

Listening and Thinking: A Pilot Study

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ABSTRACT

The two purposes of this pilot study were: to classify fifth-grade students' verbal responses as either Musical Term or Affective/Associative, and to determine if there was a significant difference between subjects' verbal responses in written and spoken forms. Fifth-grade subjects ($n = 40$) completed the "Listening and Thinking" measure, consisting of six open-ended questions based on two pairs of instrumental musical examples. Half the subjects responded in written form while the other half responded in oral form. In a Two-way analysis of variance (ANOVA), a disordinal interaction was found ($p = 0.01$) such that there were more spoken responses referring to musical terms, and more written responses referring to affective/associative responses. The subjects provided significantly ($p = 0.001$) more musical term than affective/associative responses. There were, however, no significant differences found in the subjects' responses by musical example, by order of musical examples, or by form of data. For affective and associative responses, written data may prove to be more useful than spoken data, and written responses to music listening appear to be as effective as spoken data. These results have implications for future investigations of cognitive and affective responses to music listening and evaluations of music listening instruction.

INTRODUCTION

PURPOSES

There were two purposes of this pilot study on “Thinking and Listening.” The first purpose of this pilot study was to classify and measure the difference in fifth-grade students’ answers as either Musical Terms (MT) or Affective/Associative (A/A) responses to two pairs of music listening examples. The second purpose of this pilot study was to determine the difference between written and spoken responses provided by fifth-grade students to two pairs of music listening examples.

THEORETICAL FRAMEWORK

Listening is of fundamental importance in understanding how music is experienced. In every culture, people think about music and its role in society (Serafine, 1988). Listening to music frequently involves thinking about musical style, patterns, and meaning. Serafine (1986) suggested that listening involves thinking about music in active, cognitive processes, in which listeners develop their own understandings of music. Listening, then, is a process of making meaning from sounds and developing new ways of hearing the same music (Bamberger, 1994). Despite advances in music listening and music cognition, the act of listening to music has often taken a secondary role in music education, possibly considering the methodological problems involved in music listening studies (Sloboda, 1985).

In the current study, written and oral data was used as evidence of subjects’ thinking and listening skills. Analyzing words written or spoken about music offers music researchers a promising source of data (Haack, 1992). Flowers (2003) also asserted that verbal description of music is promising area for studying the listening experience; she wrote, “communication through the use of various forms of language, focus of attention on salient musical elements, and description of personal reactions are at the center of music learning and experience”(second section, third paragraph). Using verbal data as evidence of listening and thinking skills has also been supported as a promising methodology in musical contexts (Haack, 1992; Flowers, 2003; Hair, 1987), and has been employed by other researchers investigating musical problem-solving through composition and music listening skills. Additional studies have used verbal protocol analysis (i.e. thinking out loud) to analyze spoken and written data.

Related to this pilot study is a qualitative study involving music listening presented to fifth-grade instrumentalists (Johnson, 2003). From the earlier study, three categories of responses (musical terms, affective, and associative) were identified from the students’ written descriptions, sorting patterns, and interview data. These three descriptions of music (musical terms, affective, and associative) correlated with three commonly-accepted categories of music: formalism, expressionism, and referentialism, respectively (Abeles, Hoffer, & Klotman, 1984). Even though musical terms were most often used as descriptive and sorting data, Johnson suggested that affective and associative descriptors of music be included in music listening instruction and assessment. The current study is the next step in this line of research on music listening.

METHODOLOGY

The “Listening and Thinking” measure made use of verbal reports as evidence of critical thinking and musical thinking in response to open-ended questions (Brophy, 2000). Beyond simple recall of facts or comprehension of information, the “Listening and Thinking” measure elicited evidence of higher order thinking skills. The subjects engaged in analysis, synthesis, and evaluation by identifying

components of the musical examples, by making a generalization about the example’s musical purpose, and by comparing two contrasting musical examples (Bloom, 1956).

