

DEVELOPMENTAL INVESTIGATION OF RESPONSES TO
THE EMOTIONAL EXPRESSION IN MUSIC.

by

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ABSTRACT

Ninety-six children, male and female, ranging in age from three to ten years and forty university students were presented with four two minute segments of different types of music. The subjects were asked to identify the emotions expressed by the music. A chi-square analysis showed no significant difference among the children or between the children and university students in identifying the emotional expression of the music. It is concluded that children as young as three years are sensitive to the emotional content of music. It is also concluded that their introspective responses are consistent among themselves and in agreement with adult interpretations.

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The present study deals with the ability of children to recognize and identify the emotional expressiveness of music. This section will deal with a review of the studies involved in the perception and communication of emotional expression followed by a review of the literature dealing with the emotional expression in the arts, especially music. An introduction to the present study will conclude this section.

THE COMMUNICATION AND PERCEPTION OF EMOTIONAL EXPRESSION

Throughout history man has been constantly intrigued with the area of emotion. The perception and communication of emotions is not a new area of investigation nor is it of casual importance for the study of man. The communication of certain types of emotional expression is common to all societies and has played a dominant role in the development and understanding of human behaviour (Klineberg 1940). It has been found that perception and communication of emotional expression is of prime importance for the evolution of the self (Mead 1934, Sullivan 1940, Ausbel, Schiff and Gasser 1952). Blocking emotional expression, according to Alexander (1950), can be a

great source of stress on the development of an individual. Basically psychology has attempted to study the communication and perception of emotion in three aspects: a) overt behaviour; b) physiological changes; and c) introspective experience.

A) OVERT BEHAVIOUR

1) Behavioural Cues

Perceptual and communicative studies have involved the presentation of an expression of an emotion to a group of judges whose job it was to isolate and identify the specific emotions expressed. Psychologists have used a number of methods and bodily expressions to portray various emotions with conflicting results.

There have been many approaches to the displaying of facial expression. Most experiments have used photographs of people (Darwin 1872, Langfield 1918, Ruckmick 1921, Feleky 1922, Gates 1923, Allport 1924, Dunlop 1927, Landis 1929, Frois-Wittmann 1930, Jenness 1932, Munn 1940, Schlosberg 1954, Ekman, Sorensson and Friesen 1969, Glitter, Mostofsky and Quincy 1971, Lo Castro 1972). Schematic drawing and combining

interchangeable features on a human face have been tried (Piderit 1886, Boring and Titchener 1923, Buzby 1924, Honkuaara 1961). The emotional expression is sometimes studied in its natural state, or posed, drawn, or produced in the laboratory. Motion pictures have also been used (Dusenberry and Knower 1938, Coleman 1949). The degree of success of these experiments has varied but there does seem to be agreement that the whole face serves to be a better indicator of emotional expression than any of its parts.

Recordings of persons' voices have been used as the stimulus for judges to identify emotional expressiveness (Merry 1922, Sherman 1927, Dusenberry and Knower 1939, Fairbanks and Hoaglin 1941, Knower 1941 and 1945, Thompson and Bradway 1950, Davitz and Davitz 1959, Dimitrovsky 1964) with varying results.

It has been shown, however, that vocal cues plus facial cues are more effective in the perception of emotional expression than facial cues alone (Davitz 1964).

Studies in body language (Birdwhistle 1970) have supplied abundant information pertaining to bodily positions and what

they may be expressing. Experiencing different emotions can effect bodily movement, therefore bodily expression. Tarcsay (1938) has made observations on how anger, anxiety, cheerfulness and sadness are illustrated by different methods of walking. Hand gestures were studied by Carmichael, Roberts and Wessel (1937) and Fischer (1976) as indicators of emotional portrayal. In general, it has been found that judgements are more consistant when shown the body plus the face rather than just the body or the face.

2) Situational Cues

Emotional expression can be interpreted in any number of ways. Therefore all the information we can gather concerning the emotional expression must be taken into account. Not only the facial, vocal and bodily cues but also the situation in which the expression is displayed must also determine the judgements (Fernberger 1928, Landis 1929, Jenness 1932, Munn 1940, Vinacke 1949, Goldberg 1951, Frijda 1958, Hunt, Cole and Reis 1958, Rump 1960, Schacter and Singer 1962, Cline 1964, McManus 1974). The judgement of emotional expression is quite difficult and according to Fernberger (1928) the situational

cues are of great importance in deciphering the emotional state. It seems quite logical that the situational information is a main contributor in judging emotion. It can greatly influence the emotion being expressed as well as the perception of the emotion.

In a movie scene Goldberg (1951) found that judgements of the perceived emotion were distinctly changed from fear to joy depending on the scene which preceded it, showing contextual information to be a main factor in judging emotion.

Perceiving and communicating emotional expression is quite complex and it seems that although situational cues are important so are facial, vocal and bodily ones. All the varieties of behavioural information seem to unite or combine within an individual from which he must select cues which are significant, disregard those which are irrelevant, and come to an emotional judgement of the expression.

