THE EFFECT OF ISOLATION ON THE MUSICAL ABILITY OF STUDENTS REACHING THE SEVENTH GRADE IN THE BABBITT SCHOOLS

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by
Wayne Keith Marshall
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[redacted]
Adviser

[redacted]
Committee Member

[redacted]
Committee Member

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Chapter 1

INTRODUCTION

The purpose of preparing this chapter was to assemble all of the materials that were researched and which indicated the importance of the research project. The research report commenced with the statement of the problem and related specific problems. The problems suggest a basic hypothesis that isolation had affected the normal musical ability of Babbitt students by the time they reached the seventh grade. Definitions of pertinent terms were listed followed by a catenation of several delimitations of the study, basic assumptions, support for the importance of the study, and incidence of the problem. Chapter 2 concerned itself with a review of related literature. Chapter 3 explicated the design of methodology which included the selection of the subject, selection of a standardized test, creation of a survey questionnaire, and the collection and treatment of the data. The analysis of data comprised Chapter 4. The final chapter contained the summary, conclusions, and recommendations for further study.

Need for the Study

During the course of the researcher's tenure as a music educator in the Babbitt School System, many unusual circumstances and situations developed which prompted the

interest in this project. It became apparent that there was a need to collect data to test a hypothesis on the subject.

Classroom Experience. Perhaps the most substantial evidence which promoted the action was the experiences encountered in the classroom. The researcher noticed that there appeared to be some deficiencies in the musical background of students in the classroom, however these deficiencies did not include the areas such as music theory and musical terminology. Instead, the greatest weakness became apparent in the area of listening. The ability to recognize listening examples such as in relating sound to the written music or in identifying instruments or timbre by sound was weak. The students seemed to lack complete comprehension and cognition in these and related areas. The students appeared to be motivated and enthusiastic, even though the subject matter was too complicated and too much of a challenge for them. The researcher's first reaction was that the textbooks, Making Music Your Own, Book 7,[1] were inappropriate. After careful scrutiny, however, a more serious problem seemed to exist.

Absence of Live Music. The virtual absence or lack of live musical experiences prompted the researcher to begin a study of the problem. Students were seldom

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[1]Lawrence Eisman and others, Making Music Your Own, Book 7 (New Jersey: Silver Burdett Co., 1969).

exposed to being an audience. When a visiting musical group performed in the school auditorium, the students on occasion had to be reminded by the principal on their behavior. The researcher postulated that such activity was caused by lack of experience in being an audience to live musical performances.

It was the researcher's opinion that attendance at live performances usually seemed to be more aesthetically beneficial than to listen to recorded performances.

Availability of Mass Media. The limited availability of exposure to music in the mass media presented many interesting aspects. Being located about a hundred miles from the nearest television station usually required special receiving devices. Powerful antennas or connection with the cable television system were most common. Radio stations seemed virtually impossible to receive unless, again, a special receiving mechanism was employed.

Statement of the Problem

The problem which the researcher pursued was to determine how isolation had affected musical ability of students reaching the seventh grade in the Babbitt Schools.

Hypothesis

There are no significant differences at the $p = .05$ level in musical ability between seventh grade students in Babbitt and the norms based on the Seashore test.

Specific Problems

Several specific problems relative to the general problem were also undertaken; problems believed significant by the researcher as causal factors which either directly or indirectly influenced the musical growth of the seventh grade Babbitt students. The village of Babbitt, was viewed as having influenced students because of its cultural, ethnic, economic status and geographical location. These influencing factors combined with the family influence predominant in the home atmosphere were assessed and recommendations for a compensatory music education program were suggested.

Population of Babbitt. Since the population of an area is generally believed to be a direct result of what the surrounding area's opportunities hold, the community of Babbitt was primarily established because of the development of the nearby taconite mining operations. The community of Babbitt was established in 1952 and developed rapidly, reaching a population figure of 2587 by 1960. Growth continued after 1960, however at a slower pace and the population by 1970 had risen to 3076.[2]

In addition to the population of the community of Babbitt, the schools were augmented remarkably by the surrounding radius of about twenty miles and students were

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[2]Babbitt Comprehensive Guide Plan Chapter (Duluth: Aguar Jyring Whiteman Moser, Inc., 1972), p. 9.

bused in from these rural areas. In 1970, the St. Louis County School at Embarrass consolidated with the Babbitt Schools and subsequently, the Embarrass School buildings were closed.

Several interesting points demonstrating the unusually young population of Babbitt were considered. It had been determined that the percentage of people under nineteen years of age had decreased slightly between a ten year span. In 1960 nearly fifty-seven per cent of the residents were under nineteen years of age.[3] By 1970 this figure was reduced to about fifty-two per cent.

It was interesting to note that Babbitt was settled by young families who are generally in a position to be more mobile than older persons. Median age characteristics demonstrated changes in the population of Babbitt:

> In 1960 the median age was set at approximately nine years. By 1970 that figure had risen to over nineteen years of age. The latter figure compared with St. Louis County's median age of twenty-nine years and the state of Minnesota's median age of twenty-seven years.[4]

Indicators such as these can probably be used to describe some of the reasons for influence.

Even though the median age of Babbitt was rising and the per cent of young people under nineteen was falling, large families were quite common. The state average number of people per household in 1970 was 3.2; St. Louis County had 3.1 people per household; and the neighboring community

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[3]Ibid., p. 10.

[4]Ibid.

of Ely had 2.8. Babbitt, on the other hand, was considerably higher with nearly 4.3 people per household, reflecting the young, child bearing age of a large number of the parents located there.[5]

Employment and Geographical Location. As a result of the unique population of Babbitt described above, a specific problem was to determine pertinent cultural, ethnic and economic aspects as well as the geographical location of the community.

As was stated earlier, the primary employment for the Babbitt area consisted of the Reserve Mining Taconite Plant at Babbitt. Except for a few mining engineers, most employees of Reserve Mining were classified as common laborers. Prior to settling in Babbitt, a substantial number of families had previously lived on farms or in small farming communities in other parts of Minnesota and in neighboring states. This was substantiated by a show of hands in the music classes.

Live Musical Experiences. The geographical location of Babbitt was believed by the researcher to be a factor in the quantity and quality of available live musical performances. The small size and remoteness of the community seemed to provide insufficient drawing power to attract popular well-known professional music groups. It was

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[5]Ibid.

necessary for the people of Babbitt to travel nearly 100 miles or more to Duluth or other large cities in order to experience professional music performances. Consequently, Babbitt children were severely limited in exposure to live musical performances. The most likely encounter with live music existed in the local school band and choral programs.

