THE EFFECT OF PERCEIVED BEAT-TEMPO ON THE EXPRESSED MUSIC LISTENING PREFERENCES OF FIFTH AND SIXTH GRADE STUDENTS

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ABSTRACT

THE EFFECT OF PERCEIVED BEAT-TEMPO
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This study measured the effect of perceived beat-tempo, which is the rate of speed felt by a listener in response to a music stimulus, on the music-listening preferences of 50 fifth-and sixth-graders, while both style and performing medium were held constant.

During individual testing sessions, subjects listened to 24 recorded excerpts of instrumental jazz and were asked to perform three tasks in sequence for each excerpt: 1) match the beat-tempo, 2) verbally estimate the speed of the music given four response-options, and 3) rate their preference for each excerpt's tempo in writing.

The findings of this study show that there were statistically significant differences for each level of tempo and for grade-level with regard to each of the above tasks. Furthermore, when tested individually, subjects' preference ratings were significantly higher than when tested as part of a larger group.

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CHAPTER I

THE PROBLEM

Background of the Study

This study is part of a continuing series designed to test a theory of music preference. In previous studies, Albert LeBlanc (1981, 1982), Michigan State University Department of Music, sought to measure the effects of style, tempo, and performing medium on children's music listening preferences. However, his results were obscured by statistically significant three-way and two-way interactions among and between style, tempo, and performing medium. Because significant interactions were encountered by LeBlanc (1981, 1982) with respect to these independent variables, the current study was designed to assess the effect of tempo, as a singular independent variable, while both style and performing were held constant. In addition, the current study employed two tasks which required the subjects to focus attention on the beat-tempo of each music stimulus. Before subjects gave their preference responses, they were asked to demonstrate their abilities to gauge the rate of speed which they perceived by tapping to the beat-tempo of each example, and by verbally reporting that speed given four response options.

Purpose of the Study

The purpose of this study is to assess the effect of perceived beat-tempo on the expressed music listening preferences of fifth- and sixth-grade students while style and performing medium were held constant. The consideration of this problem suggests the following subproblems:

1. Selection of an appropriate response mode for measuring beat-tempo perception

2. Development of criteria for evaluating this response mode

3. Development of an instrument for measuring listener preference responses

Definitions

For the purpose of this study the following definitions were applied:

Beat-tempo. Based on the examples used in this study, the beat is the basic unit of duration dividing duration into equal segments. Tempo is the rate at which the beat recurs. Therefore, beat-tempo is the rate of speed at which a music stimulus moves

Perceived beat-tempo. The rate of speed which is felt by the listener in response to a music stimulus

Beat-tempo matching. A listener's ability to produce a motor response which coincides with the rate of speed of a music stimulus

Listener preference. A written response which expresses the relative degree to which an individual may like or

dislike a specific music stimulus after having listened to it. There are both musical and extra-musical factors which have been shown to be associated with music listening preferences. This study will examine subjects' expressed music listening preferences for tempo alone

Assumptions

For the purpose of this study the following two assumptions were made:

1. A listener's ability to produce a motor response which coincides with the beat-tempo of a music stimulus is an appropriate response mode for measuring the perception of that beat-tempo

2. The listener's frame of reference is the same as that of the investigator's when interpreting four multiple-choice beat-tempo response options (fast, medium fast, medium slow, and slow) in a self-report format

Limitations

This study:

1. was limited to a subject population of 50 fifth- and sixth-grade students attending the Lansing area Catholic Diocesan Elementary Schools

2. did not investigate the nature of rhythmic perception

Need for the Study

There is a need for music educators to understand the process of musical preference development. Therefore, it is important to isolate those variables which may have an influence on preference development. Previous research conducted in this area has demonstrated that both beat and tempo are musical factors which affect listener preference decisions. However, this investigator has not uncovered related studies in which both beat and tempo were isolated in the music stimulus examples while all other musical factors were held constant, and which also controlled for the perception of these two elements in their experimental designs.

CHAPTER II

REVIEW OF LITERATURE

For the purpose of this study it is necessary to divide the related literature into five subject areas: 1) rhythmic foundations of music, 2) perception of rhythm, 3) experimental designs involving the measurement of rhythmic discrimination, 4) studies investigating the effect of tempo on music listening preference, and 5) measurement of listener preference.

The first studies under discussion are those which provide definitions of beat and tempo in music. Radocy and Boyle (1979) refer to the term "beat" as the basic unit of duration, dividing duration into equal segments. Brown (1979) refers to beat as the unit of musical movement. Pankaskie (1965) states that single beats consist of a point in time/space, and a duration to the next point. Kuhn (1974) refers to "beat" as a term which is used to define the perception of a steadily recurring pulse in music. Mursell (1937) uses the German word "takt" to describe the beat which is perceived or felt by the listener in response to the music. Farnsworth (1969) refers to this phenomenon as the "true beat."

When discussing beat with respect to meter, Radocy and Boyle (1979) indicate that a problem may arise. They state that meter signatures specify which unit of notation

receives a beat; in practice, however, the unit designated by a meter signature as receiving the beat is not always the same as the beat which is felt in response to the music. Creston (1964) avoids this problem by creating a distinction between the metrical pulse, the beat which is indicated by the meter signature, and the beat itself, that which is felt in response to the music. Radocy and Boyle (1979) refer to the beat which is indicated by the meter signature as the metrical beat, and to the beat which is felt in response to the music as the true beat. They refer to the instances in which the true beat coincides with the metrical beat as simply the beat. Brown (1979) states that ambiguities may arise between the basic elements of note value and beat because the beat which is indicated by the meter signature may not always be represented by the most common note value within a given composition. Therefore it is possible for a composition with a fast prevalent note movement and a slow indicated meter to appear to move more rapidly than a composition with a slow prevalent note movement and a fast indicated meter. Brown (1979) cites internal musical factors, particularly tempo, as being inseparable from any consideration of the beat.

Creston (1964) defines tempo in terms of the beat, stating that tempo is the speed at which the beat recurs. Lundin (1953) defines tempo as the rate of speed at which the tones follow one another. Sachs (1953) suggests that tempo applies to two different concepts: 1) the real physical tempo, which varies within the range of feasible steps and

beats, and is limited by the speeds at which the human anatomy is capable of operating, and 2) a psychological tempo, a concept concerned more with mood than with the actual rate of speed of a musical composition. In defining the overall rate of speed of a musical composition, Kuhn (1974) uses the term "beat-tempo." Kuhn states that the beat-tempo can modulate within a given composition.

It is important that a distinction has been made between the actual notated or metrical beat, and the beat which is felt in response to the music or the true beat. Although this difference may seem clear-cut, when we attempt to define tempo with respect to the beat, another problem may arise. Does one define tempo in terms of the "metrical beat" or the "true beat?"

In this study, interest is focused upon the different ways in which subjects may respond to the beat and tempo of a musical composition based upon their individual interpretations and perceptions of those elements. Therefore, for the purpose of this study, the term "beat-tempo" will be used, because it defines the overall rate of speed of a musical composition in a general sense, and because it allows for individual interpretations of both beat and tempo without imposing the notions of either metrical or true beat.

In order for the researcher to understand how individuals may perceive the beat-tempo of a musical composition, he must begin by defining the nature of rhythmic perception itself. According to Lundin (1953), rhythm must be

considered both as a stimulus object and as a response of the organism. He states that rhythm is both perceptual and motor, therefore, making it often difficult for one to isolate the discriminative (perceptual) from the motor aspects of the response, since in any rhythmic response the entire organism is usually involved. The perceptual side is emphasized when we simply listen to a rhythmic pattern, and the motor aspect is emphasized during the actual act of performing. Lundin (1953) suggests that these perceptual and motor activities are interdependent. The mere listening to a composition involves motor responses which can be either quite overt or implicit, and in the actual performance of a rhythm a perception of the pattern must occur. According to Lundin (1953), we perceive rhythms as such because we have a bodily machinery that can be trained to react. Therefore, we are able to grasp and respond to complex rhythms, not on the basis of instincts or some nebulous physiological mechanisms, but because we have a neuro-muscular system which is complex and capable of being trained to make these responses i.e., Motor Theory. Lundin (1953) states that the perception of rhythm is possible because we respond to our own sequential voluntary muscular activity. He supports his premise by referring to the fact that we all make muscular responses to music such as tapping our hands or feet in time to a definitive rhythmic beat. He argues that even when larger muscle groups are not observed as responding to rhythmic stimuli, there are smaller muscle groups which may be operating in a more implicit way.

In order for the researcher to determine an appropriate response mode for demonstrating a subject's perception of the beat-tempo of a musical composition, and for developing the criteria for evaluating that response-mode, he must become familiar with those experimental designs which involve the measurement of rhythmic discrimination.

Henderson (1931) studied the problem of training in rhythmic performance. He set up a specific rhythm-pattern on the Seashore Rhythm Meter (1926). This apparatus, developed by Robert Seashore, consists of a metal disc with attachments on a turntable in which contacts could be made at any point on its circumference. In this way a rhythm within the period of revolution of the disc could be set up. The performer is then asked to reproduce or follow the rhythm by tapping on a telegraph key so as to make the click of the key coincide with the stimulus produced by the rhythm meter. Henderson's results demonstrate that although the subjects started at different levels of achievement, since there were individual differences in their abilities at the outset, as a group they made distinct progress over five days of practice. Seashore explains this marked improvement as a result of the development of the subject's ear-hand coordination.

Heinlein (1929) studied rhythmic responses of kindergarteners by observing them as they walked in time to music. The children were asked to walk on a runway that had electrical contacts designed to record their steps. At the same time the beat of the music was recorded. In reviewing the

recorded electrical impulses produced by both the children and the music, Heinlein noted that only one of his eight subjects showed any degree of coordinaton between the walking movements and the musical beat. Heinlein suggests that adults are apt to project their own musical attitudes on the rhythmic performance of children. When adults are visually observing these behavors, they are likely to think that the children are keeping time with the beat when this is not in fact occurring.