B) PHYSIOLOGICAL CHANGES

One of the first physiological theories of emotion was the Cannon-Bard theory (Cannon 1915, Bard 1934). This theory held that "conscious experience ensued upon an upward discharge from the hypothalamus to the cerebral cortex." Cannon believed that all emotions have the same physiological state. This theory was in opposition to the presiding James-Lange theory (James 1884, 1890, Lange 1885) which regarded emotion as a form of instinct and secondarily as a sense experience. First, one perceives, then reacts and finally experiences the emotion. These two views dominated psychological debate for a number of years, each attempting to extract an explanation of the nature of emotion. Gradually both views abandoned their interest in conscious experience and became more involved in the physiological and behavioural changes which arise during an emotional expression.

Physiology has continued to abandon studies of conscious experience in favour of experiments involved with the measurement of changes in levels of activation (Berlyne, 1967) during emotional states. Ax (1953) and Schacter (1957) both

found that changes in emotional states such as fear and anger were connected with changes in levels of autonomic arousal. Changes in bodily conditions can be shown as changes in heart rate, respiration, muscular tension, salivary secretion, gastrointestinal activity, pupillary diameter and a number of other physiological measures. The most numerous studies of emotional conditions by physiologists have come from measures of skin conductance by galvanic skin resistance (GSR) and from measuring the electrical activity of the brain with an electroencephalogram (EEG). Psychologists, however, continue to disagree whether physiological techniques actually measure emotion. The question may never be completely resolved. What is known is that during emotional states the body reflects various degrees of changes in activation levels and these changes can be measured quite precisely and accurately by physiological techniques. For the physiological psychologist, emotion may be defined in terms of levels of physiological activation accompanying special types of subjective mental activity.

C) INTROSPECTIVE EXPERIENCES

The introspective technique of investigating emotional expression involves analyzing in an orderly descriptive manner the experiences that are in consciousness at the time of the emotional expression. Subjects are asked to "look inside" their own minds, to examine their own subjective experience for the elements of their emotional content.

Wundt (1896) believed that all conscious experience could be reduced to feelings, images and sensations. He developed the method of introspection to examine conscious experience. Wundt regarded emotion as a complex conscious state which manifested itself in a three dimensional system of feeling: pleasant-unpleasant, excited-quiet, and tense-relaxed. He believed all emotional states could be reduced to these dimensions. With these feelings he included accompanying associative bodily sensations. Titchener (1910) rejected Wundt's tri-dimensional theory and believed emotion was reducible to only pleasantness and unpleasantness, but agreed that the only way to study emotion was through classical introspection.

The strict method of classical introspection as taught by Wundt and Titchener is rarely used today in psychology. It has given way to a freer form of phenomenological report. Person perception with emphasis on identifying stimulus correlates for experience has gone beyond Structuralism with studies of impression formation (Asch 1946, 1952, Heider 1958, Hastorf, Richardson and Dornbusch 1958, McCullough 1961, Jones and Davis 1965, Walster et al. 1966, Lyman, Butera and Fischer 1976), and individual differences (Cronbach 1955, 1958, Jackson and Messick 1963, Dornbusch et al. 1965).

Introspective methods have also been applied to studies of form and object characteristics. Fechner (1876) employed introspective techniques to determine aesthetic preferences in perceiving beauty. He mainly concerned himself with experiments dealing with simple geometric figures and assorted arrangements of dots or strips of colour. Lines and shapes were also investigated for emotional expression (Martin 1906, Lundholm 1921, Proffenberger and Burrows 1924, Valentine 1962). These studies showed a marked preference for circles and curved lines over angular lines and configurations. Hevner (1935) found similar results using sets of coloured lines and shapes.

Barnhart (1940), using geometric figures, found symmetrical figures were more pleasing than asymmetrical ones. Emotional expression using introspective methods of investigation were also used with colours (Bullough 1921, Monroe 1925, St. George 1938, Eysenck 1941, Ball 1955, Gilford and Smith 1959, Hogg 1969) with varying results. Combining musical selections with colours has also been used to determine emotional expression (Odbert, Karwoski and Eckerson 1942, Wexner 1954, Murry and Deabler 1957). The results of these studies were relatively consistent. Oriental rugs (Gordon 1923) along with furniture, dress material, vases, china, postcards (Bulley 1951) and a myriad of other objects have been used in introspective studies involved with emotional expression.

This method of study has been in the past and will continue to be dominant in investigating all aspects of perceiving and communicating emotional meaning, be it with figures, objects or people. The phenomenological impression ultimately can only be described by the introspective report of the individual who is experiencing the emotional situation. Gaining more knowledge and insight into the experiential mechanisms of perceptual and communicative recognition processes seems fundamental to our understanding of the human organism.

