

THE EFFECTS
OF PENTATONIC AND/OR DIATONIC PITCH PATTERN INSTRUCTION
ON THE ROTE-SINGING ACHIEVEMENT OF YOUNG CHILDREN

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by

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CHAPTER I

PURPOSE OF THE STUDY

Introduction

Within the music education profession, there is general agreement about the importance of singing in the musical instruction of children, especially in the elementary school. Although music educators agree on the importance of singing, their reasons for this agreement are widely divergent. Justification for including singing as a primary component of musical training ranges from a belief in the singing experience itself¹ to conclusions, based on experimental data, that singing is the experiential basis for the formulation of pitch concepts, e.g., a sense of tonality.² Some proponents of singing also claim that students who receive daily singing instruction show improved results in other academic areas.³

Most discussions about young children's singing are based on one of two major types of investigations: 1) the study of techniques

¹Bjornar Bergethon and Eunice Boardman, Musical Growth in the Elementary School, 4th ed. prepared by Bjornar Bergethon (New York: Holt, Rinehart and Winston, 1979), p. 7; and Harriet Nordholm, Singing in the Elementary Schools (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1966), p. 1.

²Edwin E. Gordon, The Psychology of Music Teaching (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1971), p. 92.

³Klara Kokas mentions Hungarian studies comparing students receiving daily singing instruction to those having a usual number of class hours of musical instruction. See "Kodály's Concept of Music Education," Council for Research in Music Education, no. 22 (1970), p. 49.

and materials used in teaching and 2) the study of the development of children's capabilities regarding singing and melodic concept formation. In the first type, scholars have studied the value of different syllable systems,⁴ the effect of classroom procedures on singing achievement,⁵ and the relative benefits of different types of accompaniment employed with children's singing.⁶

A considerable portion of the research undertaken has been focused on the problem singer. Joyner suggests that there is a stronger relationship between "untuneful" singing and voice production difficulties than between "untuneful" singing and pitch discrimination deficiencies.⁷ Other studies corroborate Joyner's thinking and suggest further that remedial work beginning with pitch matching in the conversational range is crucial to the development of "tuneful" singing in problem singers.⁸ There seems to be universal agreement

⁴Arnold Bentley, "Fixed or Movable D0," Journal of Research in Music Education 7 (1959): 163-168.

⁵Hildegard Froehlich, "Replication of a Study on Teaching Singing in the Elementary General Music Classroom," Journal of Research in Music Education 27 (1979): 35-45.

⁶For three differing views on the issue of accompaniment, see Edwin E. Gordon, Primary Measures of Music Audiation (Chicago: G.I.A. Publications, Inc., 1979), p. 59; Maria Runfola Hale, "An Experimental Study of the Comparative Effectiveness of Harmonic and Melodic Accompaniment in Singing As It Relates to the Development of a Sense of Tonality," Council for Research in Music Education, no. 53 (1977), p. 29; and Lois Choksy, The Kodály Method: Comprehensive Music Education from Infant to Adult (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1974), p. 122.

⁷David R. Joyner, "The Monotone Problem," Journal of Research in Music Education 17 (1969): 119.

⁸For further detail, see Emlyn Roberts and Ann D.M. Davies, "A Method of Extending the Vocal Range of 'Monotone' Schoolchildren," Psychology of Music 4 (1976): 29-43; Davies and Roberts, "Poor Pitch

that maturation is a substantial factor in the normal acquisition of the ability to sing in tune.

The second major type of investigation regarding children's singing is that of child development, specifically the development of musical abilities. Educators and investigators continue to study the singing range capabilities and range modifications of children's voices at various ages and grade levels. Based on the observation of children's informal play, the testing of matching of isolated tones, and the recording of children's singing of songs begun without outside aid, conclusions differ widely. Some researchers suggest that children's random singing generally employs a high tessitura. Others find that children thought to be "untuneful" singers are actually "tuneful" when allowed to select their own pitch center, one lower than that generally given in a classroom music setting. Most contend that the range of the average first grade student is about an octave; some discuss the pitch center or intervals most frequently employed by children.⁹

Singing: A Survey of Its Incidence in School Children," Psychology of Music 3 (1975): 24-36; Roberts and Davies, "The Response of 'Monotones' to a Programme of Remedial Training," Journal of Research in Music Education 23 (1975): 227-239; and A. Oren Gould, "Developing Specialized Programs for Singing in the Elementary School," Council for Research in Music Education, no. 17 (1969), pp. 9-22.