The Drake Test of Musical Aptitude (1954) includes a rhythm test in which a particular tempo is established by the beating of a metronome. Along with the beat, an announcer counts, "One, two, three, four . . ." A period of silence follows in which the subject is instructed to count silently at the same tempo until he or she hears the word "stop." The subject is then asked to write down the number at which he or she has arrived. Drake claims that his test is a bona fide measure of a subject's ability to keep time, because he or she must internalize and maintain a predetermined tempo. In the second form of this test, an alternate beat is introduced as a distraction during the period of silence.

More recently, Bagenstos and LeBlanc (1975) administered a three-part performance test which was developed to assess student abilities to initiate, internalize, maintain, and move their bodies to a steady beat. The first activity was designed to have participants maintain a steady

beat aloud at a prescribed tempo for one minute. The second task required that students silently move their bodies to a predetermined tempo of MM=52, and to maintain that tempo for forty-five seconds after its initial fifteen second presentation. The third and final assessment-activity required that students silently maintain a beat of MM=72 for fifteen seconds after having listened to it for a total of fifteen seconds. Students were then asked to reproduce the beat at the previously established tempo by clapping it aloud for thirty additional seconds.

The experimental design of this study is relevant, because these three tasks were administered as a group measure to classes ranging from 20 to 30 students in size. Bagenstos and LeBlanc chose a live-scoring of student responses rather than a subsequent video-taped scoring, because they thought that this method would be a more sensitive and flexible measure. However, it was found that this method was rather imprecise because the only practical scoring strategy was to count and record the number of incorrect- and non-responders in each group. Therefore, it was quite possible that a student might only be observed during that brief period of time when he or she was or was not responding. To counteract this problem the procedure utilized independent scoring by three evaluators who simultaneously moved around the classroom. The researchers also cited a "follow-the-leader" effect as another possible shortcoming of this experimental procedure.

These results suggest that this measure may have been a more sensitive one had these performance tasks been administered individually rather than to groups of subjects.

Studies have been done which isolate specific music stimulus components, attempting to identify how they effect listener-preference. Because the study of tempo and its relationship to listener-preference is central to this investigation, the researcher should have a further background in understanding the effect of tempo on listener preference.

Prince (1972) conducted a study of the preference responses of junior high school students for art music. He concluded that the particular historical period or chronological age of a selection is not necessarily influential with regard to whether or not students like or dislike that music. Instead, he identified certain dimensions and combinations of musical elements which have a relation to music preference. Tempo was one element which, according to Prince (1972), affected listener-preference. Furthermore, he suggested that a fast tempo coupled with well-defined and clear-cut rhythmic practices would generate strong favorable responses.

The generic-style music preferences of fifth-graders were described by LeBlanc (1979). This study used 16 randomly arranged musical examples of varying tempo, performing medium, and style. LeBlanc's findings indicated six musical styles which had received highest preference rankings. However, of these six styles none was preferred significantly more than any other member of that group. LeBlanc noted

that musically these styles all shared the characteristic of having an easily perceptible beat. In comparison, the four lowest ranking examples all shared a relatively slow tempo.

In a later investigation of the effects of style, tempo, and performing medium upon the listening preferences of fifth-graders, LeBlanc (1981) found that subjects demonstrated only a slight to moderate preference for faster tempi.

It is important to note that beat perceptibility and tempo are not identical. Musical compositions which have an easily perceptible beat generally have strong, clear, and repeated metric accents, whereas tempo refers only to the speed at which the beat itself recurs. Ideally if tempo is to be studied as a single independent variable, music-listening examples should be selected in which their relative beat perceptibility is held constant.

As part of a continuing series of investigations, attempts were again made by LeBlanc and Cote (1982) to determine the effect of tempo and performing medium on the music listening preferences of fifth- and sixth-grade students. A stimulus tape was created employing 36 musical examples from the traditional jazz period in the United States (1925-1940). This period was intentionally chosen to present examples which would be relatively unfamiliar to students, while retaining a style which had been rated favorably by this age group in previous studies.

The study was designed with three distinct levels of tempo: 1) slow, 2) moderate, and 3) fast. The tempo

of each listening-example was obtained by the investigators using an aural/visual metronome. In their independent listening sessions, the investigators were free to replay each example as often as necessary to arrive at a final tempo indication. Because tempo changed during the course of a performance, tempo was always measured from the phrase which was actually used. In assessing tempi, there was a high level of agreement between the investigators. The mean scores for each of the three levels of tempo were as follows: 1) slow MM=78, 2) moderate MM=104, and 3) fast MM=211. The examples were then placed on the stimulus tape in a random order, and a response sheet was created consisting of 36 seven-step response-continua anchored by the words "like" and "dislike."

A correlational analysis of the data obtained in this experiment indicated that tempo was more influential than performing medium as a determinant of music preference, and an examination of cell-means showed a consistent preference for faster tempi and for performances in the instrumental medium.

Subjects were also asked to respond freely to the questions, "What were some of the things you liked most about the music?", and, "What were some of the things you disliked most about the music?" An analysis of this free-response data showed that the greatest number of comments were about the slow tempi of some examples. Thirty percent of all comments were about a slow tempo, and 93% of those

who commented reported a dislike of slow tempo. Fast tempi drew comments from 13% of the students, and 96% of this group said that they liked the fast examples. The beat drew comments from 14% of the students, and 88% of these respondents confirmed a preference for those examples having an obvious beat. Therefore, the free-response data confirmed a student preference for fast tempi and an obvious beat, and a dislike of slow tempi.

The overall results of this study demonstrated that the subjects consistently preferred faster tempi over slower ones, and the instrumental medium over the vocal medium. Unfortunately, a statistically significant interaction between tempo and performing medium was encountered which to some degree obscured the test results. Therefore, it is appropriate to examine the effect of tempo as a single independent variable.

Although their findings suggest a preference for faster tempi amongst young people, LeBlanc and Cote (1982) provided no evidence that their subjects were actually perceiving varying degrees of tempi while making their preference-decisions. This suggests that further research be done in which tempo can be measured as the single independent variable effecting music preference, and in which the experimental design also controls for and measures perception of tempo.

A summary of the literature related to music preference can be found in Wapnick (1976), Kuhn (1981), and in

chapters by Abeles (1980), and McMullen (1980).

In order for the researcher to select an appropriate response-mode for evaluating listener preference for musical stimuli, he must become familiarized with those scales which have been designed to measure attitude. Measurement of attitude falls into two general categories: traditional scales and behavioral preference. Traditional scales are those which require a written or verbal response on the part of the subject. These scales measure attitudinal dispositions toward behavior rather than the behavior itself. One of the most common types of these scales is the equal interval scale. This scale attempts to measure attitude intensity by asking subjects to rank their responses along the dimensions of the scale. In music research, the use of this scale was suggested by Seashore and Hevner (1933). Related to the equal interval scale is the spatial scale used by Farnsworth (1950). This scale is essentially the same as the equal interval scale, except that in using this instrument the subject can respond anywhere along the line and not just at its reference points. The semantic differential used by Osgood (1957) is another type of traditional response scale used in attitudinal research. Subjects are asked to describe attitudinal values along a continuum bounded by adjectival opposites.

Behavioral preference, unlike traditional scales, measures preference directly by focusing on situational factors that are easily manipulated rather than on subject

variables. However, experimental research in music which attempts to measure behavioral preference usually necessitates the use of expensive recording apparati and complex switching devices such as those used by Cotter and Toombs (1966) and Greer et al. (1973, 1974). For the purpose of this study these devices are both unnecessary and impractical.

CHAPTER III

PROCEDURE

Introduction

This study was designed to follow-up an investigation which is currently in progress, being conducted by LeBlanc and McCrary. In their study, The effect of tempo on children's music listening preferences (1983), the researchers assessed the effect of four levels of tempo on the expressed listening preferences of fifth- and sixth-grade students while both style and performing medium were held constant. Although their study did control for four different levels of tempo, LeBlanc and McCrary did not focus their subjects' perception on these levels of tempo during their experimental procedure.

In this study, the researcher wished to determine what effect focusing subjects' perception on tempo would have on their preferences for specific levels of tempo.

The same stimulus tape which was created by LeBlanc and McCrary for their study was employed in this investigation. The tape included 24 musical examples from the traditional jazz period in the United States (1925-1949) (see Appendix A). This style was intentionally chosen to present examples which would be relatively unfamiliar to students while retaining a style which had been rated favorably in previous research.

Six examples were included at each of the four tempo levels (fast, medium fast, medium slow, and slow). The tempo of each example was measured using an aural/visual metronome.

In assessing tempi during independent listening sessions there was a high level of agreement between the principal investigator and LeBlanc and McCrary (1983). The mean scores which were determined by this group for each of the four levels of tempo are as follows: 1) fast=MM 218, 2) medium fast=MM 139, 3) medium slow=MM 101, and 4) slow=MM 73. The music examples which totalled 28:26 minutes in duration, were placed on the stimulus tape in a random order. A preference-response sheet consisting of 24 seven-step response-continua anchored by the words "like" and "dislike" was created by LeBlanc for his own research, and was also used in this study (see Appendix B).

This preference scale was administered as a group test to 163 fifth and sixth-graders two weeks before this researcher began his own investigation, which then proceeded to test 50 randomly selected subjects as a subset of this larger group on an individual basis. Upon the completion of both of these studies, the data obtained by LeBlanc and McCrary was made available to this researcher for the purpose of statistical comparisons with the data generated by his own investigation.

Measures

Two different measures were used in this study to assess a subject's perception of beat-tempo: 1)a beat-tempo

matching task, and 2) a verbal response which indicated the comparative rate of speed of a music stimulus. Both of these measures were developed by this researcher to serve a two-fold purpose. Primarily, they were designed to measure subjects' success at each task, but more importantly, they were used to place the subjects "on-task," requiring them to focus their attentions to the beat-tempo of each example. In this way, each task served to direct and guide the subjects' listening, because it was essential that they perceive the beat-tempo of the music in order to respond.