Exposure to live musical experiences available to the citizens of Babbitt was demonstrated by the survey questionnaire which is found in the appendix. Attendance at musical events by the Babbitt seventh grade students and their families was compared with students from Woodland Junior High School and Washington Junior High School, both in the Duluth Public School System. Only seventh grade students and their families were surveyed. As indicated in Table X, the quantitative difference is insignificant, however the choice of the Babbitt seventh graders was informative. The classification second to school music programs was that of the Lundstrom's Gospel Singing Troupe which drew a large audience from the Babbitt area. The third highest category of exposure to live music was "none". This demonstrated that a substantial number of Babbitt seventh grade students and their families did not attend, in the course of the year prior to the survey, any live musical performances. The investigator believed that this finding was extremely significant in at least demonstrating that the most popular musical events were the school music programs. The degree of isolation in terms of live musical

performances for the Babbitt students was further supported by this data.

Family Influence. Another very important aspect of the personal survey questionnaire was to illustrate how family influence affected the normal musical ability either by inhibiting or limiting the scope of the various kinds of musical motivation.

Parents were often quite influential since their tastes in specific styles of music or a lack of interest in music directly related to their children. The parent's preference in music often dictated which television or radio programs as well as any recordings were acceptable.

Music Education Goals. The above mentioned areas dealing with the population, ethnic aspects, the economics and the geographical location, were important in determining how isolation had affected the musical ability of Babbitt seventh grade students.

The resulting problem was to try and identify those specific areas of music education that could be emphasized in the Babbitt Schools in order to compensate for any identifiable deficiencies in the seventh grade student's musical knowledge, if such deficiencies did exist.

Definition of Terms

The purpose of this paragraph was to make an attempt to familiarize the reader with the specifically related subjects from which questions could arise. To

expedite the interpretation of the research, a brief explanation of terminology merited discussion. The following terms were defined in context with this investigation. Some definitions were used in limited scope such as to provide ample substantiation for this work. Other terms were defined by citing certain sources.

Babbitt, Minnesota. In 1970 the Northeastern Minnesota community of Babbitt was located on a townsite containing approximately 1,250 acres of which over 340 were developed in one form or another. Of the total developed land, the largest land use consisted of over 580 home sites or approximately 150 acres of that land.[6] Space was provided for about 200 additional homes. A small shopping center area contained most of the business in Babbitt. The businesses included a grocery store, drug store, service stations, a banking facility and other commercial enterprises commonly found in small communities. The mining operations of Reserve Mining Company were located about two miles south of the townsite.

Public areas within the Babbitt townsite consisted of a village hall - library building, a municipal liquor store, and a fire hall building. There were three school sites contained within the residential area. Two of those were elementary and the third a junior - senior high school. Part of the high school grounds consisted of a large arena

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[6]Ibid., p. 4.

building and a community building. The three schools contained approximately fifty-three acres of land. The only recreation areas in addition to the school grounds were a nine hole golf course, a nearby beach facility and a small community center building for the youth.

Babbitt was a relatively young community of about fifteen years at the time of this research. Homes, streets and surrounding areas were in generally good repair. As was previously stated the population of Babbitt was 3076, in 1970. Approximately 1800 students attended K-12 in the Babbitt Schools.

Classical Music. Classical music was not presupposed as coming from the classical period in history when dealing with Babbitt music students. The "working definition" of classical music in this research included all types of music except that which was most often heard over the popular radio stations in the area. Classical music by definition included serious, sacred, secular, symphonic and operatic music. Classical music to the Babbitt student often meant "long hair" or "old fashioned" type music.

Elements of Music. The elements of music which were dealt with included duration, timbre, pitch, and dynamics.

General Music Program. In the Babbitt Schools, general music referred to the one semester music class required during the seventh grade. The music class consisted

of education and training in basic music theory, history, appreciation, and composition. The general music class was strongly classroom oriented whereas the band and choir were exclusively performance oriented. Every seventh grade student, with very few exceptions, were required to take the course for one semester.

Live Musical Experience. A live musical experience or performance was one in which the audience attended and witnessed the actual performance. "Live recordings" of performances did not fulfill that requirement. Any reproductions by record, tape or viewed "live" on television or radio were not acceptable to this category.

Normal Musical Ability. The determination of normal musical ability was based on the Seashore norm group. The norms utilized by Seashore, Lewis and Saetveit in the Seashore Measures of Musical Talent were derived from scores submitted by twelve schools located in several Northwest, Northeast and Great Lakes states.[7]

Delimitations

The purpose of this research was not to show or indicate how isolation had affected the other areas of the fine arts such as the visual arts of painting, sculpture and the related disciplines of drama, literature, and so forth.

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[7]Carl E. Seashore and others, Seashore Measures of Musical Talents Test Manual (New York: Psychological Corp., 1960).

Any suggestions or presuppositions conceived in this report which could have perhaps indicated a better or more effective method or approach to teaching were disregarded.

No attempt was made to measure cultural or normal musical ability in the grades either below or beyond the seventh grade. All of the research completed was relevant to the seventh grade.

Evaluation of the present elementary music program at the time of this research was not intended, nor was any attempt made to either evaluate or correct that method of teaching. The elementary music curriculum was, however, carefully scrutinized by the researcher for the purpose of hopefully gaining some insight into what background the seventh grade students had been exposed prior to their seventh grade experience.

Basic Assumptions

Several basic assumptions were made by the researcher following an assessment of the foregoing problems. These assumptions were included to establish the theoretical framework by which the investigator inferred the need to determine how isolation had affected normal musical ability in the Babbitt School system.

Babbitt is a Unique Community. Since Babbitt was established around a growing industry, specifically, the taconite industry, the community was composed of a large

percentage of young people. This was probably do to the easier mobility of younger families and an eagerness to find work in an industrial location. The community was also quite unique since it was a one-industry community attracting specifically and primarily common laborers. Also Babbitt was considered atypical by the researcher because its families represented a wide diversity in cultural and ethnic backgrounds. Babbitt was also believed to be unique because most parents of the students were relatively young and educated only to the high school level or less. Babbitt's educational system was considered adequately provided for by the taconite plant's tax support and interest in the community. Babbitt was deemed unique because of its remote isolation from neighboring cities; the nearest being Ely, fifteen miles away. The nearest larger shopping centers ranged from Virginia to Duluth or a distance forty and a hundred miles away, respectively. The virtual nonexistance of live musical experiences and the restricted availability of music in the mass media also contributed to the uniqueness of Babbitt.