EMOTIONAL EXPRESSION IN THE ARTS

A) Expression in Art Forms Other Than Music

The creation of art seeks to communicate, to show, to arouse emotion, in an individual. Artistic expression seeks to put into action impulses which are aroused forcing one to recognize the importance of communicating an aesthetic experience. Artistic expression according to Maslow (1970) is as motivating as "food seeking or love seeking." This inner drive to create is universal and can be seen in the drawings in streets, on walls, doors, etc. (Schaefer-Simmern, 1948). Creative emotional expression seems to be a basic needed means of communication. Artists, musicians, dancers and actors must be constantly aware of the precision in communicating emotional expression through gesture, movement, symbols or tone of voice.

And yet in the study of aesthetics from the psychological point of view, emotional expressiveness is one of the most important problems. How can one know what another individual is feeling? Psychologists have tried to identify outward, physical signs that correlate with each emotion but they have

found that the physical indications are not always uniformly related to the emotional experience. Introspective techniques have also been used but the type of analysis is ultimately related to the art form that is being addressed.

Each art form communicates emotional expressiveness in its own unique way. In dance, constant attention must be paid to the sequence of movements, for it is the action of the movements which identifies the expression. In dance the all important emotional factor is the precise way in which the dancer conveys the meaning by using body movement. In poetry, symbolic forms of imagery and patterns are used to connote meaning. Also, rhyme and rhythm are important means for the poet to express himself.

Prose transports one in and out of emotional reality by combining symbolic and descriptive imagery. Acting involves all modes of expression. The actor is aware that he must convey correctly the emotional mental attitude so that his audience may understand his representation. They communicate through movement of hands, legs, eyes, mouth, head, the whole body and through voice inflection. Sets, costumes, props and

location all help to create the correct emotional mood. Acting involves symbolism, rhythm, sound, any interpretive vehicle to produce the proper dimension of emotional expression.

Painters use two modes of representation to communicate emotion to the world: 1) conceptual or 2) perceptual. "Conceptual representation of physical reality is a system intended to reproduce the perceptual experience derived from careful observation of the physical world. Perceptual representation communicates physical experience as a visual image as seen through the eyes of the artist" (Knobler 1967). The world is viewed in flux. Everything seems to affect the appearance of the image created. Paintings possibly more than any of the other visual arts, appeal to the emotions. They offer a fusion of symbolic meaning and aesthetic expression. As tools painters use the variables of distance, time, light, movement, lines and form to give either conceptual or perceptual replication of the physical world. Works of art are never static but always dynamic. The perception of the images they portray change as our perceptual attitudes about them change and vary at different times.

B) Emotional Expression in Music

Responding to a piece of music is a complex experience. There are different kinds of listeners for the many different kinds of music. The one common element to all types of music is that it contains expression. According to Copland (1957) "all music has expressive power." Translating the language of music into words is, at best, difficult. But the verbal report, in spite of its subjectivity seems to be the best means of investigating emotional expression. (The verbal introspective report has shown more consistent results than any other measure in dealing with emotional expression in music (Schoen and Gatewood 1927a, 1927b, Campbell 1942, Hampton 1945, Dreber 1947, Rigg 1964).) (Kate Hevner (1935) tried to reduce the number of emotional adjectives subjects might give as responses to a piece of music by developing a checklist of adjectives characterizing various emotional expressions. Hevner's checklist arranged adjectives in eight groups with similar words in each group. Subjects, after listening to a particular musical composition, were asked to check every word on the list which seemed to describe the music. All of Hevner's subjects reported no difficulty in describing the

emotional mood that the composition conveyed. She devised a number of experiments (1931, 1935a, 1935b, 1936, 1937) all dealing with the nature of emotional expression. Overall she found consistency among her subjects for interpreting in the music various aspects of emotional expression in a variety of musical selections. Other studies (Hampton 1945, Campbell 1942, Rigg 1964) have strengthened the view that the emotional expression of a piece of music can be collectively recognized within a sociocultural framework. Sopchak (1955, 1957) on the other hand, in his experiments has found differences among groups as to the emotion being expressed by the music.

A number of experimental studies with music have isolated specific elements for investigative analysis. Gundlach (1935), Hevner (1937), Rigg (1940) and Watson (1942), studying musical pitch, found high pitch suggests a happy mood while low pitches reflect sad or serious ones. Melody has been studied by Gundlach (1932); he found a wide range in happy music and a narrow range in sad or tranquil selections. Simple harmonies are joyful (Rigg 1940) while more complex ones tend to be increasingly less joyful. Irregular rhythmic passages suggest tragedy or extreme amusement while regular rhythms characterize

peaceful, dignified or happy music (Watson 1942). Research work concerned with preferences (Rubin-Rabson 1940, Schuessler 1948, Fisher and Fisher 1951) has found more affective responses to familiar musical selections than to unfamiliar selections. Repetition of musical selections has also been shown to increase affective responses (Downey and Knapp 1927, Krugman 1943, Mull 1957).