The beat-tempo matching task was designed to control for a subject's perception of beat-tempo at the motor level of behavior. By producing a motor response which coincided with the beat-tempo of each example, subjects were able to demonstrate their ability to gauge the rate of speed through both the tactile and visual modes of perception. In piloting this study with a group of adult subjects, the researcher made the following observations with regard to this task: 1) at the very fast tempi, most subjects were physically incapable of producing and maintaining a tapping response which coincided with all the beats in these very fast examples, and 2) at the slower tempi, subjects had the tendency to tap to twice the number of beats contained in each example in order to help themselves maintain a steady pulse. However, for the purpose of the current investigation, subjects were simply instructed to tap along with the beat of the music by using the hand of their choice. On the basis

of his observations during the pilot study, the researcher then developed an instrument for evaluating a subject's beat-tempo matching response by employing the following two criteria: 1) quality of beat-tempo matching (QBTM), and 2) amount of beat tempo matching (ABTM) (see Appendix C). The quality of beat-tempo matching was measured at three different levels: 1) successful match (subject taps evenly and regularly to: a) all beats, b) strong beats only, c) weak beats only, and d) a double-time effect,) 2) moderately successful match (subject taps unevenly and: a) varies between strong and weak beats, b) after the beat, and/or c) before the beat), and 3) unsuccessful match (subject taps: a) uncertainly, b) arhythmically, c) randomly, and d) to the melodic rhythm only).

The amount of tapping responses was determined at five different levels, and was based upon the percentage of beats in each musical example. The following numeric values were then assigned: a) 4=subject taps from 75% to 100% of the total number of beats in each example, b) 3=subject taps from 50% to 74%, c) 2=subject taps from 25% to 49%, d) 1=subject taps from 1% to 24%, and 3) 0=no response. In evaluating a subject's success at the beat-tempo matching task, the researcher allowed approximately two full measures of each musical example to elapse before an actual scoring of each subject's performance on each musical example was initiated. This gave the subjects an adequate amount of time to interpret each music stimulus

example before actually responding.

After completing the beat-tempo matching task for each example, subjects were asked to verbally report on the comparative rate of speed of each music stimulus. Subjects were given four multiple-choice response options: 1) fast, 2) medium fast, 3) medium slow, and 4) slow. These choices were printed on a large white sheet of construction paper. The verbal response was designed to focus a subject's perception on the beat-tempo at the cognitive level of behavior. For the purposes of this procedure, it was assumed that subjects would base their verbal responses on both their aural perceptions of the music, and on the motor patterns which they had generated immediately before responding.

Both subject-scores on the beat-tempo matching task and subject's verbal responses were recorded by the researcher on an instrument developed for this purpose, and because all stimuli were pre-recorded, the researcher had the flexibility to accurately score each student's responses (see Appendix D). Subjects were provided with a response booklet for recording their own preference responses. The same response booklet which was used by LeBlanc and McCrary to obtain preference responses was also employed in this study. Since subjects were already familiar with the format of this booklet, this helped to facilitate the individual testing procedure.

Sample

Fifty, fifth-and sixth-grade students from three of the Lansing Area Catholic Diocesan Elementary Schools

participated in this study. All of the subjects were between the ages of 10 and 13, and of the 50 students, 29 were male and 21 were female. Permission to carry out this study was first obtained from the Michigan State University Committee on Research Involving Human Subjects (UCRIHS). After having been granted approval by UCRIHS, the researcher approached the central school administration for permission to conduct this study in their school system. Finally, building principals and classroom teachers were approached for permission to meet with students to inform them of the study and to distribute permission slips for them to take home to their parents (see Appendix E). There was a high percentage of return on the permission slips, therefore, making it unnecessary to follow-up on this procedure.

As a necessary prerequisite for participating in this study, students had to have already participated in the study conducted by LeBlanc and McCrary, and had to have returned their signed permission slips indicating parental consent. From this group the researcher drew a random sample population. Since student identification numbers had previously been assigned, the researcher used these numbers to select subjects using a table of random numbers. Subjects were all selected on the morning of the day they were to be tested.

Method

On the day of testing, the researcher arrived before school was in session to meet with the school principal and to secure a room which was suitable for individual testing.

Once this was accomplished, the researcher set up the necessary audio equipment. One stereo cassette recorder was used for playing the stimulus tape, and was positioned so both the researcher and the subjects could listen to it at a comfortable volume. The second stereo cassette recorder was used to record the students' beat-tempo matching responses. Two microphones were connected to this machine, one being positioned directly in front of the student to record the tapping responses, and the other placed near the playback recorder to simultaneously record the music stimulus examples. Both cassette units were positioned within arm's reach of the researcher for the purpose of easy manipulation.

After setting up the testing area, the researcher drew a sample of those students who had agreed to participate. The classroom teachers were then given the identification cards for these students, and were instructed to send each student to the testing area after the previous student had returned. The entire procedure for each student lasted approximately 30 minutes.

Upon entering the testing area, each student was greeted by the researcher. The student was then seated across the table from the researcher and was given a preference response booklet. The student was then instructed on how to complete the necessary information on the cover of this booklet, and the researcher then reviewed the following directions:

Use this answer booklet to tell us how much you like or dislike the speed of the music you are about to hear. You can do this by writing an 'X' in one of the seven spaces between the words 'I like' and 'I dislike.' If you like the speed of the music very much, put an 'X' in the space closest to 'I like.' If you dislike the speed of the music very much, put an 'X' in the space closest to 'I dislike.' If you can't decide, put your 'X' in the middle space. Use the spaces in between to show us when your feeling about the speed of the music is somewhere in between like and dislike. Be sure to mark one 'X' for each example, and don't leave any examples blank. There aren't any right or wrong answers, just tell us what you think about the speed of the music.

After completing these directions, the researcher informed the student about the other experimental procedures which were involved in the study. The researcher then read the following directions:

You will be listening to a variety of pre-recorded musical examples. When I start the tape recorder and the musical example begins, listen carefully, and tap either your left of right hand on the table top along with the beat of the music. After each example is completed, I will stop the tape and ask you to tell me how fast or slow you thought that example was by using one of these choices (researcher points to the sheet of construction paper with the four multiple-choice response options printed on it). Then by

using your answer sheet, I will ask you to tell me how much you liked or disliked the speed of that music by writing an 'X' in one of the spaces."

The student was then asked to try a practice example using all of the experimental procedures. This acquainted the student with all of the techniques, while at the same time, providing the researcher with an indication as to whether the student fully comprehended his directions. After the student completed the practice example, the experimental procedure was reviewed by the researcher and the student was asked if he or she had any questions before they began.

During the experiment it was necessary for the researcher to watch every student very carefully while (s)he was beat-tempo-matching. In spite of this, there were no students who expressed an objection to being observed. Some students were asked to tap more loudly so they could be heard more easily by the researcher and to produce a stronger signal into the microphone. At certain points it was necessary for the researcher himself to produce a beat-matching response by moving one finger silently. This matching was performed out of the student's line-of-sight, and was imperceptible. Students did not seem to be bothered by the fact that their responses were being tape recorded. However, the beat-tempo-matching task did prove to be tiresome for some of them. For this reason, students were permitted to switch hands during the course of the procedure if they wished.

Finally, each student was thanked for his or her participation, and was asked to send for the next participant upon returning to the classroom.

Analysis

The research data was prepared for computer analysis. A total of 103 variables were coded for this analysis (see Appendix F). These included demographic information such as a subject's identification number, card number (since there was more than one record per case), school identification number, grade, age, class identification number, and sex. Listener preference responses, quality of beat-tempo-matching responses, amount of beat-tempo-matching responses, and student verbal responses were each coded as 24 separate variables.

Listener preference responses were coded using the assigned values of 1-7. A value of seven indicated the strongest possible liking response, and a value of one indicated the strongest possible disliking response. Quality of beat-tempo matching responses were assigned the following numeric values: a) 3 (successful match), b) 2 (moderately successful match), and c) 1(unsuccessful match). Amount of beat-tempo-matching responses were coded at five different levels (0-4), which were based upon the total number of beats in each of the musical examples. A value of four represented the greatest possible amount of matching, while a value of zero represented no response. Lastly, student verbal responses were assigned the following numeric values: a) 4 (fast),

b) 3 (medium fast), c) 2 (medium slow), and d) 1 (slow).

In analyzing the data, the researcher utilized the following subprograms of the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). The FREQUENCIES subprogram was used to produce descriptive statistics on the demographic data. The RELIABILITY subprogram was used to create four subscales based upon the four levels of tempo included on the post-test for each of the following items: a) listener preference response scores, b) quality of beat-tempo-matching responses, c) amount of beat-tempo-matching responses, and d) student verbal response. This subprogram was also employed to create four comparable subscales for listener preference response scores on the pre-test data gathered by LeBlanc and McCrary (1983). Group means, standard deviations, and Cronbach's alpha (a measure of internal test consistency and reliability) were obtained for each measurement scale.

A repeated measures multiple analysis of variance (MANOVA) was performed to test for significant differences between pre-test and post-test preference response scores at each of the four levels of tempo and by grade and sex. In addition, MANOVA was used to test for significant differences at each of the four levels of tempo for the quality of beat-tempo-matching response, the amount of beat-tempo-matching response, and two measures of the student verbal response: 1) the number of correct identifications of tempo at each level of tempo, and 2) the students' deviation from

the correct responses which were established by this investigator and a panel of experts after they had determined a mean tempo for each level.

CHAPTER IV

RESULTS

A total of 50 students from three participating elementary schools were involved in the individual interview portion (post-test) of this investigation. Of the 50 subjects, 29 (58%) were male and 21 (42%) were female. The ages of the subjects ranged from 10 to 13 years old, with a mean age of 10.92. With respect to grade level, 32 (64%) subjects were fifth graders and 18 (36%) subjects were sixth graders. The mean grade-level was 5.36. In calculating mean scores for each grade-level, the researcher used a statistical proportion to account for this difference in the groups' sizes.

Overall, the reliability coefficients, which measure internal test consistency, were above .76 for the measures used in this study except for those which assessed the students' verbal report of tempo-level. The reliability coefficient for the students' verbal responses at the slow tempi was .30. Reliability coefficients were greater than .56 for the three other tempo-levels with regard to this same measure (see Table 1 for the reliability coefficients for each subscale).