Influence of Family Background. Many of the factors involving the student's musical knowledge were assumed to be influenced directly by the family background. Motivation of musical endeavors appeared to be frequently ignored in some instances by unconcerned parents. Taste and preference for music in the home seemed to affect the taste and preference of the student whether that student listened voluntarily or

involuntarily. It was assumed that being raised in a home where the predominant style of music played was country and western, that probably the child would learn to appreciate country and western music. On the other hand, if a family enjoyed opera or symphonies, it would be assumed that the child would grow up to understand and appreciate to some degree, those styles.

The researcher sensed a lack of interest in the arts by some parents as many did not encourage their children to participate in the music programs. Occasionally, with their child participating in such groups as the band, chorus or the musicals, a parent might feel that performance was not essential and prefer to leave early on a trip the night of a performance. The researcher deemed that those examples were essential in explicitly pointing out the influence the family had upon the student's musical knowledge.

Adjusting the Music Curriculum. The investigator tended to believe that if isolation was affecting Babbitt students, the situation should be dealt with effectively by adjustments in the music curriculum. There was no intention in this statement, however, to suggest that the present system was inadequate. Rather a statement might be inferred that a more meaningful method could be employed to strengthen the music program. It would be hoped that the people could be educated to better understand their type of music and simultaneously increase their exposure and appreciation for a more sophisticated type of music.

One assumption made was that if a successful music curriculum could be accomplished as stated above, perhaps the enthusiasm of the student could carry over and subsequently influence the parent's tastes and interest to whatever extent possible.

Relating Popular Music to the Classics. Combining popular styles of music such as country-western or rock to the classical was held by the author to be one means of alleviating many existing problems of relativity, if they did exist. If a Babbitt student could not relate to a theme with variations form in a classical music example, that same form might be demonstrated in an example composed and performed by the rock group Chicago. Perhaps this type of relationship could be effective. Country and western music, which the Babbitt students had a great deal of interest in contained musical forms and other elements of music common to the more classical styles. Again, a relationship would be pointed out.

Summary. In concluding this section of the research project, the author strongly believed that, should a deficiency in music ability be identified, certain steps could then be taken to improve upon the music curriculum. There were many a priori assumptions such as the community of Babbitt itself, the family background and even the possibility of disparity in the music program that could have an effect

upon the musical ability of the Babbitt seventh grade students. These assumptions cannot by any means be ignored.

Chapter 2

REVIEW OF RELATED LITERATURE

The purpose of this chapter was to examine literature relative to the investigation. For the purpose of clarity the chapter was divided into two sections. The two divisions were isolation and commentaries or critiques of the Seashore Measures of Musical Talent. Examples of isolation, in addition to sources of influence upon musical style and taste, and a brief philosophy on the methods of presenting music were compiled in this chapter.

Effects of Isolation

Much of the available literature pertaining to isolation was to the ghetto situation. The inner-city and urban schools have had an appreciable number of problems related to isolation and deprivation. Obviously, many of their problems such as poverty, bigotry, armed mobs, and minority groups did not apply to the situation illustrated in this study of Babbitt, Minnesota. Still, many similarities did exist.

The need for continuous testing in developing more effective methods of instruction for students from deprived or isolated backgrounds extended to all subjects of the curriculum including music and the arts.[1]

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[1]C. R. Reid, "Relative Effectiveness of Contrasted Music Teaching Styles for the Culturally Deprived," Journal of Research in Music Education, Winter, 1970, p. 484.

As far as relevancy was concerned, there seemed to be no subject that had a more universal appeal for young people than music.[2] Many authors seemed to agree that if music educators were to be relevant, they would have to recognize the problems the students were facing, including those related to isolation. The methods of emphasizing areas of need were varied and occasionally discrete. Paul Brigg's answer was to hire the Cleveland Symphony Orchestra for one week to rehearse while a child sat by each orchestra member.[3] That was one method of presenting good literature, music and the arts to an isolated environment.

Another approach involved the music educator starting where the student was. Since there was a relationship between any value and the inner city, Gillespie's concept was to start where the student was and then to move toward "Beethoven."[4] Like other disciplines, the music curriculum too often assumed that all students wanted the same kind of music. Music teachers, according to Newman, should help students understand their own musical likes and dislikes, develop their musical abilities, and maintain the

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[2]R. Newman, "Music Education: The Need for Change," School Review, 79:441, May 1971.

[3]Paul Briggs, "Facing the Music in Urban Education," The Arts can Shatter Urban Isolation," Music Educator's Journal, 57:32, January 1970.

[4]Charles B. Fowler, "Music Teachers Should Shake Their Conservatism," Music Educator's Journal, January 1970, p. 61.

kind of open, inquiring attitude which would help them find that music most appropriate to their individual tastes.[5]

One of the ultimate goals of music education was to help students develop selectivity in their musical environment.[6] School influence on the student's ability to judge musical tastes also affected the student's interests and attitudes. Thus, music education was concerned not only with presenting the specifics needed for the judgment process, but also with influencing the students' attitudes toward various types and styles of music.[7]

Fowler was concerned that music educators, when considering music in urban education, thought in terms of simplification, while the inner-city child had the intelligence and vitality to cope with the great music.[8] Most authors agreed that there should be no sacrifice of quality when discussing the student's popular music.

A criticism of music education was the tendency to treat music appreciation classes as "low-power" music history classes with a little theory on the side.[9] A class organized in this fashion posed few problems because it

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[5]Newman, op. cit., p. 442.

[6]Robert O. Williams, "Effects of Musical Aptitude, Instruction, and Social Status on Attitudes Toward Music," Journal of Research in Music Education, 20:362, Fall 1972.

[7]Ibid.

[8]Fowler, op. cit., p. 63.

[9]Allen B. Skei, "What if They've Never been to a Concert?" Music Educator's Journal, 57:59, December 1970.

was respectable in view of the entire curriculum. Students acquired information just as in the other disciplines, and the testing procedures were also traditional. The biggest problem faced, besides boredom, would be the course's lack of relevance for those students.[10]

Somewhere, Skei believed, there must have been a music appreciation class who knew Mozart and Bartok from years of going to concerts and listening to records, however the classes he taught had heard school bands at a football game and may have heard of Beethoven, but rarely had heard a symphony or a concerto.[11]

In summary, it appeared that the role of the music educator was to introduce many musical aspects and styles and to form a relationship which was meaningful to the music student. The supposition that teaching musical style had a direct or measurable effect on the learning of general music students in basic music literacy appeared to be valid.[12] In situations of isolation or deprivation a physical and visual approach rather than a completely aural approach to learning seemed to be favored.[13] In such a situation a teacher's oververbalization could well lead to lower levels of progress.

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[10]Ibid. [11]Ibid.

[12]Reid, op. cit., p. 490.

