

Brief Descriptions of Process Styles: How Twelve Children Went About Composing

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Abstract

This paper is a discussion of different compositional process styles observed in twelve children. The children each composed six recorder pieces as part of a larger study (Smith, 2004). Based on coding and analysis of process data recorded on videotape as the children worked, three process styles of composing are proposed. The auditory process style distinguishes itself by the absence of writing and reliance on the ear and the instrument to create the piece. The visual process style consists of great amounts of writing and very little experimenting or developing. In the kinesthetic process style of composing, the students composed on their recorders first, but then wrote things down to remind themselves of what to play. The results of this study suggest that the kinesthetic compositional process style led to pieces of higher musicality.

Introduction

Several music education researchers have studied the processes used by children as they create compositions (Bonta, 1990; Carlin-Freed, 1996; Hoffman, Hedden and Mims, 1991; Kratus, 1989; Levi, 1991; Wiggins, 1998). The process categories that these researchers created provide some suggestions for analyzing the time-use process data of children in other studies. The researchers used terms such as exploration, development, repetition and silence (Kratus, 1989); exploration, focus, rehearsal, composing, writing, and editing (Levi, 1991); and initial planning, initiation and

development, reassembly, and practice (Wiggins, 1998). They did not seek patterns of time use among their participants, but instead labeled how the time was used. However, Kratus (1989) observed that nine- and eleven-year-olds did much less exploring and spent more time on development and repetition than did seven-year-olds. These older subjects tended to begin by exploring, proceed to development, and finally spent time in repetition. In a related study, Kratus (1991) had judges rate the compositions from the 1989 study for craftsmanship and replication. He found that the composers of higher scoring pieces spent less time in exploration and employed more compositional strategies such as using rhythmic variants and repeating the work-in-progress from the beginning at various times as they worked.

Smith and Younker (1996) conducted a study of four subjects: two adults (an expert and a novice) and two teenage composers (also an expert and a novice). Their subjects were asked to talk aloud while creating a 14-measure piece that began in C major, modulated to A minor and modulated back to C major. They also provided their subjects with a specified set of rhythms to use. As a result of this study, they proposed a model of the musical thought processes composers use. They suggested that composers either began with tactile, visual, or aural input and that different people began at different places. Tactile persons began by playing something, visual ones by thinking things through theoretically or by examining the given

structure of the problem, and aural ones by thinking, imagining sounds and humming softly to themselves. Visual input also included looking at a keyboard and at the notated rhythms provided in the task. Aural input included the task instructions, sounds the participant played on an instrument or hummed and possibly imagined sounds in the composer's head. Tactile input was described as "keyboard kinesthesia." They did not apply these terms to the entire process their composers used, but only to the type of input.

Purpose

The purpose of this study was to examine the time use among the participants and determine if there were patterns that could be considered "process styles" of composing. Secondly, the research sought to determine whether or not the participants' use of time appeared to affect the musicality of the resulting compositions. The specific research questions were: (a) What evidence is there of compositional process styles among these children? and (b) How did any apparent process styles effect compositional musicality?

Method

The participants for this study were recorder students who had completed the fourth grade. The researcher had taught the students in a recorder class that met twice each week during the school day for 35 minutes for a full school year. In addition, the children had a singing-based general music program twice a week for 30 minutes also taught by the researcher. These classes also included listening activities, movement activities and other typical classroom music curricula, but no improvising or composition activities. The composing sessions for this study took place in the music classroom during summer vacation and at other times when school was not in session. This study

was situated in the context of a school, but was not conducted as part of the regular classes. Thus, the sessions were an out-of-school activity (Folkestad, 1998), but in a familiar environment in the presence of a familiar adult.

All students who could play the C, D, F, G, d natural minor, and e natural minor scales (which were taught and assessed as part of the classes) and who had completed one recorder method book (Burakoff, 1995) and portions of another (Nash, 1973) had a sufficient level of mastery of the recorder and were considered for possible inclusion in this study. There were 33 in the fourth-grade recorder class. The names of all children who qualified (i.e., 22) were placed in a box, and 12 participants were chosen by random drawing. The 12 students who participated ranged in age from 9 years and 11 months to 10 years and 8 months. The average age was 10 years and 3 months. There were four boys and eight girls.

Each participant, working alone (with the researcher in the classroom but ostensibly engaged in other work), completed six recorder compositions. There were different directions given for each compositional task, but all included these statements: "Take as much time as you want and make it as long or short as you would like and using whatever notes you want. Don't worry about writing it down, but if you want to make a few notes to help you remember it or to write down anything else you need to, go ahead." Pencils, unlined paper, lined paper, and staff paper were easily available in the room and the children were accustomed to helping themselves to these tools in music classes.