TABLE 1

RELIABILITY COEFFICIENTS
CHRONBACH'S ALPHA

	Tempo			
	Slow	Medium Slow	Medium Fast	Fast
Preference Response				
Pre-Test	0.77	0.81	0.88	0.85
Post-Test	0.82	0.84	0.87	0.88
Quality of Beat-Tempo-Matching Response	0.85	0.87	0.83	0.87
Amount of Beat-Tempo-Matching Response	0.81	0.88	0.91	0.86
Verbal Response	0.30	0.60	0.66	0.57

Repeated Measures Analysis of Variance for Preference Response

The test for tempo and test time period did not yield clear results because a statistically significant interaction occurred between the pre-test (group test) and the post-test (individual interview) test time periods and the mean preference response scores in two of the three planned comparisons for tempo by test at the .02 and .01 levels, (see Table 2).

TABLE 2

REPEATED MEASURES ANALYSIS OF VARIANCE
PREFERENCE RESPONSE

Source of Variation	F	Signif. of F	
Tempo	35.99	0.00	
Planned Comparisons			
Fast vs. Med. Fast, Med. Slow, & Slow	38.43	0.00	
Med. Fast vs. Med. Slow & Slow	59.89	0.00	
Med. Slow vs. Slow	105.61	0.00	
Test Time Period (Group vs. Individual)	22.36	0.00	
Sex	0.00	0.97	
Grade	3.71	0.06	*
Two-Way Interactions			
Tempo by Test Time Period	3.60	0.02	
Planned Comparisons			
Fast vs. Med. Fast, Med. Slow, & Slow by Test	6.28	0.02	
Med. Fast vs. Med. Slow & Slow by Test	7.41	0.01	
Med. Slow vs. Slow by Test	2.19	0.15	
Tempo by Sex	0.72	0.54	
Tempo by Grade	0.84	0.48	
Test Time Period by Grade	2.00	0.16	
Sex by Grade	0.14	0.71	
Text Time Period by Sex	0.53	0.47	
Three-Way Interactions			
Tempo by Test Time Period by Sex	0.43	0.73	
Tempo by Test Time Period by Grade	0.09	0.97	
Tempo by Sex by Grade	0.91	0.42	
Test Time Period by Sex by Grade	0.53	0.47	
Four-Way Interaction			
Tempo by Test Time Period by Sex by Grade	1.57	0.21	

* Refer to Figures 2 and 3.

However, one could argue that this significant interaction was not very meaningful. Based on the assumptions of probability theory and sampling, it would be highly

unlikely that the slopes of any two regression lines generated from pre-test and post-test scores in a repeated measures analysis of variance would come out to be completely parallel at all points. For this reason, the researcher believes the results of this analysis reflect the true-to-life outcomes of such a test (see Figure 1).

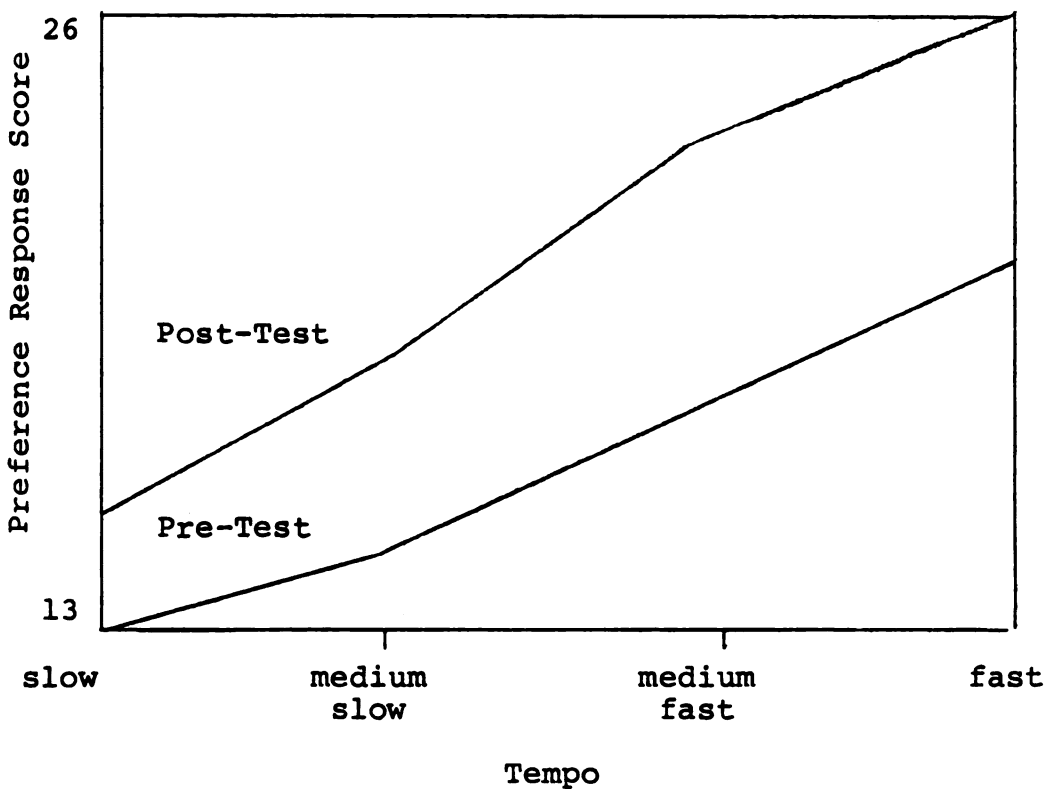


Figure 1. Overall music listening preference.

Although this statistically significant interaction was encountered in two of the three planned comparisons for tempo by test-time period, the following observations can still be drawn. First, for each test time period (pre-test and post-test) fast tempo was preferred more than all other tempi, medium fast tempo was preferred more than medium slow and slow tempi, and medium slow tempo was preferred over slow tempo. Overall, subjects responded with higher preference

scores as the tempo increased in speed (see Table 3 and Figure 1). In addition, for each of the four levels of tempo the post-test (individual interview) preference score means were higher than the pre-test (group test) preference score means (see Table 3).

TABLE 3

GROUP MEANS FOR PREFERENCE RESPONSE SCORES *
(TEMPO BY TEST TIME PERIOD)

	slow	medium slow	medium fast	fast
Pre-test	2.27	2.53	2.96	3.44
Post-test	2.63	3.16	3.87	4.42

*Preference response scores were scaled from 1 to 7

Secondly, there was no statistically significant difference by sex with regard to mean-preference scores. However, there was a strong main effect at the .06 level between the fifth-and sixth-grades on both the pre-test and the post-test, with the sixth grades having expressed higher mean preference scores at all four levels of tempo (see Figures 2 and 3).

Finally, there were no statistically significant three-way, or four-way interactions. Neither grade nor sex significantly interacted with each other, or tempo, or test time period.

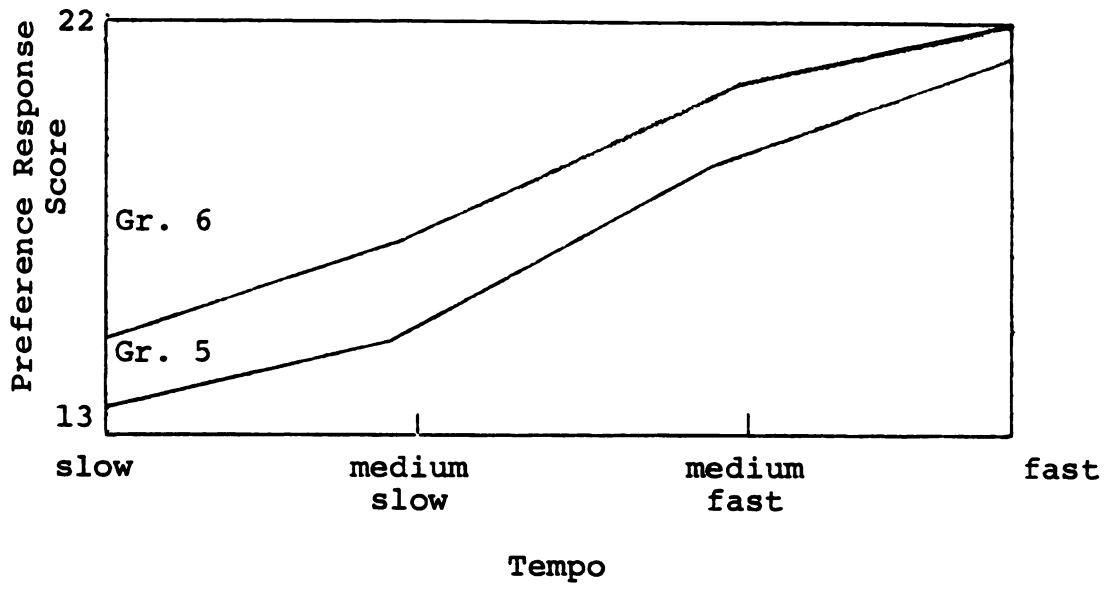


Figure 2. Pre-Test preference response scores by grade.