[13]Ibid.

Another important aspect of relevancy in education was the assistance that students needed to evaluate the world of sounds around them. Students needed assistance in descriminating between musical ideas and expressions being thrust upon them in a rapid changing society.

A statement which best described the need for relevancy in general music education was by Charles R. Keller when he wrote: "He that will not apply new remedies must expect new evils: for time is the greatest innovator."[14]

Seashore Measures of Musical Talent

Because the Seashore Measures of Musical Talent was selected as a testing device, several reviews were consulted. Authors seemed to be most critical of the reliability and validity values of the test. There was no information available on the interrelationships of the several measures, on the relationships between the pairs of forms or on the reliabilities of the combined forms of each measure.[15] In the test manual the section on validation stressed the theory of specifics and did not give satisfactory information about practical adaptation in vocational or avocational guidance in music.[16]

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[14]Charles R. Keller, "Needed: Revolution in the Social Studies," Structure in the Social Studies (Washington, D. C.: 1967), p. 8.

[15]Paul R. Farnsworth, Mental Measurements Yearbook, ed. Oscar Buros (New Brunswick: Gryphon Press, 1940) p. 262.

[16]William S. Larson, Mental Measurements Yearbook, ed. Oscar Buros (New Brunswick: Gryphon Press, 1940) p. 263.

Ever since the tests appeared in 1919, considerable controversy had existed as to their value in music education.[17]

Several of the controversial theoretical issues were as follows:

> This most significant point has been beclouded by arguments on certain theoretical issues such as whether or not suitable criteria for judging consonance have been advanced. Another issue has been whether the tests should be used as a composite battery with average scores, possibly with some weighted deviation of such, in determining a classification of talent (Professor Seashore opposes this plan which he calls the omnibus theory) or whether each individual test in the battery should be considered a test unit in itself for measuring that specific capacity for the value it in itself can lend to musical prognosis (this theory of specifics Professor Seashore approves).[18]

The Seashore Measures of Musical Talent had been subjected to criticism from both sides of the Atlantic for many years on the grounds that the measures were based on erroneous fundamentals which were musically meaningless and invalid.[19] Musicians, in general, did not take kindly to the tests, since they believed that the relationship with music was not obvious.[20] James L. Mursell, stated that the basic assumption of the measures was that a person who scored high on the pitch test would control the pitch factor well in musical experience.[21] Similar assumptions were made for the other five measures. It was assumed

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[17] Ibid.

[18] Ibid.

[19] John McLeish, Mental Measurements Yearbook, ed. Oscar Buros (New Jersey: Gryphon Press, 1953) p. 229.

[20] Herbert D. Wing, Mental Measurements Yearbook, ed. Oscar Buros (New Jersey: Gryphon Press, 1953) p. 230.

[21] James L. Mursell, Mental Measurements Yearbook, ed. Oscar Buros (New Brunswick: Gryphon Press, 1940) p. 264.

that the six factors which were measured function in music as they did in the test. Mursell maintained that the ability of the test to measure talent was highly questionable and entirely unproven.[22]

Not all sources were critical of the Seashore Measures of Musical Talent. Referring to the recorded method of administering the test, John McLeish wrote that the tests had probably reached the peak of technical excellence so far as the presentation of the stimuli were concerned.[23] Most authors tended to agree that the Seashore Measures of Musical Talent was the best known and most used of all music test batteries. Paul R. Farnsworth held that the Seashore Measures of Musical Talent correlated well with teachers' ratings of musical ability and were found useful in screening applicants for the Eastman Conservatory of Music.[24]

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[22] Ibid. [23] McLeish, loc. cit.

[24] Paul R. Farnsworth, "Testing for Music Talent," The Instrumentalist, November 1961, p. 35.

Chapter 3

RESEARCH PROCEDURES

Chapter 1 dealt with the problem, the basic hypothesis, delimitations, basic assumptions, the importance of the study and the incidence of the problem. Related literature was reviewed in Chapter 2.

The purpose in writing Chapter 3 was to select the research methods and procedures which were used in this investigation. The population for the research, the instruments used, and the methods of collection and treatment of the data were discussed.

In Chapter 3 two methods were chosen by the researcher in an attempt to determine whether or not isolation had a significant effect upon the musical ability of students in the Babbitt schools by the time they reached the seventh grade.

The first method was in the form of a standardized test, the second, a personal survey questionnaire designed by the investigator.

Seashore Measures of Musical Talents

The Seashore Measures of Musical Talents was selected as a test because it was more comprehensive than most typical scholastic or general aptitude tests. The Seashore Measures of Musical Talents was designed to specifically

measure musical ability. Since not all of the facets of musical aptitude are known, there are however, several fundamental capacities that have been identified and assessed.

The Seashore Measures of Musical Talents provided separate measures for six of these capacities: pitch, loudness, rhythm, time, timbre, and tonal memory. The original series of the Seashore tests was published in 1919 and remained basically unchanged for twenty years, during which time extensive research was accomplished.[1] A revision of the Seashore test was completed in 1939 in which the precision of the stimuli was improved, better analysis of all the items was achieved, and the original consonance test was replaced with the timbre test.[2]

The Seashore Measures of Musical Talents testing kit was requisitioned through the Babbitt Independent School District 692 and recieved from the Psychological Corporation, 304 East 45th Street, New York 17, New York on May 6, 1974.

Administering the Seashore Test in Babbitt, Minnesota

The Seashore Measures of Musical Talents test was administered to four sections of Babbitt seventh graders on May 28, 1974. The first section consisted of twenty-eight seventh grade general music students who were tested in the Babbitt High School choir rehearsal room. Each

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[1]Carl E. Seashore and others, Seashore Measures of Musical Talents Manual (New York: Psychological Corp., 1960).

[2]Ibid.

member of this section was an active member of either the junior high band and/or choir.

The second section tested was made up of eighty students in the junior choir. Membership in the junior choir required only interest and cooperation. Auditions were not mandatory except for a simple try-out procedure to determine voice range placement.

The third and fourth sections tested were comprised of seventh grade music students not participating in band or choir. Twenty students were in each of these sections.

Each of the 148 students tested had a fifty-two minute class period in which to complete the test. The actual testing time for the six parts of the Seashore test was thirty minutes. The entire class period was allowed for instructions, demonstrations, and the test.

Testing was conducted in a well lighted, well ventilated, comfortable choir rehearsal classroom which was capable of seating in excess of 130 students at any one time. The classroom had unusually good acoustics and there was no noise disturbance either in the room or in adjacent areas. The student's desks were arranged in a half-circle formation tiered on four ascending rows. All desks faced the front center of the classroom where the researcher/test examiner was positioned with an electronic high-fidelity sound play-back system.