Kelley (1961) working with adolescents found children whose parents had some sort of musical training had a broader spectrum of preferences for music than children whose parents had no musical background. Bauman (1960) found a significant difference among teen-age boys and girls for preferences of music at differing age levels. Rodgers (1957) studying grade school children found an overwhelming preference for popular music at all grade levels regardless of type of school, sex or socioeconomic status. But he adds physical maturity is a determining factor in musical preferences and one may develop a more sophisticated taste for music as one grows older.

Valentine (1913) in a series of experiments using children between the ages of six and fourteen tried to "discover if with

age there is a developing of feeling for consonance over dissonance and the difference with respect to musical training." He found no such preferences between the ages of six and eleven but twelve to fourteen year olds showed a favour for consonance. He found that children from lower economic classes were not as skilled in dealing with simple musical tests as were children from upper economic classes. Valentine found no marked difference between intelligent and unintelligent children in preferences to musical selections. He also could find no difference between musically oriented children and musically naive children in discriminating between concordant and discordant selections.

Higginson (1936) using children from ten to fourteen years of age was interested in the associational experiences which accompanied various musical selections. He found children's associational responses were similar to each of the other children's in the variety of selections.

The psychological approach to the study of music has greatly increased the knowledge of the nature of musical expression. The psychology of music is a relatively isolated

area and the research as of yet is limited. All people derive some form of impression from music and this emotional meaning is important in understanding one another. Learning more about the emotional responses one derives from music can only help in understanding the attitudes of the emotions which make up our human nature.

THE PRESENT STUDY

In previous studies the stimuli used were always determined and defined by an adult population. In the present study it was the children who selected the pieces of music and who chose the appropriate emotional words. It could be argued that children have a limited vocabulary and that their selection of words would produce an unclear, vague portrayal of the proper emotion needed to describe the piece of music. However Hampton's (1945) view is that

"we must realize of course, the shortcomings words present in gauging such a complex emotional experience as music presents, but if music is to be approached from an objective, experimental point of view these limitations have to be condoned".

Children's verbal expressions may be more pure and less cluttered because their associations and expressions are limited, allowing them to be precise in what they are trying to express. Therefore it seems reasonable to use the language and words of children.

In the present study the criterion words selected by the children were also used with university students who agreed that the childrens' interpretive emotional descriptions were quite accurate. Though a child might miss a subtle underlying emotional expression in a piece of music, generally this underlying expression is more involved with past experiences and associations. The subtle meaning deserves a more reflective manner to capture its mood. It was not this subtle secondary expression with which the experiment was concerned. Instead, the experiment focused on the general spontaneous introspective emotional response - the broad distinguishable categories that could be recognized by children and adults alike rather than the fine line that may be drawn between very similar emotional adjectives.

METHOD

A). PRETEST

1). SUBJECTS

In order to determine what stimulus material to use in the study, 48 elementary school children ranging in age from 5 to 12 from Aubrey Elementary School in Burnaby, B.C. were pretested. Six children, 3 girls and 3 boys in each year level were interviewed in groups of three.

2). Emotional Checklist

At first it was thought that the Hevner modified adjective checklist (Farnsworth 1954) could be used by the children to indicate the emotional expressiveness of music . After testing several groups it became apparent that the Hevner list was too sophisticated for the age levels concerned. This preliminary testing indicated that the particular emotional meaning ascribed by the children to music could best be determined by using simple categories of emotional expression and asking the

children to indicate which emotion applied to each musical piece. A skeletal list was devised from the modified Hevner list of 53 adjectives. Because it has been found (Dimitrovsky 1964) that children respond differently to positive and negative emotions, ten adjectives were used which incorporated both positive and negative emotional expressions. Both positive and negative emotions were paired for comparison when presented to the children. The major emotions used were, happy/sad, scary/merry, dreamy/exciting, gloomy/tender, and funny/serious. Preliminary testing showed that at times the children gave no response regarding the emotional meaning expressed by the music. When questioned why they did not give an answer they said "I don't know what kind of music it is", "it doesn't make me think or feel anything" or "it's regular music". For simplicity this category was labelled neutral. The most commonly occurring responses were used as the basis for constructing the actual checklist used in the experiment. After reviewing the responses given by the children it became apparent that even a list of 10 adjectives plus a neutral column was too specific and not always understood. The children, for example, had trouble distinguishing "merry" and "funny" and "scary" and "gloomy". Also "dreamy" and "tender"

were never used. Based on the childrens' responses a new list was made consisting of happy/sad, funny/scary and neutral. In addition if a child thought that none of these words conveyed what he or she felt the music was expressing, a separate category was used.

3). Selection of the music

Eight two minute segments of different types of music were presented to the children. These eight were used in a previous study (Lyman, Fischer and Butera 1975), and had been selected from over 100 pieces as representative of instrumental music. From the eight segments four pieces were selected which were judged to represent the types of music which the children could identify. Of the four pieces of music three had clear response designations regarding the emotion expressed. These selections were "Funiculi,Funicula" by Werner Muller, "The Likeness of Death" by Nino Roto and "The New Godfather" by Nino Roto. The fourth piece, "I'm a Man" by the Yardbirds, was somewhat ambiguous and unclear in its interpretation.