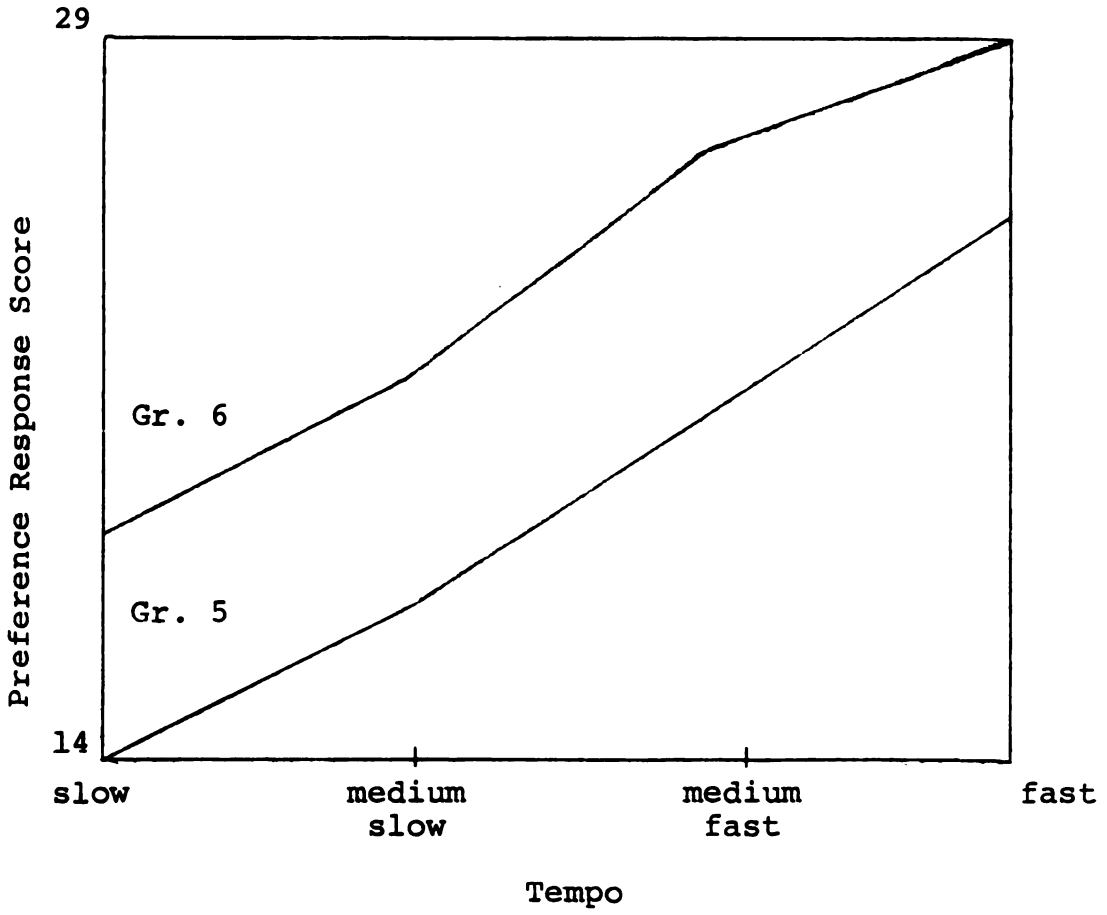


Figure 3. Post-Test preference response scores by grade.

Multivariate Analysis of Variance for Quality of Beat-Tempo-Matching and Amount of Beat-Tempo-Matching Responses on Post-Test

There was a statistically significant difference between the fast tempo and all other levels of tempo with regard to both the quality and the amount of beat-tempo-matching responses as indicated by .03 and .02 levels of significance respectively (see Table 4). Both the quality of and the amount of matching were significantly lower at the fast tempo-level than at all other levels of tempo. There was also a significant difference between the medium fast tempo and the medium slow and slow tempi with regard to the quality of matching responses. Here, the quality was significantly higher than those as the slower tempi. On the contrary, a statistically significant difference was not encountered for the amount of beat-tempo-matching response when the researcher compared the medium fast tempo with the slower tempi. Finally, a statistically significant difference was found when the researcher compared the medium slow and slow tempi with regard to both the quality and the amount of beat-tempo-matching. The amount of matching was significantly higher at the slow tempo, while the quality was significantly lower.

Therefore, it can be stated that the quality of beat-tempo-matching responses was best at the moderate tempi, medium fast and medium slow, while it was poorest at the extreme tempi, fast and slow. Furthermore, the amount of beat-tempo matching responses were greatest at the slow tempo and least at the fast tempo, with no statistically

TABLE 4

MULTIVARIATE ANALYSIS OF VARIANCE FOR QUALITY OF BEAT-TEMPO-MATCHING AND AMOUNT OF BEAT-TEMPO-MATCHING RESPONSES ON POST-TEST

Source of Variation	F	Signif. of F
Tempo	12.81	0.00
Planned Comparisons		
Fast vs. Med. Fast, Med. Slow, & Slow	7.50	0.00
Average Quality of Beat-Tempo-Matching	9.61	0.03
Average Amount of Beat-Tempo-Matching	6.76	0.02
Med. Fast vs. Med. Slow & Slow	5.71	0.01
Average Quality of Beat-Tempo-Matching	9.47	0.00
Average Amount of Beat-Tempo-Matching	1.38	0.25
Med. Slow vs. Slow	15.34	0.00
Average Quality of Beat-Tempo-Matching	23.61	0.00
Average Amount of Beat-Tempo-Matching	12.21	0.00
Grade	3.67	0.03
Average Quality of Beat-Tempo-Matching	4.08	0.05
Average Amount of Beat-Tempo-Matching	3.28	0.08
Sex	0.50	0.61
Two-Way Interactions		
Tempo by Grade	0.49	0.81
Tempo by Sex	0.38	0.89
Grade by Sex	0.01	0.99
Three-Way Interaction		
Tempo by Grade by Sex	0.51	0.80

significant difference between the moderate tempi, medium fast and medium slow, but with a significant difference between the moderate tempi and the extreme ones (see Figures 4 and 5).

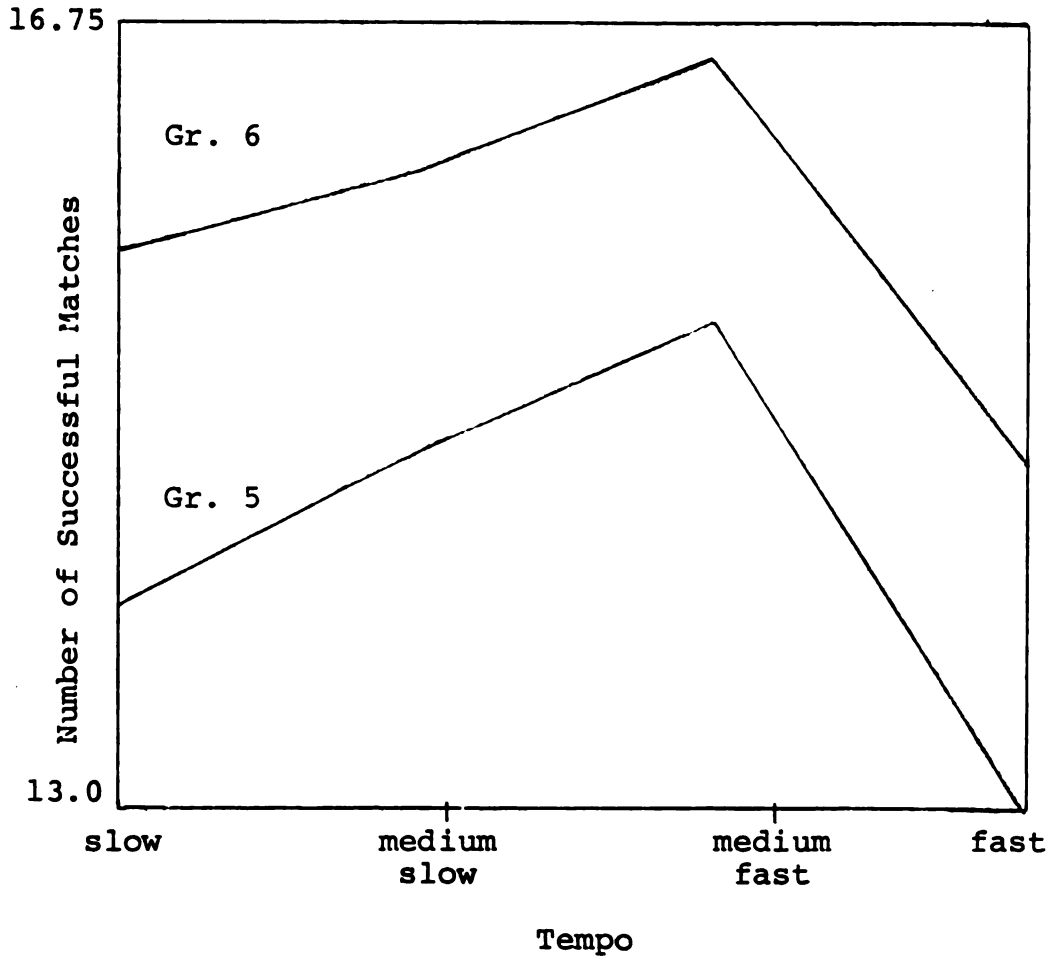


Figure 4. Overall quality of beat-tempo matching by grade

There was a statistically significant difference across all four levels of tempi between the fifth and sixth grades with respect to both the quality and the amount of beat-tempo-matching responses. Overall, the fifth-graders produced a greater number of tapping responses in their attempts to beat-tempo-match to the music examples than did the sixth-graders. However, the sixth-graders were significantly more accurate in the quality of their beat-tempo-matching responses than were the fifth graders (see Figures 4 and 5).

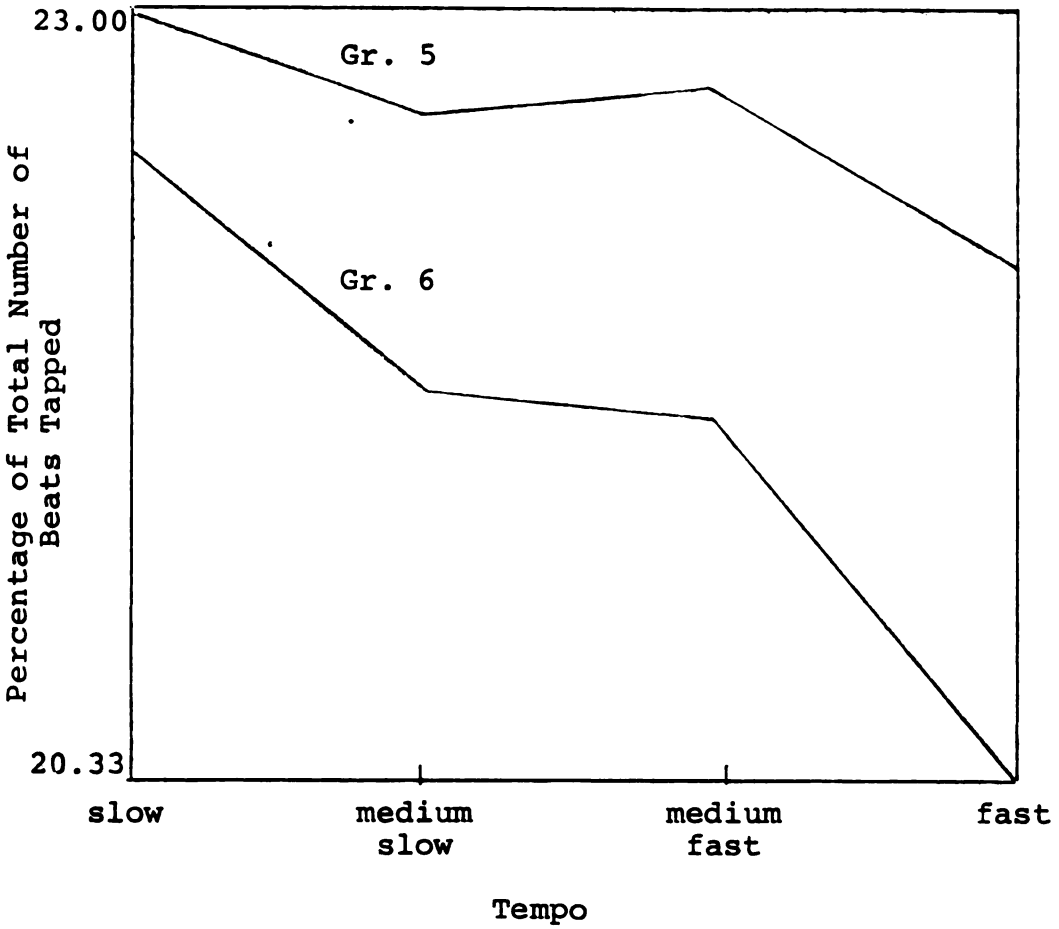


Figure 5. Overall amount of beat-tempo-matching by grade

Lastly, there was no significant difference by sex with respect to both measures of the beat-tempo-matching response, and no two-way or three-way interactions among tempo, grade, and sex were encountered.