The sound system utilized for the test was of high quality and had recently been purchased for the school

system. The long-playing record on which the Seashore test was recorded was played on a Pioneer PL-12D turntable, amplified through a Kenwood K-4200 amplifier and heard from two JBL Decade L26 stereo speakers.

Prior to the first testing situation, the sound system was adjusted to the room to assure that the volume, clarity, and other acoustics were satisfactory. The researcher also studied the test manual carefully and tested himself with the recording prior to giving the test to the students.

A copy of the special IBM Form I. T. S. 1100 A 7519 answer sheet on which the responses were to be recorded and a pencil with eraser were supplied to each student to be tested.

After each group was assembled and properly seated, the researcher explained that the test was to measure some aspects of ability to hear sounds which occur in music, speech, and many other related activities. The subjects were instructed that the test would be played on the phonograph and that they were to record their responses on the special IBM answer sheets.

Examinees were instructed to print their names and other desired information in the spaces provided on the answer sheets. Prior to each of the six measured sections, a few examples to include easily identifiable and more complex excerpts from the test record, were practiced by the students. During the practices, examinees were encouraged

to compete in reaction to the musical sounds. The researcher encouraged every student to respond to each trial, guessing in case of uncertainty. The demonstration was continued and all questions were answered until it was clear that everyone understood the nature of the procedure.

After it was certain that everyone understood how and where he was to record his answers, the researcher stated that there would be fifty pairs of notes in the pitch test without interruption, and that no questions were to be asked during the actual test.

When all examinees were ready, the record was started and each corresponding band was played without interruption. This procedure was repeated for each of the six measures with time following each one to make necessary corrections on the answer sheets. At the end of the testing period all answer sheets and pencils were subsequently collected.

A detailed account of the content, construction, and analysis of the tests was found in a report by Saetveit, Lewis, and Seashore.[3] The six elements of music which were tested included pitch, loudness, rhythm, time, timbre, and tonal memory.

The first test was to evaluate the sense of pitch. Fifty pairs of tones were presented and in each pair the examinee was to determine whether the second tone was higher

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[3] J. G. Saetveit, Lewis, D., and Seashore, C. E., "Revision of the Seashore Measures of Musical Talents," Iowa Student Aims Progress Research No. 65. Iowa City: University of Iowa Press, 1940.

or lower in pitch than the first.

> The stimuli were derived from a beat-frequency oscillator through a circuit producing pure tones lacking in harmonics and overtones. The tones are at about 500 cycles and have a duration of .6 seconds each. Frequency differences between the tones in the pairs are as follows:[4]

Item Numbers	Differences in Cycles
1-5	17
6-12	12
13-22	8
23-32	5
33-40	4
41-45	3
46-50	2

The loudness test also consisted of fifty pairs of tones. The examinee was to indicate for each pair of tones whether the second tone was stronger or weaker than the first:

> Stimuli were derived from the same apparatus that was used for the pitch test, but the frequency was held constant at 440 cycles. Intensity differences between the tones in the pairs are as follows:[5]

Item Numbers	Differences in Decibels
1-5	4.0
6-10	2.5
11-20	2.0
21-30	1.5
31-40	1.0
41-50	0.5

The third test was to evaluate the sense of rhythm. The examinee heard thirty pairs of rhythmic patterns and

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[4]Carl E. Seashore and others, Seashore Measures of of Musical Talents Test Manual (New York: Psychological Corp., 1960). p. 3.

[5]Ibid.

was to indicate whether the two patterns in each pair were the same or different:

> The source of the stimuli was a beat-frequency oscillator set at 500 cycles. Tempo is constant at the rate of 92 quarter notes per minute. The first ten items contain patterns of 5 notes in 2/4 time; the next ten, patterns of 6 notes in 3/4 time; and the last ten, patterns of 7 notes in 4/4 time.[6]

The time test was to evaluate the examinee's sense of time duration. The test consisted of fifty pairs of tones of different duration. The examinee was to determine whether the second tone was longer or shorter than the first. The same oscillator used for the stimuli was used in the pitch test.

> The duration of the tones was controlled automatically by a tape timing device for which the tape had been prepared with a predetermined schedule of time intervals. The frequency of the tones was held constant at 440 cycles. Differences in duration between the tones in pairs are as follows:[7]

Item Numbers	Differences in Seconds
1-5	.30
6-10	.20
11-20	.15
21-30	.125
31-40	.10
41-45	.075
46-50	.05

The timbre test was to measure the ability to discriminate between complex sounds which differed only in harmonic structure. In this test consisting of fifty pairs of tones, the examinee was to judge whether the two tones were the same or different in timbre or tone

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[6] Ibid.

[7] Ibid., p. 4.

quality. Timbre and tone quality were explained to each testing group prior to that section of the test. A special generator was used to produce the tones:

> Each tone is made up of a fundamental component, whose frequency is 180 cycles, and its first five overtones. Tonal structure is varied by reciprocal alteration in the intensities of the third and fourth harmonics. The following table shows the amounts by which the intensities of the third and fourth harmonics in variable tones differ from their levels in the standard tone:[8]

Item Numbers	Decibel Increase in 4th Harmonic	Decibel Decrease in 3rd Harmonic
1-10	10.0	9.6
11-20	8.5	4.0
21-30	7.0	2.4
31-40	5.5	1.2
41-50	4.0	0.7

The final test in the series of six music capacities was the tonal memory test. The test consisted of thirty pairs of tonal sequences with ten items each. There were three, four, and five tones in each sequence. The examinee was to identify which one single note was different in the two sequences. The stimuli source came from a Hammond organ. "The eighteen chromatic steps upward from middle C were used. Tempo was carefully controlled, and intensity was essentially constant."[9]

Since time and conditions did not permit, and furthermore the researcher believed no further testing was necessary, no retest was given to the students.

Each of the 148 Seashore Measures of Musical Talents answer sheets were hand scored on the following day, May 29,

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[8] Ibid.

[9] Ibid.

1974, using the set of scoring grids provided in the testing kit.

The Influence of Family Background upon Musical Experience Survey

During the spring of 1974, a six question survey, designed by the researcher, was conducted in three locations. The purpose of the questionnaire was to provide a comparative study of the influence which family backgrounds had upon the individual student's musical knowledge. The researcher attempted to compile some data dealing with the influence a family has upon the junior high school age student. Questions pertaining to musical instruments, singing experience, musical shows watched on television, musical recordings whether on tape or record, radios and choice of radio stations, and finally exposure to live performances of music were each studied. The complete survey is found in the appendix.