4). Summary of Pretest Procedures

The pretest experience helped set guidelines for establishing rapport and putting the children in a receptive and cooperative mood. This was important for ensuring smooth and effective procedures when actually testing the hypothesis: that children over a broad age range will be consistent in specifying an emotion expressed by music.

B). ADULT METHOD

1). Subjects

In order to compare the children's responses with those of adults, forty students from a 100 level Introductory Psychology course at Simon Fraser University, Burnaby, B.C. were used as subjects. The emotion expressed by the music could now be designated by a consensus of judges (Taguiri and Petrullo, 1958); that is, the adjectives on the list had consensual validation.

2). Adult Procedure

The adult subjects listened to the music in groups of five. A sample piece of music was first played as a means of introducing specifically what the subjects were to do. They were instructed to specify the emotion they felt was being expressed by the music. A list of descriptive emotional terms derived from the responses given by the children in the pretest was provided. It was felt that though the list was sparse and simple it did represent the rudimentary element of basic emotions.

The adult subjects were asked to indicate which emotion on the list they thought was characterized by the music. They were also asked if they felt that the emotional words on the list were adequate descriptions of the emotions expressed by the music. There was a 95% agreement among the University students that the childrens' list was sufficiently comprehensive. This is in agreement with Campbell (1942) who believes that a collective audience responds to a fundamental emotional pattern rather than to a more specific subtle one.

3). Adult Results

The results obtained from the university students are shown in Table I. With these data a comparison can be made to test the hypothesis that children's impressions of emotion expressed by music are in agreement with those of adults.

C). CHILDREN'S METHOD

1). Subjects

96 children were tested. There were 36 children from Cameron Elementary School and 36 children from Lockdale Elementary School, both located in Burnaby, B.C. The children were from Kindergarden through the Fifth grade. There were also 24 children from Douglas College Day Care Center in Surrey, B.C. The children ranged in age from 3 to 10 years with six girls and six boys at each year level. All children were selected by their teachers to represent a normal range of intelligence among their age group. Musical ability was not a consideration in choosing the children.

Table I

Frequency of Emotional Classification of Music
by University Students

Emotional Impressions	Funiculli, Funicula	New Godfather	Likeness of Death	I'm a Man
Happy	32	14	1	2
Sad		10	38	9
Funny	8			11
Scary		30	2	3
Neutral				18
N=40				

2). Children's Procedure

The 96 children were tested, 12 in each age group. They were interviewed in groups of three instead of alone because the results of the pretest suggested that a group of children would be more comfortable with the experimenter than a child individually. A practical consideration was the time element involved. All children tested were told beforehand that they were going to listen to some music. None was told the reason for listening. The children were brought into a comfortable room in the school and asked to be seated. A taperecorder was already set up in the room. After the children were seated the experimenter began to chat with them, asking them questions about home, school, sports, whatever, but always ending the conversation with "Do you like to listen to music?" This was done for a number of reasons: to get acquainted with the children; to get them interested in listening to the music; and to help them feel comfortable in a room with a stranger. When they seemed to be at ease the children were led into the topic of music. At this point the experimental procedure was explained to them somewhat as follows, "Would you like to help me ? I am going to ask you to listen carefully while some

music is being played on the taperecorder. After it is finished tell me what you thought was the mood of the music. Decide whether you think the expression of the music is happy, sad, funny, scary or anything you may think the music is emotionally relating or telling you and if the music does not make you think of anything, please tell me that too." At this time the words happy, sad, funny, scary, and neutral were written on the blackboard. Also the experimenter would leave a column and tell them that this empty column was for any word they thought would be most descriptive of the music. Further instructions were "There are no right or wrong answers to these questions so don't be frightened to tell exactly what you may think and if you can, tell me why the music makes you feel that way." Regardless of what the other children said, the importance of making their own decision was impressed upon them. The children were told very seriously to concentrate on what was asked and not to talk while the music was playing.

A sample piece of music was played first. Again the children were told to be attentive to the music and to think about what type of emotion they thought the music was expressing. The sample piece was an except from the William

Tell Overture. This selection was picked because of its variability in softness, loudness and tempo which would allow a wider range of emotional choices. It was believed that the greater possible responses to this selection would add independence to the children's answers. This piece was not used in the pretest so no known emotional meaning was attached to it. At the conclusion of the sample the children were asked what emotional mood they thought the music was expressing. At first they were usually hesitant but after some prompting they started to convey their opinions.

At this point the experimenter would stress the point of independence and emphasize that all answers were correct; there were no right or wrong ones. They were told the only time there was an incorrect answer was when they were not being honest about what they felt the music was expressing. If it was felt that the children were mimicking answers the musical selection would be played again and a reminder was given them as to the seriousness of their answers.