Multivariate Analysis of Variance for Student Verbal Response on Post-Test

The students' verbal response scores were used to generate two separate measures of student accuracy in identifying the rate of speed of the music stimulus examples. The first measure of accuracy counted the number of times

subjects correctly identified the speed of the music out of a total of six possible attempts for each level of tempo. The second measure of accuracy was used to indicate how far off the students were in identifying the tempo level when compared to the correct response. Thus, a departure score was generated which was the arithmetic difference between the students' verbal responses and the predetermined correct responses.

There was a statistically significant difference between the fast tempo and the average of all other levels of tempi, and between the medium fast tempo and the average of the medium slow and slow tempi with regard to both the number of correct identifications at each tempo level and the departure from the correct response. However, between the medium slow and slow tempi a statistically significant difference was found only with respect to the deviation score and not for the number of correct identifications (see Table 5).

In general, as the speed of the tempo increased, so did the subjects' departure from the predetermined correct responses (see Figure 6). In addition, subjects correctly identified the tempo level a greater number of times at the extreme tempi, fast and slow, than they did at the moderate ones, medium fast and medium slow (see Figure 7).

Finally, there were no significant main effects for grade or sex with regard to both measures of the verbal response and there were no statistically significant two-way

or three-way interactions between or among tempo, grade, and sex.

TABLE 5

MULTIVARIATE ANALYSIS OF VARIANCE
STUDENT VERBAL RESPONSE
POST-TEST

Source of Variation	F	Signif. of F
Tempo	22.07	0.00
Planned Comparisons		
Fast vs. Med. Fast, Med. Slow, & Slow	17.32	0.00
Number of Correct Identifications	18.92	0.00
Deviation from Criterion Score	11.18	0.00
Med. Fast vs. Med. Slow & Slow	11.33	0.00
Number of Correct Identifications	19.90	0.00
Deviation from Criterion Score	23.15	0.00
Med. Slow vs. Slow		
Number of Correct Identifications	0.16	0.70
Deviation from Criterion Score	12.11	0.00
Grade	1.68	0.20
Sex	1.74	0.19
Two Way-Interactions		
Tempo by Grade	1.19	0.37
Tempo by Sex	0.50	0.81
Grade by Sex	1.76	0.18
Three-Way Interaction		
Tempo by Grade by Sex	1.64	0.16

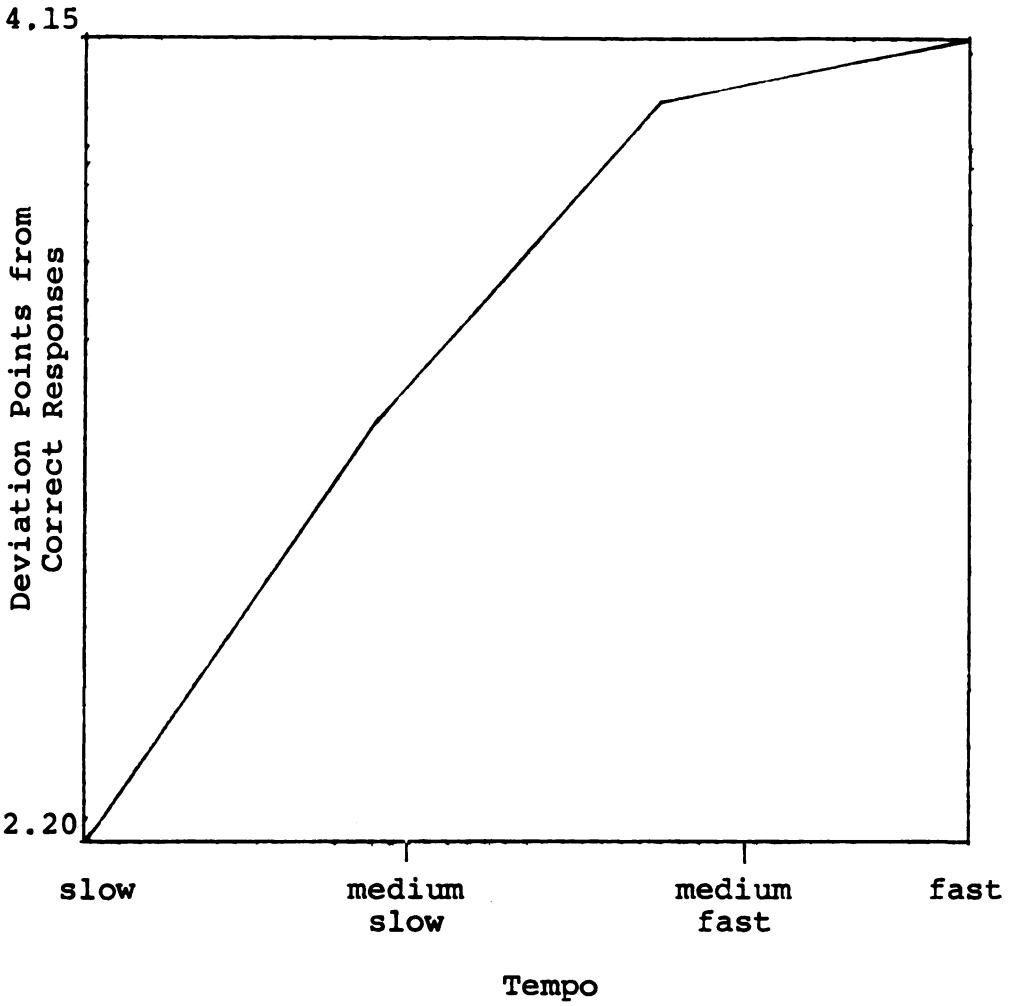


Figure 6. Average total number of deviation points from correct response at each level of tempo.

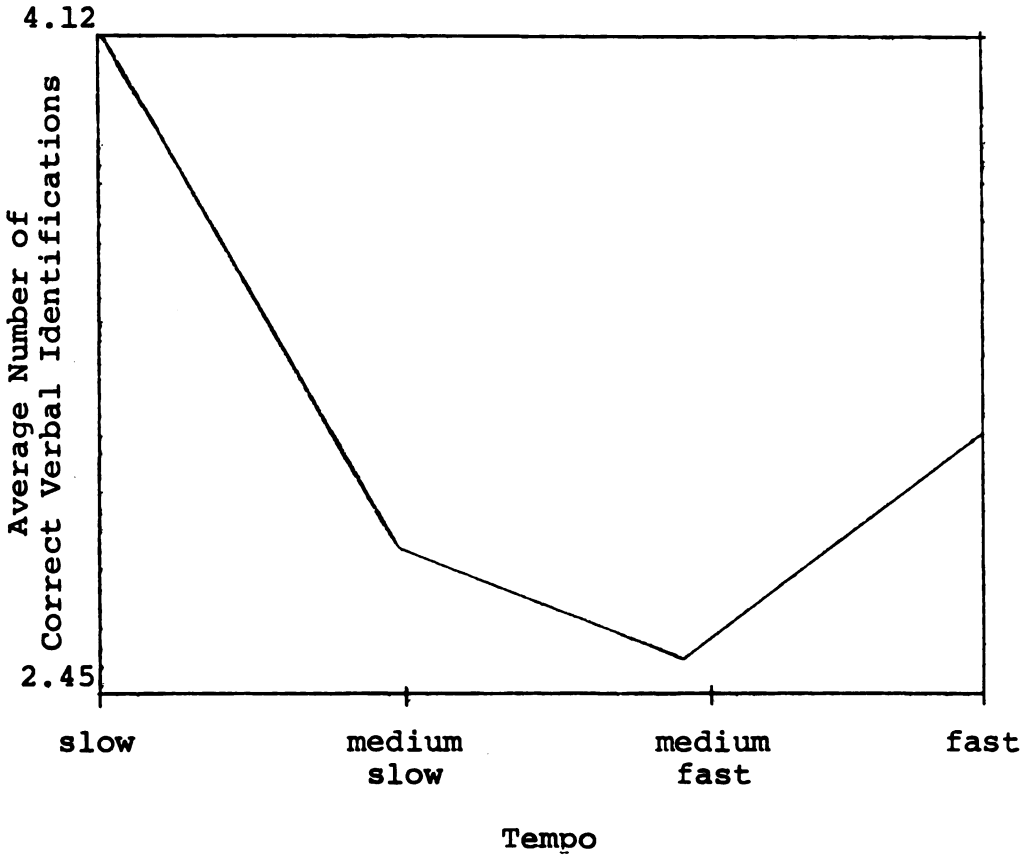


Figure 7. Average number of correct verbal identifications of tempo at each tempo level.