While the students were responding to the questionnaire, they were encouraged to ask questions in order to clarify points in the survey. The students were granted sufficient time in which to adequately and to the best of their ability, complete each and every item.

Questionnaires were completed by seventy-one seventh grade music students in the Duluth Washington Junior High School, by 121 seventh grade music students in the Duluth Woodland Junior High School and by 100 seventh grade music students in the Babbitt Junior High School.

The first question on the survey requested a comprehensive list of all musical instruments which could be found in the student's home - musical instruments which were played occasionally by one or more members of the family. By limiting the list to only musical instruments played occasionally by one or more members of the family would preclude the possibility of listing such unique musical instruments which may have been in possession simply as collector's items or instruments hidden away and would not have had any musical influence upon the seventh grade student. Of those instruments listed, the researcher hoped to draw some comparisons between Babbitt families and families in another city.

The musical instrument question did not attempt, however, to denote how many members of the family could perform upon any particular musical instrument, nor did it, for that matter, specify to what degree of musicianship was to be attained upon that instrument - simply that it was played occasionally. There was no maximum limit placed upon number of possible entries.

The next question dealt with exposure to singing in the various ways in which a family could participate. Church choir was the first sub-group within the singing classification. Simple congregational singing was not considered as an active group. School choirs referred to any student's brothers, sisters, or parents, who were members of elementary, secondary or post secondary level choral

groups. This category also lent itself more toward an interest group since membership in a choir or chorus is not always based upon ability.

Another category, considered less appropriate by the researcher to be listed, was that of singing at home. It was deemed inappropriate because ability, quantity, effect, and other aspects of singing at home could not effectively and conveniently be measured. Credit was given, nevertheless to those responses so indicating singing at home.

All other types of singing were grouped within the community classification, whether professional or amateur.

Television music shows comprised the third division of music appreciation. Students were urged to list in order of importance, the televised music shows which were most often viewed in their home. The student's favorite shows were to be listed as were those watched most often by members of the family. The students, themselves, were to discern which television programs were musically oriented and which were not. Class discussion was encouraged when doubt was evident. For statistical convenience, only the first five responses on this question were considered in those instances where excessive entries were listed.

Item number four on the questionnaire was somewhat more obscure than the others. Recordings, both tape and disc, played in the home were to be listed by preference

as well as by category of style. Again, a maximum of five entries was encouraged. Preference or priority was to be interpreted as that of the family and not necessarily that of the student only. A brief discussion of possible style classifications followed. An attempt was made to clear up vagarious stylistic decisions by briefly explaining the characteristics of many popular and less popular styles. It was recognized that the influence of recordings selected could have been determined by the parent's preference for music as well as the cost factor involved.

The next question was subdivided into two separate, yet, related items. The first item asked the student to list the total number of radios to be found at home or in use by their family. This number was to include all transister radios, console models, clock-radios, car radios, et cetera. A reasonable guess was acceptable.

The more detailed component of this question asked for the call letters of most often listened-to radio stations listed in order or priority of choice. Only a maximum of five entries was accepted again. Class discussion was vital in acquiring accurate responses.

The next question was of particular concern to the researcher because of the isolated location and the lack of availability of live performances in Babbitt. The final question requested a list of all live music performances which members of the student's family had attended within the past year. Amateur as well as professional entries

were acceptable. There was no maximum limit placed upon this list.

Summary

In Chapter 3, the purpose was to select the method of data collection and procedures which were used in this investigation. The population for the research, the instruments used, and the methods of collection and treatment of the data were discussed.

Chapter 4

ANALYSIS OF THE DATA

The purpose of this chapter was to present an analysis and discussion of the data. In the previous chapter the design of the study was presented with the selection of research methods and procedures described.

The purpose of this research was to determine how isolation had affected musical ability of students reaching the seventh grade in the Babbitt Schools. The hypothesis was stated in the null form as follows:

> There are no significant differences at the $p = .05$ level in musical ability between seventh grade students in Babbitt and the seventh grade students in the norms based upon the Seashore test.

Description of the Population

Statistical data were recorded by means of the Seashore Measures of Musical Talent administered to 148 seventh grade students in the Babbitt Junior High School. The data derived included measures of pitch, loudness, rhythm, time, timbre, and tonal memory. In addition, a questionnaire was given to seventy-one Washington Junior High, 121 Woodland Junior High students in Duluth and 100 Babbitt Junior High students. The purpose of the questionnaire was to investigate the influence of family backgrounds

on the musical knowledge of students by the time they reach the seventh grade.

Statistical Methodology for the Music Test

The main thrust of the study was to determine whether a significant difference existed between the musical talent of Babbitt seventh grade students and the norms provided by Seashore, Lewis and Saetveit. This was based on the z-test method of statistical analysis of means.

The data used for computing the z-test were derived from the Seashore Measures of Musical Talent test given during the spring of 1974. This test was selected because in the opinion of the investigator it best represented a musical talent ability measure.

It was necessary at this point to determine if the Babbitt seventh grade students scored significantly different than the standard norms. If it was true that conditions were the same, but the results obtained were significantly different, then the same results could be expected to occur almost everytime the experiment would be repeated. It could also be assumed that significant results would reduce chance as a factor in describing any difference.

A significant difference at the $p = .05$ level was interpreted to mean that Babbitt seventh grade students were significantly different in musical ability compared with the Seashore norms and would continue to be so if the tests had been repeated. To avoid unnecessary repetition,

only the pitch test which followed was explained in great detail. The results of the other five measures were included in Tables I-IV.

The Pitch Test

To determine whether or not the difference was significant, a z-test was computed using the results of each of the measures concerned and the results compiled by the University of Minnesota, Duluth, Computer Center. The results of the z-test showed no significant differences at the p = .05 level.

In evaluating the performance of the seventh grade Babbitt students in pitch measurement of the Seashore Measures of Musical Talent, the group exhibited a mean score of 38.5 and a standard deviation of 7.7. The standard norms exhibited a mean of 35.5 with a standard deviation of 7.7. The researcher thus found that the measures of central tendency, the means, differed by 3.0. The researcher also found that the measures of variability, the standard deviation, differed by 0.0. These statistics are relatively unimportant until they are computed into z-scores. The z-test was programmed for the computer. The level of significance was p = .05. Subsequently, the results were interpreted by the researcher as exhibiting no significant difference, however, the mean scores of the Babbitt students exceeded the standard norms in one measure and appeared lower in another.

The hypothesis that no significant differences existed between the Babbitt students and the standard norms was accepted at the $p = .05$ level of significance for all of the six measurements.