The four musical examples chosen for the listening experiences in the “Listening and Thinking” measure were selected on the basis of their diversity, potential appeal to fifth-grade students, and musical qualities. Instrumental music was chosen for the current study because it is better suited for music instruction (Levinowitz, 1989). In other words, as Levinowitz explained in her synopsis on music listening instruction, listeners may be distracted by the words and pay less attention to the music itself if vocal music is used. Each musical example consisted of instrumental music, lasted approximately one minute and illustrated a range of tempos, dynamics, instrumentations, and timbres. Levinowitz also suggested that musical examples should also illustrate a variety of timbre, contrasting dynamics, rhythmic drive, and modalities. The four examples for the current study were chosen as examples of varied timbre, dynamics, and rhythmic drive. Because students generally do not prefer music with slow tempos (Finnas, 1989), three of the four selections had tempos between MM = 124 and 148. One selection with a slower tempo was chosen to provide a contrast to the other pieces. Additionally, since rock music is the most familiar genre of music among adolescents (Frith, 1978), one of the four pieces selected represented rock music. See Table 1 for a description of the musical examples used in the “Listening and Thinking” measure.

Table 1. Descriptions of Musical Examples Used in “Listening and Thinking”

Example	Composer	Title	Genre	Length	MM
1	J. P. Sousa	King Cotton	Band	1:05	116
2	M. Clink	Bad Obsession	Rock	1:03	122
3	Traditional	Golden Slumbers	Lullaby	0:56	46
4	B. Whelan	American Wake/ The Nova Scotia Set	Celtic	0:53	150

The “Listening and Thinking” measure was designed by the researcher for use in this pilot study and validated with the assistance of published experts in the field. The researcher contacted twelve published experts in the field of music education and critical thinking to solicit their critiques of the “Listening and Thinking” measure. The experts were chosen on the basis of their contributions to reference books such as *The Handbook of Research on Music Learning and Teaching* (1992), *The New Handbook of Research on Music Teaching and Learning* (2002), and *The International Encyclopedia of Education* (1994), as well as on the basis of articles published in refereed journals such as *The Journal of Research in Music Education*, *The Bulletin of the Council for Research in Music Education*, *The Journal of Curriculum Studies*, and *Educational Theory*. Eight of the twelve experts contacted by the researcher agreed to provide written feedback concerning the lesson plans. In general, the experts provided positive reviews, indicating that the descriptions of music were both age-appropriate and categorized accurately. While several experts offered encouragement and suggested minor changes, others provided critical commentary and recommended some revisions. As a result of the experts’ critique of the lessons, the researcher modified the teacher-directed questions to be more focused and to reflect critical thinking more accurately. Some experts raised concerns about the research methodology of the current pilot study, citing the inherent limitations of measuring only verbal descriptions of music. Using verbal data as evidence of listening and thinking skills, however, has been supported as a promising methodology in musical contexts (Flowers, 2003; Haack, 1992; Hair, 1987), and has been employed by other researchers investigating musical problem-solving through composition and music listening skills.

The critical thinking questions used in “Listening and Thinking” were based on the premise that “simply asking children *what* and *how* they think about music reveals strategies for musical understanding and valuing” [emphasis in original] (Rodriguez & Webster, 1997, p. 9). Instead of simple recall of facts or comprehension of information, the “Listening and Thinking” measure was designed to elicit evidence of higher order thinking skills. The subjects engaged in analysis, synthesis, and evaluation by identifying components of the musical examples, by making generalizations about the example’s musical purpose, and by comparing two contrasting musical examples.

The three categories of verbal responses (musical term, affective, and associative) were identified in a previous study in which similar subjects described and sorted excerpts of instrumental music (Johnson, 2003). In Johnson’s research, three categories of descriptors emerged from the students’ written descriptions, sorting patterns, and interview data. These three types of descriptors (musical terms, affective, and associative) were similar to those proposed by Rodriguez and Webster (1997) and were consistent with three commonly accepted categories of music (formalism, expressionism, and referentialism) respectively (Abeles, Hoffer, & Klotman, 1984).