⁹The following sources might be consulted for a survey of opinion regarding children's vocal ranges: Sylvesta Wassum, "Elementary School Children's Vocal Range," Journal of Research in Music Education 27 (1979): 214-226; Gladys Evelyn Moorhead and Donald Pond, Music of Young Children (Santa Barbara, CA: Pillsbury Foundation for Advancement of Music Education, 1978); Robert Evans Nye and Vernice Trousdale Nye, Music in the Elementary School, 4th ed. (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1977); Dorothy S. Wilson, "A Study of the Child from Six to Twelve (Ed.D. dissertation, University of Oregon, 1970); Robert B. Smith, "The Effect of Group

Based on beliefs about and investigations into children's development of musical abilities, the diversity of thought regarding song material for the young singer ranges from Heffernan's suggestion that the teacher use simple songs "limited in range" and "very simple rhythmically"¹⁰ to Dittmore's conclusion that songs in the basic series texts do not "provide enough challenge for students in the upper grades nor for primary level students with high musical aptitude."¹¹ Musical aptitude continues to be an issue, particularly as scholars strive to determine the effects of early musical training, in this case tonal training, on stabilized tonal aptitude.¹²

Music educators are interested also in aural discrimination studies, especially as the studies may relate to children's singing

Vocal Training on the Singing Ability of Nursery School Children," Journal of Research in Music Education 11 (1963): 137-141; and Melvin S. Hattwick, "The Role of Pitch Level and Pitch Range in the Singing of Preschool, First Grade and Second Grade Children," Child Development 4 (1933): 281-291.

¹⁰Charles W. Heffernan, Teaching Children to Read Music (New York: Appleton-Century-Crofts, 1974), p. 11.

¹¹Edgar E. Dittmore, "An Investigation of Some Musical Capabilities of Elementary School Students," Experimental Research in the Psychology of Music: Studies in the Psychology of Music 6 (1970): 31.

¹²For a detailed explanation of developmental aptitude, see part two of Edwin Gordon, Primary Measures; for additional views, see Sam Taylor, "Musical Development of Children Aged Seven to Eleven," Psychology of Music 1 (1973): 44-49; Robert DeYarman, "An Investigation of the Stability of Musical Aptitude among Primary-Age Children," Experimental Research in the Psychology of Music: Studies in the Psychology of Music 10 (1975): 1-23; Stanley Schleuter and Robert DeYarman, "Musical Aptitude Stability among Primary School Children," Council for Research in Music Education, no. 51 (1977), pp. 14-22; and Edwin E. Gordon, "Developmental Music Aptitudes among Inner-City Primary Children," Council for Research in Music Education, no. 63 (1980), pp. 25-30.

ability. There is evidence to suggest that pitch discrimination improves with age through the elementary grades.¹³ Findings by Zwissler indicate that "pitch discrimination skills of first-grade children identified as accurate singers" differ significantly from "those identified as inaccurate singers," but not all inaccurate singers exhibit poor pitch discrimination ability.¹⁴ The importance of singing in the development of pitch discrimination is stressed by Leont'ev, who notes also that "tone deafness" does not occur in cultures in which the languages are tonal, languages in which meaning is communicated through inflection.¹⁵

Melodic concept formation has been investigated within a Piagetian framework,¹⁶ as it relates to verbal ability,¹⁷ and as it

¹³Robert G. Petzold, "The Development of Auditory Perception of Musical Sounds by Children in the First Six Grades," Journal of Research in Music Education 11 (1963): 21-43; and "Auditory Perception by Children," Journal of Research in Music Education 17 (1969): 82-87.