TABLE I

A Comparison of the Means Between The Babbitt Students and the Means of the Seashore Norms

Test Measurement	Babbitt Students	Standard Norms	Difference
Pitch	38.5	35.5	+3.0
Loudness	39.4	38.6	+0.8
Rhythm	25.5	24.0	+1.5
Time	36.8	34.9	+1.9
Timbre	33.1	35.2	-2.1
Tonal Memory	20.4	20.3	+0.1

TABLE II

A Comparison of the Standard Deviations Between Babbitt Students and the Standard Deviations of the Seashore Norms

Pitch	7.7	7.7	0.0
Loudness	6.8	6.6	0.2
Rhythm	3.4	3.8	0.4
Time	6.2	5.2	1.0
Timbre	4.8	5.2	0.4
Tonal Memory	6.7	5.9	0.8

TABLE III

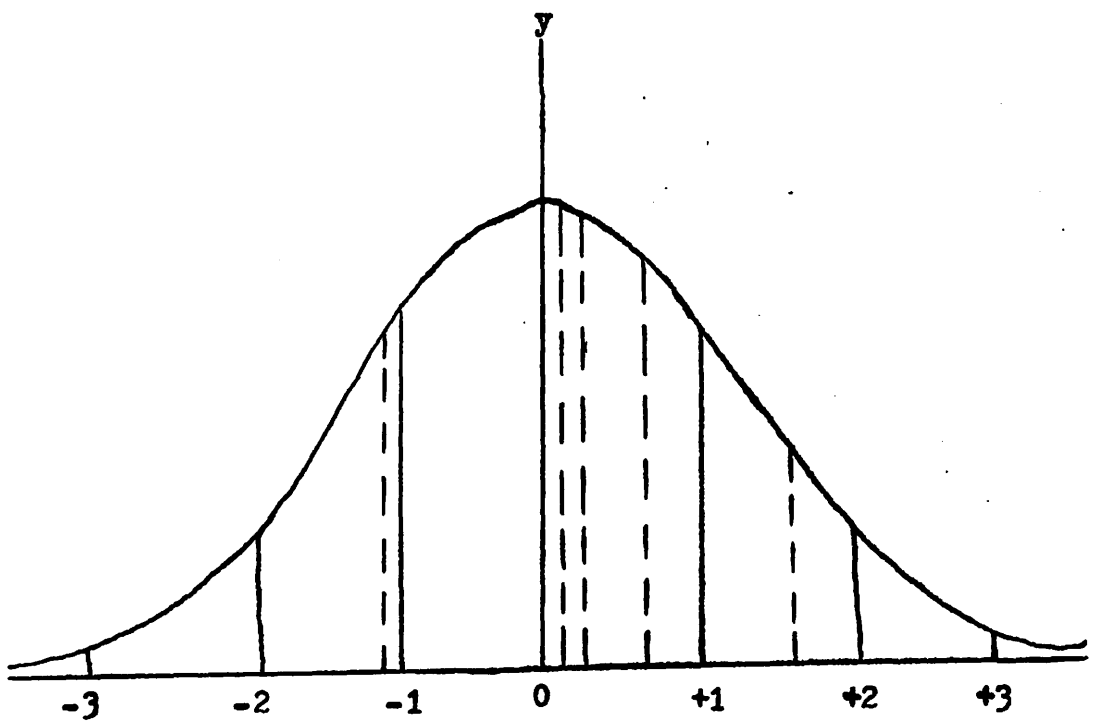
Table of z-values

Test Measurement	z-value
Pitch	0.62
Loudness	0.21
Rhythm	1.60 *
Time	0.62
Timbre	-1.13 *
Tonal Memory	0.12

* approaching significance $p = .05$

TABLE IV

z-Statistic Plotted on Normal Distribution



Timbre	Tonal Memory Loudness	Pitch & Time	Rhythm
-1.13	0.12 0.21	0.62	1.60

Statistical Methodology for the Personal Survey Questionnaire

Statistical data were recorded by means of the "Influence of Family Background upon Musical Experience" survey. The purpose of the survey was to investigate the availability of musical experiences in student's homes. The results from the Babbitt, Woodland, and Washington seventh grade students were compiled and compared with each other.

The populations involved were dispersed as follows: 100 Babbitt, 71 Washington, and 121 Woodland seventh grade students. All students responded to the survey. Tables V-X listed the per cents of each school in terms of the particular questions asked.

Table V indicated that Babbitt's highest scoring category was band instruments with eighty-five responses. Washington recorded ninety-three per cent. Very few orchestral instruments were evident in the Babbitt homes.

As indicated in Table VI, Babbitt seventh grade students ranked high in the school choir category whereas the community participation was zero. Church choir also ranked high but was still below the other two schools.

Table VII listed the different available music shows on television. Babbitt responded with sixty-one preferring Sonny and Cher and forty-three preferring the Midnight Special show. Lawrence Welk and Carol Burnett scored high at Woodland and Washington but was practically neglected by Babbitt.

TABLE V

A Comparison of Musical Instruments
Found in Student's Homes

Instrument	Babbitt N=100 (%)	Woodland N=121 (%)	Washington N=71 (%)
Band	85	35	93
Guitar	61	65	51
Piano	42	64	49
Organ	27	17	21
Harmonica	18	17	7
Accordion	17	3	10
Banjo	4	2	4
Violin	1	7	13
Recorder	0	12	17
Flutophone	0	5	18
Cello	0	3	4
String Bass	0	3	4
*			

* 3% or less responses were not considered.

TABLE VI

A Comparison of Family Involvement
In Singing Experience

Singing Experience	Babbitt N=100 (%)	Woodland N=121 (%)	Washington N=71 (%)
School Choir	65	82	25
Church Choir	58	71	61
Home	39	28	21
Gospel Group	0	3	7
Community	0	7	0
Boy's Choir	0	5	0

TABLE VII

A Comparison of the Television Music Shows Most Often Watched by the Student's Families

Television Music Show	Babbitt N=100 (%)	Woodland N=121 (%)	Washington N=71 (%)
Sonny and Cher	61	57	10
Midnight Special	43	31	26
Hee Haw	34	9	1
Chmeilewski	32	8	44
Band Stand	20	12	6
In Concert	17	5	8
Rock and Roll Years	9	0	0
Lawrence Welk	9	29	58
Dean Martin	7	5	0
Porter Wagner	7	0	0
Nashville	6	0	3
Bobby Goldsboro	2	0	4
Rock Concert	1	5	4
Carol Burnett	0	42	31
Stand up and Cheer	0	27	7
Boston Pops	0	4	0
*			

* 3% or less responses were not considered.