The participants completed one composition at each of six individual sessions. When the child indicated that the piece was completed, an audio tape recording of the piece was made. All composing sessions were videotaped. The

children knew of this. They were accustomed to being routinely videotaped in music classes and other settings in their school and generally ignored the camera.

Immediately following each composing session the participants were asked to view the videotape of their composing process for that piece and to “talk to me about what you were doing and anything you remember thinking as you were working.” Specific questions were asked for clarification. The children were told ahead of time that they would watch the videotape after they finished and comment on what they saw. This technique is known as stimulated recall and is based on work by Gass and Mackey (2000). It assumes that people can have access to their internal thought processes at some level and can verbalize those thoughts when recalling them while watching a videotape of their actions.

Any technique employed in research has its limits of scope and of power. This technique is limited by the children’s ability to remember what they were thinking and by their ability to verbalize their thoughts. However, in this study, it did provide valuable information about what the participants were thinking and doing as they made up their compositions. The data collected were carefully elicited from the participants, and the researcher attempted to ask only open-ended questions and questions to clarify what the child said. Typical questions included, “What were you thinking about?” and “What are you doing there?” A conscious effort was made not to suggest answers or “lead” the participants. Responses to what the children said were also consciously limited to the “uh-huh” and “okay” variety unless clarification of a vague comment was needed. Their comments as they watched themselves on videotape were recorded and later transcribed for further analysis.

The researcher then created a score of the piece for the child to take home (and for her records). This was done using a computer and a notation program. It was based on the audio recording of each piece that was made when the child said the piece was finished. The child’s comments as the transcription proceeded also helped creating the score.

Finally, the 72 tapes were subjected to a structured Q sorting process to determine a rank order of compositional musicality. Four music educators who had taught recorder to children and who played recorder themselves performed this sorting. Two were college faculty and two were public school teachers. One of the college faculty members was also a published composer. It was left to the four judges to determine their own definition of musicality, but the directions suggested that they consider craftsmanship, originality, imagination, and idiomatic recorder sound.

Each judge began by selecting a tape at random from the box and listening to it. The judge then placed it in one of three boxes provided by the researcher. These boxes were labeled “more musical,” “musical” and “less musical.” The judges proceeded the same way with another tape until all 72 tapes had been heard and assigned to a box. They were then directed to put the materials aside for at least 24 hours. At the next session each box was sorted into three more stacks for “more musical,” “musical,” and “less musical” within each of the three boxes from the previous session. This resulted in nine stacks of tapes. These stacks were placed in labeled paper bags and the judges were again asked to put them away for at least 24 hours. During the final session each judge rank ordered the contents of each bag. They were allowed to move tapes from one stack to another in order to create what they felt was a precise rank ordering of items. This sorting

procedure eliminates the possibility of tied scores from a judge, but it also forces the judge to make choices and rank order each piece. The averages of the four judges' scores were computed for each piece and the result was used as a measure of compositional musicality (see Smith, 2004 for further details).

Data Analysis

The videotapes of each child composing each piece were analyzed and coded based on time use. This began at the time on the videotape when the researcher finished giving the child the directions for the task and concluded when the child announced that the piece was completed. The coding identified segments of experimentation, writing, developing, silence, additive repetition, practicing, and other. These categories were derived initially from other compositional process studies (Kratz, 1989; Levi, 1991; Wiggins, 1998), but the definitions evolved and categories were added as sections of the data were coded. The final pass at the data analysis used these definitions.

Experimenting meant seeking ideas by playing. *Writing* included writing anything and erasing. *Developing* was playing the same material repeatedly while making changes to the musical material. It also included playing materials that had just been written down. *Silence* included fingering and silent singing or saying of letter names as well as silence. *Additive repetition* meant playing the piece from the beginning and adding new material. It was a cross between developing and practicing and included both. *Practicing* was reserved for practicing the entire piece once it was completed, or for practicing a fragment or section for technical accuracy without making deliberate changes. *Other* included things like reading poems, asking questions of the

researcher, getting materials, and getting a drink of water.

The researcher coded all 72 videotapes by analyzing the use of time at 15-second intervals. Every 15-second segment was assigned one of the above categories. Additionally, another experienced music education researcher who taught research classes at a metropolitan university coded 12 tapes—which included at least one tape from each of the types of tasks. Those process codings were compared to the researcher's codings. The two sets of process codings were found to be in agreement 88% of the time (number of codings with agreement, $n = 778$ divided by the total number of codings, $N = 882$). Through this process of analysis triangulation, it was decided that the researcher's coding was reliable enough to do the rest of the tapes independently. This coding of time use supported the compositional process styles described below.