The measure, “Listening and Thinking,” yielded two dependent variables for the current study: a musical term response score (MT), an affective/associative (A/A) response score. Musical terms included references to the traditional elements of music (e.g. tempo, dynamics, melody, harmony, timbre, and form). Affective responses included references to the subject’s feelings and emotions (e.g. likes, dislikes, pleasant, and harsh) while associative responses included references to the subject’s personal experiences and non-musical descriptors (e.g. a parade, marching, a bouncing ball, etc.).

“Listening and Thinking” was modeled on the “Music Responding Block” of the *1997 NAEP Arts Report Card* (Persky, Sandene, & Askew, 1998), it consisted of six questions about examples of instrumental music, their purpose, their instrumentation, similarities, and differences between two of the examples. In these questions, listed below, the listeners chose the most appropriate purpose for the musical example, described the musical instruments played in the example, and compared and contrasted the two musical examples. The measure “Listening and Thinking” used listening prompts and multiple-choice suggestions as contained in the *1997 NAEP Arts Report Card*. A multiple-choice section preceded an open-ended response section for each question. The first two questions were:

- 1 Where might you hear this music?
 - a) at a funeral
 - b) for a lullaby
 - c) at a parade
 - d) at a danceWhat did you hear in the music that helped you make your choice?

- 2 How many instruments do you hear in this music?
 - a) only one
 - b) two
 - c) three
 - d) more than threeHow would you describe the instruments you hear in this music?

The third and fourth questions were identical questions and answered in response to the second musical example. For the fifth and sixth questions, the subjects listened to the first and second musical examples again and were asked to compare and contrast those examples as follows:

- 5 What is different about these two pieces of music?
- a) the speed of the music
 - b) the style of the music
 - c) the instruments used to make the music
 - d) all of the above
- What did you hear in the music that helped you make your choice?
- 6 How do these two pieces of music compare?
- a) They are almost the same.
 - b) They are a little the same.
 - c) They are a little different.
 - d) They are very different. What did you hear in the music that helped you make your choice?

Questions seven through twelve were identical to the first six questions, however two different musical examples were used. In total, two pairs of two musical examples each were used in the “Listening and Thinking” measure and constituted what Bailin (1998) termed a “critical challenge” (p. 153) to encourage thinking and using resources of relevant knowledge, concepts, and experiences.

Even though the “Listening and Thinking” measure used elements of the “Music Responding Block” of the *1997 NAEP Arts Report Card* (Persky, Sandene, & Askew, 1998), scoring of the dependent measure took the form of a word count instead of a rubric. The scoring system used in the current study was designed to measure subjects’ reflection on the musical examples instead of their success in finding “correct” responses and to maximize consistency with an earlier study (Johnson, 2003) upon which the “Listening and Thinking” measure was based. The written responses to the twelve questions were scored by three independent judges as evidence of critical thinking related to the music listening examples (Brophy, 2000). The multiple-choice options (a – d) were provided to the subjects as prompts to facilitate writing their open-ended responses. The purpose of the dependent measure was to score evidence of the subjects’ critical thinking, therefore the judges were instructed to ignore the subject’s multiple-choice answer. Instead, the judges were trained by the researcher to score each subject’s open-ended response on a three-point scale. Examples of musical terms were: fast, slow, loud, soft, high, low, flutes, drums, and any other specifically musical term specifying the beat, rhythm, melody, and tempo. For each question, the judges were instructed to count the musical terms used by the subject and score the responses as follows: 0 = no musical terms used; 1 = one musical term used; 2 = two musical terms used; 3 = three or more musical terms used. In this manner, the judges were instructed to determine the subject’s Musical Term (MT) score. The judges were given a score sheet and instructed to record each subject’s Musical Term score in the column MT for each question on the score sheet. In the same manner, the judges were instructed to score the subjects’ written responses on the basis of affective and associative terms used. Examples of affective terms were: happy, angry, sad, lonely, lovely, sweet, harsh, and any other terms related to emotions or feelings; while examples of associative terms were: a parade, my trip last summer, riding in the car, a ball bouncing, a movie, and any other terms related to extra-musical associations. The researcher averaged the three judges’ scores for each subject’s responses to determine mean response scores.