¹⁴Ruth N. Zwissler, "An Investigation of the Pitch Discrimination Skills of First Grade Children Identified as Accurate Singers and Those Identified as Inaccurate Singers" (D.Ed. dissertation, University of California, Los Angeles, 1971), p. 62-63, 72.

¹⁵A. N. Leont'ev, "On the Biographical and Social Aspects of Human Development: The Training of Auditory Ability In," in A Handbook of Contemporary Soviet Psychology, ed. M. Cole and I. Maltzman (New York: Basic Books, 1969), pp. 433, 429.

¹⁶See Marilyn Pflederer, "The Responses of Children to Musical Tasks Embodying Piaget's Principle of Conservation," Journal of Research in Music Education 12 (1964): 251-268; and William Frederick Lawes, "The Detection of Invariant Pitch Patterns over Rhythmic Transformation by Elementary School Children: A Preliminary Study of the Application of Differentiation Theory to Musical Perception" (Ph.D. dissertation, University of Iowa, 1971).

¹⁷Harriet I. Hair, "Discrimination of Tonal Direction on Verbal and Nonverbal Tasks by First Grade Children," Journal of Research in Music Education 25 (1977): 197-210.

is revealed in performance.¹⁸ Of particular interest is the evidence which suggests that young children attend first to a specific pitch center and to absolute pitch levels, and that they eventually abandon these responses in favor of concern for overall melodic shape, interval size, and a sense of tonality.¹⁹ Studies such as those conducted by Sergeant and Roche and by Scott are necessary to clarify certain classroom practices, e.g., always singing a song in the key in which it is introduced, or changing the key center of the song during subsequent classes.

Of special importance to sequencing instruction in elementary music programs is the body of information concerned with modes and scales, that is with children's developmental capabilities with respect to various tonalities. Within the last decade, investigators have found 1) children's tonal capabilities to develop in a sequential manner, 2) instruction in atonal music to benefit the performance of tonal music, and 3) instruction in dorian, phrygian, lydian, and mixolydian modes to be beneficial to children's singing in general.²⁰

¹⁸Sylvesta Wassum, "Elementary School Children's Concept of Tonality," Journal of Research in Music Education 28 (1980): 18-33.

¹⁹For further detail, see Desmond Sergeant and Sheila Roche, "Perceptual Shifts in the Auditory Information Processing of Young Children," Psychology of Music 1 (1973): 39-48; and Carol Rogel Scott, "Pitch Concept Formation in Preschool Children," Council for Research in Music Education, no. 59 (1979), pp. 87-93.

²⁰For reports of the studies leading to these findings, see Edgar Dittmore, "An Investigation . . .;" Robert DeYarman, "An Experimental Analysis of the Development of Rhythmic and Tonal Capabilities of Kindergarten and First Grade Children," Experimental Research in the Psychology of Music: Studies in the Psychology of Music 8 (1972): 1-44; and Philip H. Miller, "An Experimental Analysis of Tonal Capabilities of First Grade Children," Experimental Research in the Psychology of Music: Studies in the Psychology of

A considerable amount of discussion in the professional literature deals with the assumption that music based on gapped or pentatonic scales is easier for children to sing than music based on diatonic scales.²¹ Although most of this discussion is without the support of empirical data, Choksy does refer to work by Duell and Anderson who undertook a study of pitch discrimination of isolated tones and found that "about 30% of the children listed were unable to discriminate differences as large as a half-step."²² Choksy's implication is that such discrimination inability mitigates against the probability that these children can sing such intervals in tune. Jersild and Beinstock conclude, however, that

the rule against the use of the chromatic interval in songs for young children is ill-advised and imposes an unnecessary restriction upon the material which might be used in children's songs.²³

Music 10 (1975): 77-97.