Process Styles of Composing

Tentative style categories emerged from the analysis of the data based on time spent on the various processes. The input terms used by Smith and Younker (1991) were adopted as labels, but in this study they went beyond the input stage of composition and were used to describe the ways these children went about composing their pieces throughout the process. *Auditory style* can be described as playing, humming or singing to create a piece without creating any written notation as the children worked. *Visual style* is writing to compose before they play their notations. *Kinesthetic style* is playing the recorder and then writing down what was played. This is hereafter referred to as kinesthetic style, rather than tactile, because it was felt that this style involves more than the touch of the instrument, but also the "memories" of familiar patterns and

ways of playing that reside in the muscles of the performer. For 10 of the 12 children these styles were evident and consistent across all their pieces. The other two used different styles of composing for different pieces, but were consistent within a specific piece.

Auditory Composing Style: The Absence of Writing

The first of these styles applied to only one child among the 12, Amy (all names are pseudonyms). She was academically a slightly above average student and her fourth grade Intermediate Measures of Music Audiation (IMMA) composite score was at the 80th percentile. Amy composed all of her pieces only by playing her recorder. Table 1 shows how Amy used her time in all six of her pieces. Notice that she spent no time writing. She was the only child for whom that was true. The other children all chose to use notation of one sort or another. By contrast, most of the other children spent approximately one quarter of their time writing something down.

Amy spent proportionally more time practicing her pieces than the other children. She averaged one third of the time she worked on each piece in practice (Table 1).

The average amount of time spent practicing for the entire group was 19%. Amy also spent more time developing her pieces. She spent an average of 23% of her time developing. The average amount of time for the whole group was 16%. Recall that additive repetition was defined as a combination of development and practice. Amy’s average time in additive repetition is 22%, which is nearly twice the group average of 12%. This combination of one third of the time practicing, nearly a half in development and additive repetition and the lack of any use of notation suggested an auditory compositional process style.

However, all of the children employ auditory aspects in their work to some extent. None of these proposed compositional process styles should be regarded as mutually exclusive. The children all spent time playing. This meant they were experimenting, developing, practicing or engaged in some combination of these processes. Based on informal observations in the researcher’s classroom, it did not appear that Amy was an aberration, even though she was the only child in this study who took a solely auditory approach to her work. Further research would be needed to confirm this process style.

Table 1
Auditory Compositional Process Style: Amy’s Percentages of Time on Task

Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	13:39	4	0	13	7	33	29	14
2	14:34	5	0	24	10	28	33	0
3	20:54	6	0	32	8	29	25	0
4	9:51	11	0	14	11	6	34	23
5	35:44	4	0	22	9	17	49	0
6	13:27	13	0	30	7	15	35	0

Note. Exp. = experimentation, Writ. = writing, Dev. = developing.

Visual Compositional Style: Writing to Compose

The visual style of composing can be seen in the work of Arlene, Hannah, Paul, and Kevin. All four of these students are average students academically. Hannah's IMMA score was quite low (40th percentile) while Kevin and Paul's were quite high (85th and 80th percentile respectively). These children read notation relatively well, but it could be questioned whether they had the audiation skills to hear what they were writing. However, they insisted that they did know what it sounded like as they wrote. Kevin, Paul, and Arlene all have Iowa Tests of Music Literacy composite scores that suggested support for their ability to use notation. They scored in the 93rd, 99th and 87th percentiles respectively. Hannah's score did not (48th percentile) suggest that. Here is Hannah commenting on how she knew what she was writing down (R = Researcher):

R: So when you started writing, how did you know what to write down?

H: Um, as I said, I, um, I always listen to um, CD's.

R: Mm-hm.

H: Like I took out my recorder cause it's so cool I think, I think I should play along with it, I mean.

R: Mm-hm. And do you?

H: I do.

R: Uh-huh.

R: Okay, so you knew what it sounded like as you were writing it down?

H: Yes, I did.

The visual style consisted of great amounts of writing and very little experimenting or developing.

Notice that piece 4 is the one Hannah spent the least time writing (Table 2). This was a piece where the children were setting a poem. This could partially explain why she

spent more time developing, exploring and in additive repetition than she did with any of her other pieces. She needed to match what she wrote to the lyrics. Also, in this piece only, she tended to play first and then write, which is more like the kinesthetic style of composing described later.