The three independent judges were given additional instructions by the researcher to maximize the consistency of scoring. The judges were instructed to count terms that reflected the student’s own thoughts instead of terms that were included in the questions themselves (e.g. “style” and “speed” in

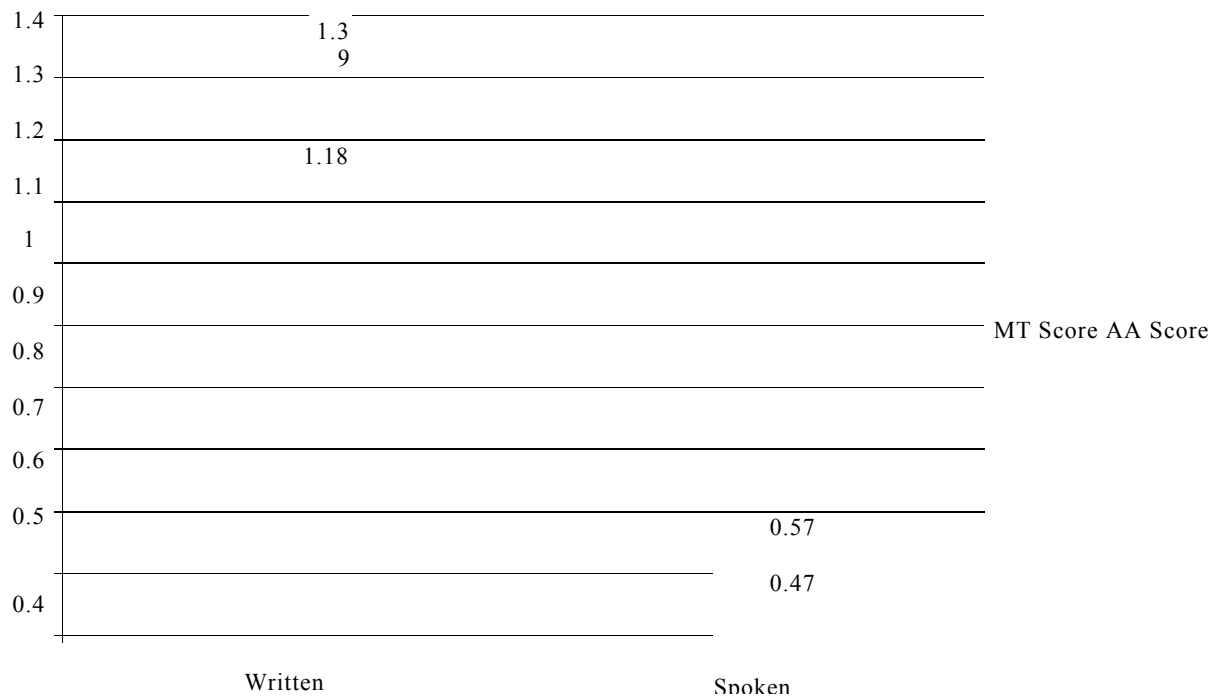
questions five and eleven). If a subject wrote a single term more than once in a given question, the judges were also instructed to count it only once. Finally, the judges were instructed to ignore any spelling or grammatical errors as long as the subject's response was legible. If a subject's response was illegible, the judges were instructed not to record any score for that item. To further illustrate the scoring procedure, the researcher gave a scoring example to the judges.

The measure "Listening and Thinking," yielded the two dependent variables for the present study: a musical term (MT) score and an affective/associative (A/A) response score. A group of fifth-grade subjects ($n = 40$) completed the "Listening and Thinking" measure. Half the subjects responded to the measure in written form while the other half responded in oral form. Each subject listened to two different pairs of musical examples representing different periods and styles of music, including Western art-music and popular genres. The two pairs of musical examples were played in a random order for each subject.