This attitude was taken throughout the entire experiment for all selections. It surprised the children to discover that their choice of emotional meaning sometimes differed from another child. At times a child was curious to know why another child chose a certain emotional description. It is believed that this inquisitiveness added to the independence and individuality of the responses. After the sample piece of music was played and discussed to the point where the children were aware of what was being asked of them the experimenter moved on to the four experimental pieces of music.

The procedure used for the experimental pieces was basically the same as with the sample piece except that after the music was finished one of the children was selected to give his or her impression of the emotional expression in the music while the other two remained quiet. If the child did not respond quickly the list of words on the board would be pointed out and the child was asked if he or she thought any of these words could express what the music was saying or if these words did not seem to fit could they think of another, more descriptive word to describe the music. Each word would be pointed at and repeated, with care being taken to avoid giving

signs of approval or disapproval to any one word. Any voice inflection which might suggest favor for a certain emotional description was avoided. Once the child made a decision as to the emotional content of the music it was entered on a checklist. Because of the interruptions between each piece of music it was believed that the ordering of the pieces would not be of major importance. However there were four different orders of presentation which varied each piece with every new group of children. This variation allowed for each piece to be heard first in the sequence.

3). Children's Results

Every child made some type of decision as to his or her interpretation of the pieces of music. From the raw data shown in Table II it appears that the children agreed with the emotional categories used by the Aubrey children in the pretest.

The data also show that the children agreed with one another in spite of the measures the experimenter took to

Table II

Frequency of Emotional Classification of Music
by Children of Different Age Levels

Age	Funiculli, Funiculla Emotional Impression				
	Happy	Sad	Funny	Scary	Neutral
3	9		2	1	
4	11		1		
5	9		3		
6	8		4		
7	8		3	1	
8	9		2	1	
9	9		1		2
10	9		2		1
	72		18	3	3

Age	New Godfather Emotional Impression				
	Happy	Sad	Funny	Scary	Neutral
3		1		11	
4	1			11	
5		1		11	
6				11	1
7		4		8	
8		2		10	
9		4		8	
10		2		10	1
	1	14		80	1

Age	Likeness of Death				
	Happy	Emotional Sad	Impression Funny	Scary	Neutral
3		9	2	1	
4		10		1	1
5		12			
6	1	8	1	2	
7		9	1		2
8		9		3	
9		9			3
10		10			2
	1	76	4	7	8

Age	I'm a Man				
	Happy	Emotional Sad	Impression Funny	Scary	Neutral
3	6	2	3	1	
4	5	3	3	1	
5	6		1		5
6	5		6		1
7	4		2	1	5
8	5		5		2
9	3		1		8
10	1		2		9
	35	5	23	3	30

restrict it.

The data also appear in accord with the actual raw data from the University students.

ANALYSIS

The children were scored on: (1) their consistency among themselves for identifying the emotional expression for each piece of instrumental music and (2), the agreement with adults in identifying the emotional meaning.

1). Children

In the analysis the children were classified and divided into eight equal age groups from three to ten years with twelve in each age group, six girls and six boys. A chi square analysis was performed to determine whether there was a significant difference among the different age groups of children in identifying the emotional content for each piece of music. The resulting chi square as shown in Table III shows no

Table III

Chi-Square Analysis of Childrens Responses Identifying
the Emotional Content of Music

{The critical value of chi-square necessary for .05 level of
significance = 41.34 (N=96, df=28)}

Funiculli, Funiculla

Age	Emotional Impression					
	Happy	Sad	Funny	Scary	Neutral	
3			.02	.03		.05
4	.25		.28			.53
5			.02			.02
6	.03		.63			.66
7	.03		.02	.03		.08
8			.02	.03		.05
9			.28		3.03	3.31
10			.02		.03	.05
	.31		1.29	.09	3.06	=4.75

New Godfather

Age	Emotional Impression					
	Happy	Sad	Funny	Scary	Neutral	
3		.05		.03		.08
4	.45			.03		.48
5		.05		.03		.08
6				.03	.45	.48
7		1.60		.23		1.83
8		.05				.05
9		1.60		.23		1.83
10		.05				.05
	.45	3.40		.58	.45	=4.88

Likeness of Death

Age	Emotional Impression					
	Happy	Sad	Funny	Scary	Neutral	
3			2.00	.18		2.18
4				.18		.18
5		.42				.42
6	1.60	.11		.40		2.11
7					.25	.25
8				2.84		2.84
9					2.25	2.25
10					.25	.25

	1.60	.53	2.00	3.60	2.75	=10.48

I'm a Man

Age	Emotional Impression					
	Happy	Sad	Funny	Scary	Neutral	
3	.28	1.35	.03	.25		1.91
4		6.01	.03	.25		6.29
5	.28		.60		.17	1.05
6			2.80		1.39	4.19
7			.03	.25	.17	.45
8			1.15		.45	1.60
9	.18		.60		3.80	4.58
10	1.91		.03		6.06	8.00

	2.65	7.36	5.27	.75	12.04	=28.07

significant difference at the .05 level for any of the four selections of music indicating consistency among the different age groups of children.