Hannah spent less time overall on her pieces than did her classmates. Although several of the children created one or more of their pieces in less than 10 minutes, all of Hannah's pieces were created and practiced within this time frame.

Arlene. Arlene spent as much as 70% of her time writing and very little time doing anything else (Table 2). No one else spent that proportion of time on any single process. In the interview, she talked about her composing process.

R: Now are you writing something else there or are you still writing down what you were playing at the beginning?

A: I'm still writing down. And I'm just, I'm just putting down little, I'm just putting down notes.

R: Uh-huh.

A: And then after that, I played and if it doesn't match, I do it again.

R: Mm, hm.

A: Mm, hm.

R: So you write something down and you write something else and if it doesn't match, you do something else?

A: Yeah, and I just, I just sing it in my head.

R: Uh-huh.

A: Yeah.

R: Why do you sing it in your head instead of playing it on recorder?

A: (giggle) Cause I, um, then if I make a mistake, like I think of the notes first and I match it with the ones, um, on the paper.

R: Uh-huh.

A: The things I did before and, um, and then I match it and if it doesn't match, I

um, I think of something else. So then, if it's my final thing, I put it on the paper.

Table 2
Visual Compositional Process Style: Percentages of Time on Task

Hannah's Percentages								
Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	6:55	11	36	0	7	0	18	28
2	6:15	0	64	0	8	0	24	4
3	7:02	0	43	0	5	0	35	17
4	9:20	11	31	11	3	19	14	11
5	4:00	0	50	6	6	0	13	25
6	7:31	10	40	10	3	0	27	10
Arlene's Percentages								
Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	47:00	3	42	0	50	2	2	2
2	10:00	0	45	30	12	0	12	0
3	9:30	0	16	8	32	8	34	2
4	8:52	3	54	9	20	0	3	11
5	18:15	0	70	7	20	0	1	1
6	4:08	0	50	13	6	0	25	6
Paul's Percentages								
Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	33:45	6	46	18	3	8	16	3
2	30:45	2	23	35	17	11	10	2
3	31:32	10	27	16	20	2	18	7
4	31:38	5	32	13	19	13	7	11
5	41:52	3	32	9	20	7	26	2
6	12:27	2	50	6	8	22	10	2
Kevin's Percentages								
Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	16:42	0	52	9	12	4	18	4
2	16:43	3	27	12	6	12	28	12
3	21:04	0	40	2	18	30	7	2
3	30:06	8	26	25	15	16	3	8
5	19:56	6	26	15	5	25	13	9
6	18:54	7	27	23	1	27	5	11

Paul. Paul's processes showed considerably more time in development than the two girls above did. With the exception of Karen, who spent over an hour on one of her pieces, Paul spent longer time working on his pieces than anyone else. His average time on the task was half an hour. He consistently spent more time writing than in any other category of process style except with his second piece (Table 2). There he spent about 10% more time in development than in writing.

Kevin. Among the writing style composers, Kevin's pieces seemed to be of higher musicality. One reason his pieces might have been better than the others in this style of composing was that he spent more time combining development and additive repetition than the others in this classification (see Table 2). Both Paul and Kevin had quite high IMMA and ITML scores, but Kevin's pieces were ranked much higher. This will be discussed further in the section below on compositional quality.

Again, these styles of composing were not mutually exclusive. Most of the students might have employed these various styles at different points as they worked. Surely some of the students in the next category (kinesthetic) spent time where they wrote first and then played. Some of the students in the visual style discussed earlier occasionally appeared to play things and then wrote them down. Nonetheless, for these four students, the process style of writing first and then playing what they had written led them to spend more time in writing and less time exploring, developing and using additive repetition. It most clearly represented their approach to composing.

Kinesthetic Style: Playing to Compose

The third style of composing was employed by Sarah, Gretchen, Cindy, Linda, and Chuck. Sarah was the most

academically capable of the participants. Gretchen and Cindy were somewhat above average academically. Chuck and Linda might be considered more average. All scored quite well on the ITML as might be expected for students with a year of instrumental music instruction. However, the IMMA scores range from Sarah's 50th percentile to Cindy and Chuck's 80th percentile.

These students used a playing-to-compose style. This might be considered a kinesthetic—or in Smith and Younker's (1996) terms, tactile—style of composing because much of it seemed to have to do with what the fingers did on the recorder. For the most part, these students composed on their recorders first and then wrote things down to remind themselves what to play. They generally spent more time in developing and additive repetition than they did in writing, although there were some exceptions. Some of them talked about hearing the sounds in their heads and trying to find those sounds on their recorders. These were also the children most likely to sing as part of their composing process.