CHAPTER V

CONCLUSIONS

The results of this study are consistent with previous research findings which have suggested that fifth and sixth-graders express more favorable preference responses for faster tempi than for slower ones. With both style and performing medium being held constant, and with additional experimental controls being placed upon the subjects' perception of beat-tempo in the form of a beat-tempo-matching task and a verbal report of tempo, this study has indicated that beat-tempo (the rate of speed at which a musical composition moves) is one musical factor which has a strong effect on the preference responses of fifth and sixth-graders.

The repeated measures multiple analysis of variance indicated that there was a statistically significant main effect at the .001 level for tempo with regard to students' preference response scores. In each of the three planned comparisons for tempo (fast tempo vs. all other tempi, medium fast vs. medium slow and slow, and medium slow vs. slow) a statistically significant difference at the .001 level was obtained. In examining the mean scores for preference response on both the pre-test and post-test at each of the four levels of tempo, the researcher observed that subjects responded with higher preference response scores

as the tempo increased. On the basis of these results, the researcher concluded that both fifth- and sixth-graders prefer fast tempi more than all other levels of tempi, and that they will express more favorable preference responses as tempo increases.

Again, with respect to students' preference responses, a significant main effect was found for test-time period (pre-test vs. post-test) at the .001 level. At each of the four levels of tempo, the mean scores for preference response were higher on the post-test than for the pre-test. These findings suggest that when subjects are tested individually, and focusing techniques such as the beat-tempo-matching task and a verbal report of tempo are administered, subjects will express higher preference scores than when these focusing techniques are not employed, and subjects are tested as part of a larger group.

Finally, there was a statistically significant main effect between grades at the .06 level with regard to listener preference responses. The sixth-graders on the average responded with higher preference scores across all levels of tempo than did the fifth-grade. In contrast, there was no statistically significant difference found between sexes with regard to preference. These findings suggest that for fifth- and sixth-graders, a student's grade-level will be a stronger factor in determining his or her music listening preferences than gender.

With respect to the beat-tempo-matching task, the quality of beat-tempo-matching for both grades was

significantly lower at the fast tempi than for all other levels of tempi, and in addition, there was a statistically significant difference in the percentage of beats tapped by subjects at the fast tempi when compared to all others. At the fast tempi, subjects tapped to a significantly lower percentage of beats.

These results suggest that it is more difficult for fifth- and sixth-graders to generate and maintain a motor response which coincides with a more rapidly moving stimulus in comparison with more moderate ones. Furthermore, there was a statistically significant difference between the medium slow and slow tempi with regard to the quality of beat-matching. At the slow tempi, the quality of matching was significantly lower than at the medium slow tempi. However, at the slow tempi, subjects tapped to a greater percentage of the beats. These findings suggest that it is easier for both grades to produce more successful beat-tempo-matching responses at the moderate tempi (medium fast and medium slow) than at the extreme tempi (fast and slow).

Sixth-graders were significantly more accurate in the quality of their beat-tempo-matching responses while producing a significantly lower percentage of tapping responses than did the fifth-graders. Again, there was no statistically significant difference between sexes. These findings suggest that for fifth- and sixth-graders ability to beat-tempo-match may be closely associated with the maturation of their ear-to-hand coordination skills, and possibly

their experiences and training in performing such a task.

Students' verbal responses were more accurate at the extreme tempi (fast and slow) as compared with the moderate tempi (medium fast and medium slow). This leads the researcher to conclude that the extremes are more easily recognizable, whereas, a "grey-area" or ambiguousness is present between the levels of medium fast and medium slow. In addition, students' increased departure from the correct responses as tempo increased is a result of an artifact in the actual differences between each of the four levels of tempo in their metronomically determined speeds. These four levels of tempo each represented six different tempi, and the correct responses were based upon the mean tempo of each group. As tempo increased, so did the difference between the metronomically determined mean tempo for each level or group. Also, in identifying the fast tempi, subjects could not deviate in excess of the correct score, and similarly with the slow tempi, subjects could not deviate below the correct score. In contrast, at the moderate tempi, subjects had the opportunity to deviate in either direction.

Discussion

One reason why post-test preference response scores were significantly higher than pre-test preference response scores at each level of tempo may be due to the fact that the pre-test was administered as a group measure, whereas the post-test was administered to a subset of the same

subjects on an individual basis. In observing the pre-test, the researcher observed what seemed to be a peer-group effect. Students would overtly share their responses and reactions to the music with their fellow classmates by making gestures such as "thumbs-down" for certain music examples, or by scowling and frowning when other music examples were being heard. On the contrary, during the post-test subjects displayed only a minimal amount of overt reactions in response to the music stimulus examples. Also, when administering the individual tests, the researcher was seated directly across from each subject, and as a result of this proximity between the researcher and subject, subjects may have been more hesitant to rate the music examples unfavorably.

Another possible explanation for this statistically significant difference between pre-test and post-test preference scores may be due to the effect of the beat-tempo-matching task and the students' verbal responses. It is likely that when fifth- and sixth-graders are actively participating in a musical activity, that they will tend to express more favorable preference responses than when they are just sitting as passive listeners. In addition, both tasks required that the subjects focus their attention to a specific element within the music stimuli (beat-tempo), in an experimental setting (individual interview) which was designed to minimize the amount of extraneous stimuli to be processed by the subjects. Furthermore, during the

post-test, subjects were listening to the same music stimuli for a second time. Although two weeks had elapsed following the group testing procedure, subjects may have recognized some of the music examples from the pre-test, and therefore, because they were familiar with them tended to express more favorable preference responses.

A possible explanation for the statistically significant difference between grades with regard to their preference response scores, may be found in the fact that sixth-graders on the average tend to have more self-confidence than do fifth-graders. This may be a function of the fact that in the elementary schools in which this study took place the sixth-grade was the uppermost grade-level, and therefore, sixth-graders were less hesitant to voice their opinions.

During the beat-tempo-matching procedure, the researcher observed that it was difficult for subjects to match at the very fast tempi. Subjects would eventually reach a threshold at which they could no longer tap to all the beats in the very fast examples, and therefore, would resort to tapping to half of the beats. This may help account for the fact that subjects differed significantly in the percentage of beats to which they tapped at the fast tempi as compared to all other levels of tempi (note that tapping only half of the beats will produce only 50% of the total number of beats for each music stimulus example). Similarly, subjects found it difficult to

beat-tempo-match at the very slow tempi. This may be due to the fact that at slower tempi a longer time interval exists between each successive beat, therefore, increasing the possibility on the part of the subject to deviate from the actual beat, either before or after it. In addition, at the slower tempi, subjects tended to tap a double-time effect (twice as many beats per measure) to help themselves maintain a steady pulse. This may explain why the percentage of the total number of beats to which the students tapped increased as tempo decreased.

Recommendations for Further Research

Further investigation is needed to determine the relationship between group-preference testing and individual-preference testing measures and procedures. A more detailed analysis should be undertaken in which the peer-group influence on individuals' preference response scores during group-preference testing is studied. In this regard, it would be interesting to modify the present study to exclude both the beat-tempo-matching task and the verbal report of tempo. This design may more closely reflect the differences between group and individualized-preference testing measures and procedures. In addition, a study could also be designed in which two groups of subjects listen to the same music stimulus examples and are tested individually in an interview setting. Subjects in a control group would listen to each example and then make a preference response. Subjects in a treatment group would listen, perform the beat-tempo-matching

task, verbally report the tempo, and then make a preference response. This design would be a more sensitive measure of the effect of perceived beat-tempo.

Replicating this study using different musical styles instead of traditional American jazz is essential to further detail the extent and quality of tempi preferences. Other styles may be selected on the basis of their relative beat perceptability.

Finally, it is more important for researchers to identify and understand the musical factors which have a relationship to music preference. In order to determine in what combinations and proportions these factors must be present to evoke either favorable or unfavorable preference responses from their subjects, researchers may wish to devise other tasks similar to those used in this study. In this way, researchers can focus their subjects' perceptions on the factors which are being investigated as the subjects are listening and formulating their preference responses.

APPENDICES

APPENDIX A

APPENDIX A

Music Stimulus Examples

Title	Performer	MM	Tempo	#
Blues! A Jam Session at Victor	Waller	82	S	3
St. James Infirmary	Teagarden	70	S	6
Society Blues	Bechet	64	S	12
Relaxin' at the Touro	Spanier	85	S	14
Just a Closer Walk with Thee	Armstrong	57	S	15
Vibraphone Blues	Goodman	82	S	22
Sweet Lorraine	Bechet	93	MS	4
Black and Blue	Spanier	109	MS	8
Jack Hits the Road	Teagarden	102	MS	9
It's Wonderful	Armstrong	99	MS	13
Moon Glow	Goodman	105	MS	18
Ain't Misbehavin'	Waller	97	MS	21
Bluein' the Blues	Spanier	153	MF	7
S'posin'	Waller	139	MF	10
I Cried for You	Armstrong	147	MF	11
Why Don't You Do Right	Goodman	126	MF	17
Coal Cart Blues	Bechet	135	MF	20
After a While	Teagarden	132	MF	23
Sheik of Araby	Armstrong	250	F	1
Blackstick	Bechet	178	F	2
Shim	Goodman	191	F	5
I Hope Gabriel	Teagarden	183	F	16
Eccentric	Spanier	222	F	19
Oh Susannah	Waller	284	F	24

Key

MM = Metronome Marking

\# = example's order of appearance on stimulus tape

S = Slow

MS = Medium Slow

MF = Medium Fast

F = Fast

Group Means

Slow	Medium Slow	Medium Fast	Fast
73 mm	101 mm	139 mm	218 mm

APPENDIX B

APPENDIX B

PR FOURTEMP PO

STUDID: _____
(Cols. 1-3)

SCHOOLID: _____
(Col. 4)

GRADE: _____
(Col. 5)

AGE: _____
(Cols. 6-7)

CLASSID: _____
(Cols. 8-9)

SEX: _____
Male=1; Female=2
(Col. 10)

Name of your school _____

Name of your teacher _____

Practice Example

(someone else's answer)

I like |___|___|___|_X_|___|___|___| I dislike
7 6 5 4 3 2 1

(now put your answer)