2). Comparison of Children and Adults

A chi square analysis was also used to determine whether there was a difference in the responses of the children and the University students. The results shown in Table IV were not significant at the .05 level indicating consistency between the groups of children and adults in selecting the emotion expressed by music. It was anticipated that there would be agreement for three of the four pieces of music. The fourth piece "I'm a Man", a rock and roll number, was originally selected because of its lack of definition among the pretest group. At first glance this piece seemed to present a problem in aggregate agreement. It was theorized that if the children could not make a collective emotional interpretation the adults would also have the same problem of tying the piece down to a specific emotion. Although it showed the largest chi square among the types of music tested it was far from significant.

Table IV

Chi-Square Analysis between the Responses of Children
and University Students Identifying the Emotional
Content of Music

{The critical value of chi-square for .05 level of
significance = 9.49 (N=136, df=4)}

Funiculli, Funiculla

	Happy	Sad	Funny	Scary	Neutral	
Children	.01		.01	.07	.07	.16
U.Students	.03					.03
	.04		.01	.07	.07	=.19

New Godfather

	Happy	Sad	Funny	Scary	Neutral	
Children	.05	.34		.02	.05	.46
U.Students		.81		.11		.92
	.05	1.15		.13	.05	=1.38

Likeness of Death

	Happy	Sad	Funny	Scary	Neutral	
Children	.06	.19	.18	.06	.40	.89
U.Students		.48		.15		.63
	.06	.67	.18	.21	.40	=1.52

I'm a Man

	Happy	Sad	Funny	Scary	Neutral	
Children	.37	.57	.01		.34	1.29
U.Students	.89	1.37	.03		.82	3.11
	1.26	1.94	.04		1.16	=4.40

This lack of significance shows that that the different age groups of children and the University students described the emotional overtones in agreement with each other.

DISCUSSION

When we listen to a piece of music we are determining the generalized emotional content from the total pattern of the music. But tempo seems to be one element of music that tends to be the most powerful characteristic in determining this emotional mood (Hevner 1937, Gundlach 1932). Rigg (1940) found in general that a fast tempoed piece of music tends to be identified with happiness or joy while a slow paced piece tends to remind us of sadness or sorrow. This was also found by Shimp(1940). Watson (1942) agrees loud music is apt to be identified as happy or exciting while soft music sets a mood of sadness or reflective pensivity. In a series of experiments Watson (1942) found when the tempo was coupled with loudness a change in the emotional mood took place. A happy piece of music is now interpreted as a very happy piece of music. Sad or sorrowful music becomes sadder or tragic. The key is also important, major keys are usually bright and happy while minor

keys are thought to be sombre and eerie.

For the most part the sample piece of music, the excerpt from the William Tell Overture, had the widest range of loudness and softness in its tempo. It proved to be successful in determining the range for the rest of the selections.

The conclusions drawn from the experimental pieces agree with the previous studies. Slow or soft tempoed music tends to elicit sad or sorrowful responses while a fast tempoed piece of music is apt to be interpreted in mood as happy or gay.

DISCUSSION IN TERMS OF PERCENTAGES

Table V shows the percentage of agreement between adults and children. The piece of music with the highest percentage of agreement was the The New Godfather, with 83% of the children believing this to be indicative of a scary piece of music. Though this did not have the highest degree of agreement among the adults 75% of them agreed it was scary

Table V

Percentage of Responses for Children and University Students Designating the Emotional Impression of Music

Funiculli, Funiculla

	Happy	Sad	Funny	Scary	Neutral
Children	75%		19%	3%	3%
U.Students	80%		20%		

New Godfather

	Happy	Sad	Funny	Scary	Neutral
Children	1%	15%		83%	1%
U.Students		25%		75%	

Likeness of Death

	Happy	Sad	Funny	Scary	Neutral
Children	1%	80%	4%	9%	6%
U.Students		95%		5%	

I'm a Man

	Happy	Sad	Funny	Scary	Neutral
Children	38%	5%	24%	2%	31%
U.Students	25%	13%	27%		35%

while 25% thought it to be sad. Of the 96 children 15% of them viewed it as sad while the other 2% gave a neutral and a happy explanation. The most common interpretation of what this song reminded the children of was "scary movies", "haunted houses" or "an ugly monster sneaking up on you". This piece of music also received the quickest reply when asked what emotional mood was being expressed. Most children readily exclaimed, "scary!"