Sarah. Perhaps Sarah was the clearest representative of this style of composing. In four of her six pieces, she spent more time in development alone than she did writing (Table 3). If one were to combine her experimenting and developing time percentages, they always equaled more than her writing time. She described part of her composing of piece 4, which was based on a poem, this way:

What I was doing on my recorder is, I was singing first and seeing how many syllables it was, and if I was, like, a syllable short, I would have to, have to add something. And then when I was a syllable long, I would have to take out something. The taking out's the hardest

Table 3
Kinesthetic Compositional Process Style: Percentages of Time on Task

Sarah's Percentages								
Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	5:00	5	15	45	0	15	15	5
2	16:00	23	23	25	2	19	0	8
3	17:00	10	22	15	12	7	25	7
4	44:00	14	13	27	11	1	20	14
5	9:00	15	32	3	0	29	20	0
6	26:00	46	7	21	10	6	0	11
Gretchen's Percentages								
Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	28:40	0	43	13	15	11	16	2
2	15:45	8	26	29	15	8	8	6
3	17:24	14	32	36	6	4	7	0
4	13:13	6	35	19	10	10	8	12
5	25:38	7	19	27	15	17	12	3
6	22:10	20	16	16	3	13	26	6
Cindy's Percentages								
Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	12:03	8	31	2	21	31	6	0
2	18:20	10	16	20	10	5	36	3
3	30:57	2	17	22	18	11	26	4
4	22:06	8	19	11	9	7	36	10
5	22:10	7	23	20	20	15	15	0
6	17:54	4	23	28	8	1	25	10
Linda's Percentages								
Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	16:15	23	23	35	2	14	0	3
2	10:00	28	12	0	0	10	40	10
3	7:26	7	13	10	10	27	33	0
4	13:30	17	0	13	6	13	6	45
5	10:20	12	27	24	12	10	10	5
6	7:15	10	17	7	4	10	48	4
Chuck's Percentages								
Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	NA*	NA	NA	NA	NA	NA	NA	NA
2	24:33	10	27	17	13	4	24	5
3	13:08	13	12	23	33	0	15	4
4	40:32	4	38	7	20	1	11	19
5	17:00	7	15	1	62	0	0	15
6	7:41	3	32	7	19	0	29	10

*Recall that Chuck's first piece was pre-composed and not used for data analysis in the study.

because I liked – usually I liked what I played.

And later, talking about her sixth piece, we had this conversation:

S: I wrote something down at the very, very beginning and then I didn't write anything for a long time and then I wrote that and then I didn't write anything for like two hours. Or ages.

R: Did you make this part that you did on it at first or did you write it first?

S: I made it first.

R: And there's the . . .

S: Yup. I played it several times before I actually wrote it down. Now I'm kind of humming the tune and singing the letters.

R: Do you know you are looking at your fingers to figure out what letters to write down?

S: Yeah, I, I, do that a lot cause a lot of the time I can't, I don't look down at my fingers. I should have, though, cause I found something I really liked and I did not remember it, cause I didn't look down and write it down.

Gretchen. Another good example of this process style of composing is Gretchen. Even though her first piece was actually a visual process style piece, the rest of her work was mostly kinesthetic process style. The percentages in her time on task table reflect this (Table 3). Even with her first piece she noted that, "I kept deciding what sounded good and I sort of fingered it on my recorder." She also stated that she could hear the sounds in her head when she fingered the notes. Halfway through the piece she appeared to switch to playing and then writing. When asked which she was doing, she replied, "Both." By the time she was

working on her ending, she noted that she was playing and then writing.

With the rest of her pieces there was clearly more playing than writing. Her second, third and fourth pieces all have more sections of development than of writing. In her fourth piece, if one were to add the experimenting and additive repetition sections to her developing times, the combination is longer than the writing time. In her final piece, writing and development were equal in length, but time spent experimenting was longer than either of those other two processes.

Cindy. Cindy's pieces all began with playing. She began each piece by spending a little time exploring. Sometimes this was less than a minute and sometimes it was several minutes, but she always played before she wrote. She also spent a greater percentage of time practicing her pieces than the others in this group (Table 3). She fingered notes as she wrote to help her figure out what to write down—a very kinesthetic way of proceeding. Here is a conversation about how Cindy began her first piece.

R: Now did you make that up or write it down first?

C: Um, make that up.

R: Made it up?

C: I usually make things up and then write it down.

R: Uh-huh.

R: And there you seem to be going on.

C: Mm-hm.

R: Had you written that down? Or you made it up first?

C: Made it up. Yeah.

R: Mm-hm.

R: You seem to be looking at the recorder.