RESULTS

Differences in subjects' answers by form (i.e. spoken or written) and by the type of answers provided (i.e. either musical terms or affective/associative responses) were considered in a Two-way analysis of variance (ANOVA). A disordinal interaction was found ($p = 0.01$) such that there were more spoken responses referring to musical terms, and more written responses referring to affective/associative responses. For a display of this finding, see Figure 1.

Figure 1. Disordinal Interaction of Subjects' Musical Term and Affective/Associative Response Scores by Form



Overall, the subjects provided significantly ($p = 0.001$) more musical term responses than affective/associative; the mean values were 0.29 and 0.52, respectively. See Tables 2 and 3 for a summary of these results.

Table 2. Mean, Standard Deviation, and p Values of Subjects' Response Scores by Type

Type	Score	SD	p Value
Musical Term	1.29	1.09	0.001
Affective/Associative	0.52	0.78	

Table 3. Mean, Standard Deviation, and *p* Values of Subjects' Response Scores by Type and Form

Type	Form	Score	SD	<i>p</i> Value
Musical Term	Written	1.18	1.15	0.01
	Spoken	0.57	0.81	
Affective/Associative	Written	1.39	1.01	
	Spoken	0.47	0.73	

In a series of One-way analyses of variance (ANOVAs) there were no significant differences found in subjects' responses by musical example, by order of musical examples, or by form of data. To support reliability of the scores, a Pearson-Product Moment correlation coefficient was calculated for each pair of judges and converted using a Fischer Z transformation, yielding a coefficient agreement of $r = 1.0$ among the judges.

CONCLUSIONS

As might be expected from the experimental situation (i.e. listening to music), the subjects provided significantly more responses consisting of musical terms than associative/affective vocabulary. The disordinal interaction between the type and form of responses was not expected from earlier studies; Flowers (2002) reported that spoken data provided no different information than written data and found that spoken data were merely more numerous. The findings of the current study are inconsistent with those reported by Flowers. Perhaps the subjects felt more comfortable writing affective/associative responses based on their feelings and experiences. At least for affective and associative references, written data may prove to be more useful than spoken data. Possible applications in future studies include investigations of cognitive and affective responses to music listening as well as evaluations of music listening instruction.

In future research, an open-ended scoring system instead of a three-point scale, might be more useful. Such an alteration of the approach to scoring would avoid a ceiling effect and allow judges to evaluate subjects' responses more precisely. Other alterations such as substitutions of different music listening examples and modifications to the length of the measure may be introduced for listeners of different ages and musical backgrounds. In summary, however, the current pilot study seems to have resulted in a practical and productive measure of listeners' thinking skills. As listeners engage in the world of sound around them, the current pilot study may provide a useful tool to measure their knowledge, interpretations, and feelings for both researchers and teachers.

IMPLICATIONS

Music educators typically focus on musical terminology and vocabulary in classroom music lessons. While this focus may be obvious, the opportunity to include affective and associative terms may not be. Instead, affective and associative terms may provide authentic expressions of students' listening experiences even though they are more unpredictable and based on personal experiences. While music instruction seems to be effective in building students' musical vocabulary, the affective and aesthetic nature of music listening should not be overlooked.

Of all the arts, music is often taught the least creatively (Fowler, 1996). By teaching music more thoughtfully and investigating listeners' responses, educators can engage students in music listening resulting in enhanced participation, involvement, and imagination. Therefore, thinking while listening to

music is a promising avenue for promoting thoughtful music curricula, developing students' musical independence, and advocating for critical thinking in the arts and education.

At least at the fifth-grade level, written measures of music listening appear to be as effective as spoken data. In future studies, researchers may cite the similarity between the subjects' written and spoken responses to support the use of their methodology. Writing and speaking about music listening experiences may provide students with a direct and effective way of communicating their musical understanding. Far from being a solution to the methodological problems noted by Sloboda (1985), the current pilot study on "Listening and Thinking" may provide clues to promising directions for future research in music listening and musical thinking. Future research in this area may encourage educators to promote students' understanding, interpretation, and feelingful responses to the world of music around them.

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MUSICAL MATERIAL

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