The Likeness Of Death was second in percentage of agreement for the children with 80% choosing this piece as sad. The other 20% were scattered over the other categories. 95% of the adult population saw this piece as being sad. The remaining 5% thought it to be scary. When the children were asked what associations they had after listening to this piece there was a variety of answers. All the children's responses related to some type of sadness or grief. Of the four pieces of music this was the least popular and the children seemed to be restless and disturbed by it. This reaction differed from the reaction to the scary piece. For although they recognized the music as scary it did not represent a threat of something frightening about to happen to them. Though they did not particularly enjoy the scary selection, after hearing it and

responding they would begin to giggle and start telling "spooky" stories or tales about so called "chilling" things. This did not take place after listening to the sad piece. Most of the children remained long faced and shared their opinions of not liking that kind of music. When this piece was not played last some of the children would make a request not to hear anymore of "that" type of music. This distressing mood after a sad selection was also found by Higginson (1936) in his study involving children and their associations with certain types of music. He found a sorrowful piece of music ("Asa's Death" by Grieg) to be the least popular of all his selections. He found a definite mood of sadness would surround the children after a very melancholy piece of music was played. The experimenter also found this uncomfortable air surrounding the children if questioned persistently about their associations from the music.

75% of the children and 80% of the university students agreed that Finiculi, Finicula was a happy piece of music. 19% of the children and the remaining 20% of the adults described this piece as funny. The remaining 6% of the children gave answers which were scattered among the remaining categories.

This song consistently aroused a sense of well being and security in the children. There seemed to be a type of relief brought about by a carefree illusion which for the most part put a smile on their faces. Although this was the most popular piece of music it took the longest to extract a conclusion as to what they thought the music was expressing. They immediately associated the music with dancing, a party or a large gathering of some sort. Because of the song's gaiety, maintaining an atmosphere of seriousness after its playing presented a main problem. In a few instances this piece of music had to be played more than once in order to get away from the expression of associated imagery and get an emotional response.

The results with the final song "I'm a man" were somewhat perplexing. There seemed to be no real agreement as to its emotional meaning but the chi square analysis showed this difference to be insignificant. Of the children 38% thought it happy, 24% thought it funny, 31% could not decide (therefore labelled neutral). The remaining 7% were between scary and sad. The adults seemed also to be divided though none thought it scary, 25% thought it happy, 13% thought it sad, 27% funny

and 35% no label (neutral). The results may mean that both adults and children find it hard to pin point accurately the mood of this piece. When hearing it the majority of children immediately identified it as "rock and roll" but some could find no adequate emotional terms to deal with it. Many children just shrugged their shoulders and described it as "regular" or "like on the radio". The adults did not seem to do much better with 35% of them unable to attach an emotional label to it. This piece was also the most boring to the children. This may be due to the enormous quantity of rock and roll they are bombarded with daily.

It can be concluded from the present study that children from ages three to ten years are consistent among themselves when describing the emotional mood of the four types of music presented. Also they are in accord with the emotional interpretation of the adults in this study.

V. Areas for Future Investigations

Emotional meaning can be expressed and interpreted in various ways. When we listen to a piece of music we may say that this piece of music is, for example, sad. What we are saying is that there is meaning in the music and this meaning constitutes what the piece is emotionally saying. (Though we may recognize intellectually that the piece is intended to express sadness we do not necessarily feel sad.) The sadness is intended to be recognized in the piece itself. This is one plane in which we may interpret or enjoy music. The other is the emotional meaning that we ourselves feel. In this case we may hear a selection of music and it might change the whole atmosphere surrounding us. We, again using sadness as an example, may hear something that makes us sad. It may lead us to dream or fantasize, to lose ourselves totally to the emotion to which we are attending. The music acts as a catalyst, stirring something in us that makes us feel sad. This feeling is quite different from the intellectualized knowing that something is expressing sadness but we ourselves are not feeling it. Both the "intellectual" or "expressive" plane and the "experiential" or "emotional" plane can exist together or in spite of one another in a piece of music or any art form. From previous knowledge, experience and experimentation, a

composer may know how to convey certain basic moods to his audience. The basic mood might be of gaiety or sadness. All he can do is express the basic aura of the mood, say sadness, but it is our interpretation which makes the mood satirically sad, fatefully sad, amiably sad, etc. The quality of the mood is hard to pin point and depends on the interpreter. The interpreter can also reject the intended mood of the music for a more personal one even though he may know what the composer is trying to convey. This subtle quality of interpretation may be the framework of the "experiential" plane where past experience, associations, fantasy all come into play. While we are losing ourselves in a piece of music our emotions are leading us. These planes of interpretation are never static but constantly changing and weaving, leading us continually between and among them. This aesthetic problem of interpreting between the "experimental" and "intellectual" planes has been a constant dilemma for psychologists.

An experiment could be devised to compare the mood of a piece of music with the emotion that is felt by the subject while the music is playing. Would a subject continually describe his emotions as being in accord with that of the

composer? If a person could be trained to correctly introspect while listening to music and express his feelings, associations, fantasies would there be a collective experiential plane which we could all relate to? Would childrens responses be different than those of adults?

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