C: Yeah, at the notes that I—

R: Figuring out what you're fingering?

C: Yeah, cause I just finger it.

R: Uh-huh, you finger it and it helps you remember what to write down?

C: Yeah. It, well, I just, usually, cause my fingers just do most of it? I just blow and my fingers just come out with a song usually.

In discussing the beginning of her final piece she sounded a little puzzled by what happened when she composed. For her, it seemed to be almost an unconscious process.

R: When you're making it up like that, are you thinking, okay let's go down now, let's go up or are your fingers just moving?

C: Basically they're just moving. They just—it's weird—they just— move.

R: Go on their own?

C: Yeah. But sometimes, then they won't play it again.

The fact that she always began by experimenting on her recorder and spent significant proportions of her time in development and additive repetition was important. With the exception of her first piece, the combined experimenting and developing percentages always exceeded her writing percentages (Table 3).

Linda. Linda was also a kinesthetic composer. However, she also used a fair amount of humming and singing as she made up her pieces. Of particular interest was her fourth piece because she sang virtually the whole thing and really could not play it accurately on her recorder. Singing is noted in the "other" category on her time on task chart. She wrote nothing down for this piece. While this could be considered auditory process style, it could also be considered the kinesthetic use of her voice.

Linda spent more time experimenting than many of the other children (Table 3), but she seemed to have trouble re-creating what she found as she experimented. She also made a moderate amount of use of additive repetition.

She described her composing process for her first piece in a way that accurately defined what additive repetition was.

L: So I started playing it and a couple minutes ago, um, well I, I played and I wrote at the same time, so I wrote down the note and then I went back and I started playing the whole thing over again, and then wrote a little bit more and then went back and started playing it all over again, so I did—sort of.

R: So you would go back to the beginning?

L: Right.

R: And play the whole thing over again and add something to it?

L: Right. Until I thought it was good enough to complete.

Chuck. Chuck was probably the most interesting of all the participants in this study. It was surprising when he indicated that he wanted to participate, since he had not been all that interested in playing the recorder or in music classes in general. For his first piece, he came in with a song all made up and then tried to convince the researcher that he had done it there. When asked about it, he admitted what had happened. He was worried from the beginning that he "wouldn't be able to think of anything," and that indeed happened with the fifth piece at first. Some of the time, the researcher left the room while he worked because he did not seem to accomplish very much while anyone else was in the room. The video camera recorded his progress. He was a very active child who seemed to have to move to think. Much of the time, Chuck

spent more time in silence and fidgeting than he did in any other category of time use. He rarely used additive repetition. On the other hand, he created a fourth piece that was among the best done by this group of children. He spent far more time on it than on his other pieces (Table 3). Interestingly, this piece was done mostly by writing it, rather than in the kinesthetic process style being discussed here. It was based on a poem. All his other pieces were worked out by playing ideas on the recorder first. For this one, he worked things through mentally, although the recorder still helped him figure out what to create. Here is his description of that process:

C: I started reading it,
 R: Uh-huh.
 C: I read it through and then I tried to read it through in music notes.
 R: Ohhhh. So did you try to read it through in music notes on your recorder or in your head?
 C: In my head.
 R: Uh-huh.
 C: And I tried to figure them out on recorder so I'd get the same notes.

He later confirmed that he went through the poem line by line working each line out one at a time. So it could be argued that he was still creating, then writing even though he

was not playing. This is a less kinesthetic approach than playing it aloud, but still involved touching the instrument to figure out what to write.

*Students Who Used a Mixture of Styles:
 Karen and Gilbert*

Both Karen and Gilbert used a mixture of styles when composing their pieces. Karen used the “write first” style for all her pieces except the fourth and fifth pieces. For both of these pieces, she spent more combined time in development and exploration than she did for any of her other pieces (see Table 4). Her fifth piece used more additive repetition than did all of her others. Karen tended to practice her pieces quite a bit. However, she practiced these two pieces less than most of her others. Her test scores indicated that she was an average student academically and musically.

Gilbert. Gilbert was the other student who used different styles of composing with different pieces. With the second, fourth and sixth pieces, he wrote more. Often he wrote first and then played what he had written. With the first, third and fifth pieces, he played first and then wrote down what he liked. In those pieces he spent a greater percentage of his time in development (Table 5). Gilbert also tended to spend more time in additive repetition than most of the participants. If one were to combine his

Table 4
Karen's Percentages of Time on Task

Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	32:26	1	38	6	11	27	18	1
2	29:00	0	18	3	11	13	52	3
3	62:30	0	18	6	18	8	42	8
4	21:36	15	10	20	13	20	6	16
5	35:25	2	17	9	10	30	30	2
6	32:47	2	12	6	3	15	60	2

experimenting, developing, and additive repetition times, he spent between 29% and 55% of his time in those processes.

