fashion throughout that period reflecting to my continuous evaluation of the children's perspective and needs. Research of this nature is merely an extension of what teachers generally do in the teaching/learning situations of a classroom. It would be quite beneficial for our profession to have more instances of teacher-research emanating from real teaching/learning situations, conducted in actual classroom settings.

Notes

1. Please note, however, that most of the emergent trends regarding Sam's development have also been noted for Lynn. Details and discussions of these similarities can be

found elsewhere (Wiggins, 1992,1994).

2. In this classroom, improvisation is defined as spontaneous performance of original musical ideas, occurring within the context of a real time performance where the performance is planned during its execution. Composition is considered to be preplanned performance of original musical ideas that have been planned to the extent that it possible for the performance to be repeated upon request.


3. Small group composition projects occurred three times during the data collection period: on Days 2-3, 13-15 and 27-31. Because these activities proved to be the most revealing of Sam's structural understanding, their occurrence at the outset, midpoint and end of the study time period contributes to their significance as being representative of Sam's growth in understanding.

4. The equipment in this classroom included: four professional-calibre multi-timbral keyboards (used for live performance only – MIDI was not generally employed), one drum synthesizer with built-in sequencing capabilities, a large and varied assortment of pitched and non-pitched classroom percussion instruments, a stereo system and a piano.

5. In my experience composing with children and watching children compose in a classroom setting for more than twenty years, I have learned that children who have "everything all worked out" rarely forget what they have done. Students remember long and complicated works and perform them weeks, sometimes even months, later without written records of their plan. When the students do make written records of their work at my request, they rarely consult them. When asked how they can remember their ideas, students generally reply with phrases such as: "We just know what we did!" or "Cause we know it!"

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Appendix

Sam's ABA Piece:

Sam's notes made at the end of the first work session

c d e f dec
c d e f dec
ce df
e dc

c d e f dec
c d e f dec
ce df
edc

drums / coda
intro
ta te te te
~~the~~ melody
ta te te

Song
intro A B A B coda

Appendix
Sam's Group's ABA Piece:

The musical score is for a piece titled "Sam's Group's ABA Piece". It is written for three percussion instruments: Xylophones, Timpani, and Cabasa. The score is organized into systems, each containing staves for the three instruments. The key signature is one sharp (F#), and the time signature is 4/4. The score includes measures 1 through 29. The Xylophone part features a melodic line with various rhythmic patterns, including eighth and sixteenth notes. The Timpani part provides a steady rhythmic accompaniment with eighth and sixteenth notes. The Cabasa part adds a textured, percussive element with eighth and sixteenth notes. The score is divided into sections by measure numbers: 1-8, 9-16, 17-20, 21-24, 25-28, 29-32, and 33-36. The final measure is a double bar line.