TABLE VIII

A Comparison of the Total Number of Radios Used by Student's Families

	Babbitt N=100	Woodland N=121	Washington N=71
Total Number of Radios	615	1029	544
Adjusted Comparison (%)	615	857	766
Radios/Family	6.15	8.57	7.66

TABLE IX

A Comparison of Radio Stations Most Often Listened to, By Radio Call Letters

Radio Station	Babbitt N=100 (%)	Woodland N=121 (%)	Washington N=71 (%)
WEBC-Duluth	65	92	96
KDAL-Duluth	3	70	85
WDTH-Duluth-FM	15	56	58
WAKX-Duluth	0	12	31
WDSM-Duluth	5	10	23
WGGR-Duluth-FM	2	15	18
KPIR-Duluth-FM	2	21	7
KAOH-Duluth	0	3	7
WWJC-Duluth	0	10	23
WELY-Ely	30	0	0
*			

* 3% or less responses were not considered.

TABLE X

A Comparison of Live Music Performances that Members of Student's Families Attended During The one Year Prior to the Survey.

Performance	Babbitt N=100 (%)	Woodland N=121 (%)	Washington N=71 (%)
School Concerts	70	45	45
Symphony	0	32	32
Band	11	8	51
3 Dog Night	5	12	23
Central Pop Concert	0	2	32
Opera	0	18	9
Sonny and Cher	5	8	7
Musicals (school)	28	14	0
Charlie Pride	6	2	9
Woodland Talent	0	10	0
Gordon Lightfoot	0	3	6
Carpenters	0	4	4
British Rock Invasion	0	1	6
Norman Luboff	0	7	0
Godspell	0	7	0
Lundstroms	59	0	0
(None indicated)	12	0	0
*			

* 3% or less responses were not considered.

As indicated in Tables VIII and IX, Babbitt recorded lower in the number of radios in use as well as in the number of radio stations favored. Interestingly, most radio stations preferred by Babbitt were Duluth stations.

Table X demonstrated a significant lack of attendance by the Babbitt population at professional live musical performances. School concerts and school musicals rated highest in the Babbitt list as did school concerts in the other two schools. Twelve Babbitt students responded that they had little exposure to live musical performances. Symphony, opera and some popular concerts were not attended by any Babbitt students or their families.

Summary

Chapter IV presented an analysis and discussion of the data. Statistical data were recorded by means of the Seashore Measures of Musical Talent and a personal survey questionnaire devised by the researcher. The Seashore Measures of Musical Talent was administered to 148 Babbitt seventh grade students and compared to national norms. The standardized test measured musical abilities in six categories. Those measured were: pitch, loudness, rhythm, time, timbre, and tonal memory.

Responses from the personal survey questionnaire were received from 100 Babbitt, 71 Washington, and 121 Woodland seventh grade students. The questionnaire investigated the influence of family backgrounds upon the musical

knowledge of students by the time they reach the seventh grade. Chapter V presented a summary of the study and provided several conclusions and recommendations for further study.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter 5 was divided into three main sections. The first section was a summation of the entire study. The second section listed several conclusions of the study. The third section presented recommendations for further study.

Summary

The purpose of the study was to determine how isolation had affected musical ability of students reaching the seventh grade in the Babbitt Schools. The hypothesis, stated in the null form was as follows:

> There are no significant differences at the $p = .05$ level in musical ability between seventh grade students in the Babbitt Schools and the Seashore norms.

Instruments of Data Collection. Two instruments were applied to the research in order to draw a comparison between Babbitt students and other larger populations. The instruments for the collection of data consisted of a personal survey questionnaire and the Seashore Measurements of Musical Talent.

The questionnaire instrument was distributed to 100 Babbitt seventh grade students, 71 Washington Junior High seventh grade students, and 121 Woodland Junior High

seventh grade students. All scores were compiled and compared by percentages.

The Seashore Measures of Musical Talent test was administered to 148 Babbitt seventh grade students. A computer analysis which involved a z-test was run to investigate for significance at the $p = .05$ level. Each of the six musical ability measures was compared to normative data. The value $p = .05$ level of significance was utilized as the criteria for accepting real differences.

Analysis of the Data. The research provided useful information from both the survey and the Seashore Measures of Musical Talent. The personal survey questionnaire revealed that:

1. Babbitt student's homes contained a significantly fewer number of musical instruments than the other two schools.
2. The Babbitt population was not involved in community singing.
3. Babbitt families watched and listened to fewer television and radio programs.
4. The Babbitt population attended less live musical performances than the population of the other two schools and their families.

Based upon computer analysis, the results of the Seashore Measures of Musical Talent, did not demonstrate any significant differences between the Babbitt students

and the national norms. The null hypothesis was accepted.

Conclusions

Following a review of the related literature and an analysis of the data on the personal survey questionnaire and the Seashore Measures of Musical Talent, the following conclusions were drawn:

1. Based upon the z-statistic Babbitt seventh grade students did not differ significantly from the Seashore norms. Based upon these results the null hypothesis of no differences was accepted.
2. Based upon the personal survey questionnaire, it can be concluded that Babbitt student's homes apparently:
   a. Had a considerably less number of musical instruments.
   b. Had less involvement in singing activities.
   c. Had fewer families that watched music television programs.
   d. Had fewer radios.
   e. Listened to fewer radio stations.
   f. Attended fewer live performances than the other groups.

Recommendations for Further Study

Results of the study made apparent the need for further research. The following recommendations as derived

from this study are presented as follows:

1. A facsimile of this study should be applied to a larger population of Babbitt students to compare at different grade levels.
2. This study should be applied to populations of other Northern Minnesota schools for comparison purposes.
3. Students who participate in musical activities should be compared with students who do not.
4. A type of comparison should be made available demonstrating if isolation has an effect upon the other areas of the fine arts.
5. A different type of test instrument should be used to test for significant differences.

APPENDIX

QUESTIONNAIRE: The Influence of Family Background upon Musical Experience.

1. Instruments: List all musical instruments which may be found in your home and which are played occasionally by one or more members of your family.

2. Singing: Indicate how many members of your family sing in any of the following groups:

   Church choir:
   School choir:
   Community groups (specify what kind):
   Other:

3. T.V. Music Shows: List in order of importance, the T.V. Music shows which are most often watched in your home.

4. Recordings: If you have a phonograph or tape recorder system at home, what styles of music would you say are are most often listened to? List in order of preference. (name about five)

5. a. How many radios (including all transistors, clock-radios, car radios, etc) would you say are used by your family?

   b. List in order of importance the radio stations most often listened to in your home. (list by call letters such as WEBC, KDAL, etc.) No more than five, please.

6. Live Performances: What live music performances have members of your family attended within the last year?

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