For Gilbert, the fact that he had studied Suzuki violin and, at the time of this study, was studying piano as well as recorder might have made the distinction less clear between his visual and kinesthetic composing processes. It was possible that there was less distinction for him between the two process styles because he could more easily develop and experiment as he wrote than children with less extensive music skills. Academically, he struggled with classes and his academic test scores were consistent with that. However, on the music tests he scored quite well, which probably was influenced by his greater level of musical study and experience.

Composer Success and Process Style

As noted earlier, the pieces the children created were rank ordered for musicality by four judges and the average score for each piece was computed. Because this is a rather subjective area of assessment, the following observations should be regarded with some caution. Still they represent tendencies and merit further research. There was some apparent relationship between the compositional process style used by the children and the musicality of the resulting work. Whether

this is truly a result of the process style used or merely a result of the particular children involved in the study is a matter of conjecture. Nonetheless, it appeared from this study that the kinesthetic compositional process style led to pieces of higher musicality.

Since there was only one child who used the auditory process style, the impact of that style on compositional musicality was very tenuous at best. Her highest ranked piece was placed at 13th (out of 72). Only one of her pieces scored in the highest five raw score numbers and that was for only one of the four judges. Four pieces scored an eighth or better scattered among three judges. So Amy was relatively successful as a composer of pieces the judges regarded as “musical,” although she was not the most successful.

Overall, the students using a predominantly visual style produced pieces that the judges, for the most part, felt were less musical. Both of the lowest scoring pieces (ranked 71st and 72nd) were created using this process style of composing. Paul was a good example of this. Paul spent longer time working on his pieces than anyone else. His average time on the task was half an hour. Yet for all his effort, he had no pieces that ranked in the top eight by any judge. In fact, his highest ranked piece

Table 5
Gilbert’s Percentages of Time on Task

Piece	Total Time	Exp.	Writ.	Dev.	Silence	Additive Repetition	Practicing	Other
1	23:40	15	25	30	10	10	4	6
2	12:19	2	35	13	10	27	10	4
3	18:40	5	23	19	21	17	6	8
4	26:08	6	30	9	18	14	10	12
5	17:17	6	26	35	10	9	4	10
6	23:00	8	38	19	11	10	11	3

by average mean score of the judges was ranked 49th. Somewhat surprisingly, his second highest scoring piece (51st) was also the one where he spent the most time writing. He consistently spent more time writing than in any other category of process stage except with his second piece (see Table 2). There he spent about 10% more time in development than in writing. Yet that was his lowest scoring piece which was ranked at 70th overall.

Among the visual style composers, Kevin's pieces fared better with the judges. He had only two scores in the lowest 10 pieces among the individual judges. His lowest ranked piece was ranked at 56th and his highest was ranked 16th. One reason his pieces were scored higher than the others in this style of composing was that he spent more time combined in development and additive repetition than the other participants in this classification.

The kinesthetic process style composers were the highest ranked. Cindy was the most consistently successful of the composers. Three of her six pieces were ranked in the top ten (first, third, and ninth) and two others were in the top 25 overall. Of the top ten ranked pieces, all but one were produced by composers using the kinesthetic process style. Gilbert, however, did not use that style for his top ranked piece. His highest ranked piece (ranked at fifth) was created using the visual process style that relies heavily on writing first. However, as noted above, his other musical skills might have made the visual process style more successful for him than for the others who employed it.

Again these tendencies should be viewed with caution because of the small number of participants involved in the study. Further work would need to be done to determine whether or not the compositional process styles influenced the musicality of the pieces more than the natural musical

abilities of the children involved in the study. Still, this seems to be a question deserving more study.

Summary and Recommendations

Three styles of composing suggested themselves from my analysis of the process data. The auditory style distinguished itself by the absence of writing and reliance on the ear and the instrument to create the piece. Greater amounts of practicing and additive repetition were present. The visual style consisted of great amounts of writing and very little experimenting or developing. In the kinesthetic style of composing, the students composed on their recorders first, but then wrote things down to remind themselves of what to play. Most children used a combination of these styles at some point in their composing. These styles were simply tendencies and patterns that occurred as they worked. It is important to note that these style categories emerged based on analysis rather than being pre-conceived. They appeared to be in evidence as the process tapes were analyzed.