I like |___|___|___|___|___|___|___| I dislike
7 6 5 4 3 2 1

Example 1

I like |____|____|____|____|____|____|____| I dislike
(Col. 11) 7 6 5 4 3 2 1

Example 2

I like |____|____|____|____|____|____|____| I dislike
(Col. 12) 7 6 5 4 3 2 1

Example 3

I like |____|____|____|____|____|____|____| I dislike
(Col. 13) 7 6 5 4 3 2 1

Example 4

I like |____|____|____|____|____|____|____| I dislike
(Col. 14) 7 6 5 4 3 2 1

Example 5

I like |____|____|____|____|____|____|____| I dislike
(Col. 15) 7 6 5 4 3 2 1

Example 6

I like |____|____|____|____|____|____|____| I dislike
(Col. 16) 7 6 5 4 3 2 1

Example 7

I like |____|____|____|____|____|____|____| I dislike
(Col. 17) 7 6 5 4 3 2 1

Example 8

I like |____|____|____|____|____|____|____| I dislike
(Col. 18) 7 6 5 4 3 2 1

Example 9

I like |____|____|____|____|____|____|____| I dislike
(Col. 19) 7 6 5 4 3 2 1

Example 10

I like |____|____|____|____|____|____|____| I dislike
(Col. 20) 7 6 5 4 3 2 1

Example 11

I like |____|____|____|____|____|____|____| I dislike
(Col. 21) 7 6 5 4 3 2 1

Example 12

I like |____|____|____|____|____|____|____| I dislike
(Col. 22) 7 6 5 4 3 2 1

Example 13

I like |____|____|____|____|____|____|____| I dislike
(Col. 23) 7 6 5 4 3 2 1

Example 14

I like |____|____|____|____|____|____|____| I dislike
(Col. 24) 7 6 5 4 3 2 1

Example 15

I like |____|____|____|____|____|____|____| I dislike
(Col. 25) 7 6 5 4 3 2 1

Example 16

I like |____|____|____|____|____|____|____| I dislike
(Col. 26) 7 6 5 4 3 2 1

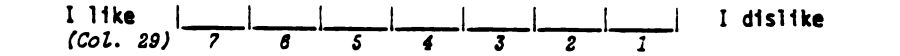
Example 17

I like |____|____|____|____|____|____|____| I dislike
(Col. 27) 7 6 5 4 3 2 1

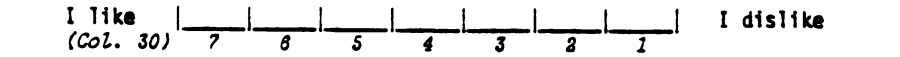
Example 18

I like |____|____|____|____|____|____|____| I dislike
(Col. 28) 7 6 5 4 3 2 1

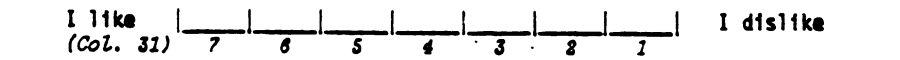
Example 19



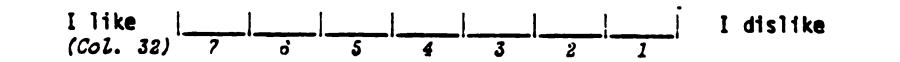
Example 20



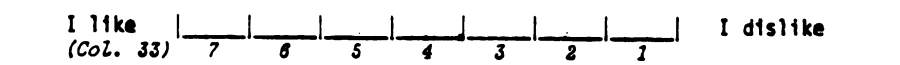
Example 21



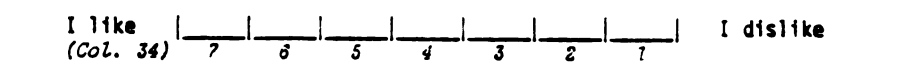
Example 22



Example 23



Example 24



APPENDIX C

APPENDIX C

INSTRUMENT FOR EVALUATING STUDENT BEAT-TEMPO-MATCHING RESPONSE (KEY)

Quality of beat-tempo-matching response (QBTM)

3 successful match (student taps regularly and evenly to: 1) all beats, 2) strong beats only, 3) weak beats only, 4) double-time feel.)

2 moderately successful match (student taps unevenly and: 1) varies between strong and weak beats, 2) after the beat, 3) before the beat.)

1 unsuccessful match (student taps: 1) uncertainly, 2) arhythmically, 3) randomly, 4) to the melodic rhythm only.)

Amount of beat-tempo-matching (ABTM)

4 student taps to 75% to 100% of the total beats in each example

3 student taps to 50% to 75% of the total beats in each example

2 student taps to 25% to 50% of the total beats in each example

1 student taps to 1% to 25% of the total beats in each example

0 student taps to 0% of the total beats in each example. (No response)

Student's verbal response (SVR)

4 fast tempo

3 medium fast tempo

2 medium slow tempo

1 slow

Blank/no response or undediced

APPENDIX D

APPENDIX D

INSTRUMENT FOR EVALUATING STUDENT

BEAT-TEMPO-MATCHING RESPONSE

STUDID:_____

EXAMPLE #	QBTM	ABTM	SVR
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			

APPENDIX E

APPENDIX E

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF MUSIC — EAST LANSING · MICHIGAN · 48824

Dear Parent:

I am writing to ask your permission for your child to participate in my research study. The purpose of this study is to "follow-up" on the previous study conducted in your child's school by Dr. Albert LeBlanc. As my academic advisor, Dr. LeBlanc has carefully supervised my work, and has assisted me in the design of this project as a master's thesis. The objective of this study is to gather more information about how some specific characteristics of music influence music preference decisions. To accomplish this I will play recorded musical examples for students and ask them to tap along with the beat of the music. In addition, the students will be asked to verbally report how fast or slow each example is, and to give a written response using an answer sheet indicating how much they like or dislike each example they listen to. This entire procedure will take approximately 15 minutes of your child's time, and will be initiated approximately one week after Dr. LeBlanc's investigation has been completed. This study has already been explained to your school principal and to your child's classroom teacher, and has been approved by both. Whether or not your child participates in this study will have no influence on their grade. I hope that you will approve of your child's participation, and you can indicate this by signing and returning the consent form below.

Sincerely,

Robert J. Harris

Robert J. Harris
Music Department
Michigan State University

- -

CONSENT FORM

I have read the explanation above and hereby consent to my child's participation in your study of music preference. I understand that my child is free to withdraw from the study at any time without penalty. I understand that my child will remain anonymous, that his or her consent will be obtained as a condition of participating in the study, and that his or her responses will remain confidential. Within these restrictions, I understand that when the study is completed the overall results of it will be made available to me upon my written request.

Signed _____
(Legal Parent or Guardian)

Date _____

Child's Name _____

Teacher's Name _____

MSU is an Affirmative Action/Equal Opportunity Institution

APPENDIX F

APPENDIX F

BEATEMP CODEBOOK

Column(s)	SPSS variable name	variable description and codes
Card I		
1-3	STUDID	student's identification number
4	CARDID	card identification number 1 first card 2 second card
5	SCHOOLID	school identification number 1 Immaculate Heart of Mary (IHM) 2 Resurrection 3 St. Gerard
6	GRADE	student's grade level (literally reproducing)
7-8	AGE	student's age (literally reproducing)
9-10	CLASSID	class identification number 1 Brzezinski (BRZNSKI) 2 McNeil (MCNEIL) 3 Lopez (LOPEZ) 4 Repichowski (REPCWSKI) 5 Myers (MYERS) 6 Schoenfeld (SHNFLD) 7 Sr. Yvonne (SRYVNE)
11	SEXID	student's gender 1 male 2 female
12	LPR	listener preference response number 1, 7 listener preference response options (7,6,5,4,3,2,1) for each musical example using a scale anchored by "I like" (7), and "I dislike" (1). MISSING VALUES (BLANK)
13	LPR	
14	LPR	
15	LPR	
16	LPR	
17	LPR	
18	LPR	
19	LPR	
20	LPR	
21	LPR	
22	LPR	
23	LPR	
24	LPR	
25	LPR	
26	LPR	
27	LPR	
28	LPR	
29	LPR	

Column(s)	SPSS variable name	variable description and codes
30	LPR	
31	LPR	
32	LPR	
33	LPR	
34	LPR	
35	LPR	
36	QBTM	Quality of beat tempo matching response 3 successful 2 moderately successful 1 unsuccessful
37	QBTM	
38	QBTM	
39	QBTM	
40	QBTM	
41	QBTM	
42	QBTM	
43	QBTM	
44	QBTM	
45	QBTM	
46	QBTM	
47	QBTM	
48	QBTM	
49	QBTM	
50	QBTM	
51	QBTM	
52	QBTM	
53	QBTM	
54	QBTM	
55	QBTM	
56	QBTM	
57	QBTM	
58	QBTM	
59	QBTM	
60	ABTM	Amount of beat tempo matching response 4 taps to 75% to 100% of beats 3 " " 50% " 75% " " 2 " " 25% " 50% " " 1 " " 1% " 25% " " 0 " " 0% of beats (no response)
61	ABTM	
62	ABTM	
63	ABTM	
64	ABTM	
65	ABTM	
66	ABTM	
67	ABTM	
68	ABTM	
69	ABTM	
70	ABTM	
71	ABTM	

BEATEMP CODEBOOK (continued)

Column(s)	SPSS variable name	variable description and codes
72	ABTM	
73	ABTM	
74	ABTM	
75	ABTM	
76	ABTM	
77	ABTM	
Card II		
1-3	STUDID	
4	CARDID	
5	SCHOOLID	
6	GRADE	
7-8	AGE	
9-10	CLASSID	
11	SEXID	
12	ABTM	
13	ABTM	
14	ABTM	
15	ABTM	
16	ABTM	
17	ABTM	
18	SVR	student's verbal response 4 fast tempo 3 medium fast tempo 2 medium slow tempo 1 slow tempo MISSING VALUE (BLANK) no response or undecided
19	SVR	
20	SVR	
21	SVR	
22	SVR	
23	SVR	
24	SVR	
25	SVR	
26	SVR	
27	SVR	
28	SVR	
29	SVR	
30	SVR	
31	SVR	
32	SVR	
33	SVR	
34	SVR	
35	SVR	
36	SVR	
37	SVR	
38	SVR	
39	SVR	
40	SVR	
41	SVR	

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