²¹The following writers, among others, urge the use of pentatonic music with children on the basis of children's tonal abilities: Arpad Darazs and Stephen Jay, Sight and Sound: Visual Aid to Melody and Harmony. Teacher's Manual (Oceanside, NY: Boosey & Hawkes, Inc., 1965), p. 13; Frigzes Sandor, Musical Education in Hungary (London: Barrie and Rockliff, 1966), p. 22; J. Ribi re-Raverlat, Musical Education in Hungary, trans. Margaret Safranek (Paris: Alphonse Leduc, 1971), p. 15; Wilhelm Keller, Orff-Schulwerk Introduction to Music for Young Children, trans. Susan Kennedy (London: Schott, 1974), p. 23; and Sr. Lorna Zemke, The Kod ly Concept: Its History, Philosophy, and Development (Champaign, IL: Mark Foster Music Company, 1977), p. 24.

²²Orpha K. Duell and Richard C. Anderson, "Pitch Discrimination among Primary School Children," Journal of Educational Psychology 58 (1967): 318. These investigators also cite a Russian study (Repina, 1961b, untranslated) which suggested that second grade students might not discriminate intervals of a half step.

²³Arthur Jersild and Sylvia Beinstock, "A Study of the Development of Children's Ability to Sing," Journal of Educational Psychology 25 (1934): 494, 501.

Later in the report of their procedure, these investigators write, "Moreover, the children also successfully incorporated semitones into their songs." In her pitch discrimination study, Zwissler found no data to support the "assumption that pitch differences of the larger tone intervals are more easily discriminated by first-grade children than those of the smaller intervals."²⁴

Purpose

The current practice in some approaches of beginning young children's early pitch instruction with melodic material which includes no half-step intervals rests on the assumption that young children find half-step intervals more difficult to sing than larger intervals. Particularly with regard to pitch patterns to be learned by children, the introduction of half steps is delayed until a firm base has been established, perhaps as long as two years after the beginning of formal instruction.

Educators might well question the efficacy of such a practice. For example, do an emphasis on pentatonic pitch patterns and a delay in the introduction of diatonic pitch patterns improve or impede children's eventual ability to sing diatonic song material? Does early introduction of diatonic pitch patterns improve or impede children's eventual ability to sing pentatonic song material? Do socioeconomic status or musical aptitude influence the effects of diatonic or pentatonic pitch pattern instruction? The purpose of this study was to gain objective information about the effects of

²⁴Ruth Zwissler, "An Investigation . . .," p. 64.

pentatonic and diatonic instructional content, socioeconomic status, and musical aptitude on the rote-singing achievement of young children.

Problems

The problems of this study were:

1. To determine the comparative effects of instruction a) in pitch patterns which include half steps, b) in pitch patterns which include no half steps, and c) in pitch patterns of both types on diatonic and pentatonic rote-singing achievement;
2. To determine the effects of tonal aptitude on diatonic and pentatonic rote-singing achievement; and
3. To determine the effects of teacher, school environment, and socioeconomic status on diatonic and pentatonic rote-singing achievement.

CHAPTER II

REVIEW OF RELATED STUDIES

Introduction

Various types of studies designed to determine an appropriate sequence of melodic concepts to be taught to children are considered related to the present study. Efforts have been made, for example, 1) to derive a sequence of instruction on the basis of observed musical creation of young children;¹ 2) to apply the Piagetian concept of conservation to music in an attempt to determine chronological ages by when children acquire certain melodic concepts;² 3) to work toward a taxonomy of song material based on the range capabilities of children at various chronological ages;³ and 4) to investigate the nature, learned or developmental, of the concept of tonality and its dependence upon song and scale singing during the elementary years.⁴

¹Gladys Moorhead and Donald Pond, Music of Young Children (Santa Barbara, CA: Pillsbury Foundation for Advancement of Music Education, 1978).

²Marilyn Pflederer and Lee Sechrest, "How Children Conceptually Organize Musical Sounds," Council for Research in Music Education 7 (1966): 7.

³Robert B. Smith, "The Effect of Group Vocal Training on the Singing Ability of Nursery School Children," Journal of Research in Music Education 11 (1963): 141.

⁴Sylvesta Wassum, "Elementary School Children's Concept of Tonality," Journal of Research in Music Education 28 (1980): 18.