Even though the protocol that was read to the children clearly stated that they should not worry about writing down their pieces and that the researcher would do that with them later, all of the children except Amy made notations of one sort or another as they worked. This is consistent with the findings of Gromko (1996), who noted that her participants reverted to using notation because they knew how to use it. Pencils and papers of various kinds were available and the children in the current study were allowed to use them. Most of the participants commented on the fact that their notations helped them remember their tunes. What they notated was almost exclusively the pitches, although some children did write the rhythm as well. They indicated that they could remember the rhythms, but needed more help remembering pitches.

This is also consistent with previous research findings (Dunn, 1992; Rooke, 1991; Upitis, 1990).

One thing that was quite clear from the comments these young composers made as they watched the videos of their works in progress was that there was no agreement on the best way to proceed to make up a composition. Future research needs to determine if this is equally true for older students who have more experience on their instruments. None of these participants accurately used traditional notation, but instead used some form of musical shorthand to help them remember what they meant to play. Most often, they used the letter names of the notes and preferred to remember the rhythm. For young instrumentalists these tendencies should probably be encouraged as a transitional stage before notating rhythms and pitches in traditional notation.

Based on the musicality rankings of these composers' pieces, one might also tentatively suggest that young composers be encouraged to delay notating their pieces until they are happy with the way at least part of the piece sounds. They could be

urged to create first and notate later. Perhaps other means of preserving their work could be employed.

Other researchers need to observe the processes young composers use in their studies to see if these three proposed categories of compositional process styles (or other categories) are in evidence. Since these students were all approximately the same age, other studies should examine the work of young composers in other age groups to see if process styles emerge. Additionally, studies that employ technology as a medium for composing should examine whether there are similar or differing compositional process styles in evidence as young students compose with computers. Group composition might yield yet another a variety of other process styles. All of these compositional process styles should also be compared to the musicality of the resulting compositions. Finally, since not all cultures use written notation, studies of composers in other traditions and cultures could be conducted to see whether there appear to be compositional process styles present as they work.

REFERENCES

- Bonta, P. (1990). Building on intuitions: Music composition in a LOGO environment. In I. Harel (Ed.), *Constructionist learning* (pp. 93–106). Cambridge, MA: MIT Media Laboratory.
- Burakoff, G., & Burakoff, S. (1995). *Hands on recorder*. Fort Worth, TX: Sweet Pipes, Inc.
- Carlin-Freed, J. (1996). Assessment in the arts: Elementary age students as qualitative assessors of their own and peer musical compositions. Unpublished manuscript.
- Dunn, R. (1992). Teaching music through individual composition: A music course for pupils aged eleven to eighteen. *British Journal of Music Education*, 9, 49–60.
- Folkestad, G. (2004). A meta-analytic approach to qualitative studies in music education: A new model applied to creativity and composition. *Bulletin of the Council for Research in Music Education*, 161/162, 83–90.
- Gass, S. M., & Mackey, A. (2000). *Stimulated recall methodology in second language research*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Gromko, J. E. (1996). In a child's voice: An interpretive interaction with young composers. *Bulletin of the Council for Research in Music Education*, 128, 37–51.

- Hoffman, M. K., Hedden, S. K., & Mims, R. (1991, February). *Compositional processes in young children*. Paper presented at the Symposium on Research in General Music, Tucson, AZ.
- Kratus, J. K. (1991). Orientation and intentionality as components of creative musical activity. *Research Perspectives in Music Education*, 2, 4–8.
- Kratus, J. K. (1989). A time analysis of the compositional processes used by children ages 7 to 11. *Journal of Research in Music Education*, 37 (1), 5–20.
- Levi, R. G. (1991). A field investigation of the composing processes used by second grade children in creating original language and music pieces. *Dissertation Abstracts International*, 52 (8), 2853A. (UMI No. 922227)
- Nash, G. (1973). *Recorder ensembles*. Scottsdale, AZ: Swartwout Enterprises.
- Rooke, M. (1991). Constructive creations. *British Journal of Music Education*, 8, 219–244.
- Smith, J. P. (2004). Music compositions of upper elementary students created under various conditions of structure. (Doctoral dissertation, Northwestern University, 2004). *Dissertation Abstracts International*, 65, 1713.
- Upitis, R. (1990). *This too is music*. Portsmouth, NH: Heinemann.
- Yunker, B. A., & Smith, W. H. Jr. (1996). Comparing and modeling musical thought processes of expert and novice composers. *Bulletin of the Council for Research in Music Education*, 128, 25-36.
- Wiggins, J. H. (1998, May). *Holistic conception in students' compositional process*. Paper presented at the Southeast Regional Symposium on Research in Music Education, Athens, GA.