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ABSTRACT

THE EFFECTS OF INVOLVEMENT IN CHAMBER MUSIC ON THE INTONATION AND ATTITUDE OF 6TH AND 7TH GRADE STRING ORCHESTRA PLAYERS

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One 7th grade and two 6th grade orchestra classes participated in a 39-week study which examined the effects of chamber music involvement on the students' intonation skills and attitudes towards music. One 6th grade class received a large ensemble curriculum experience only, while the other 6th grade class received a combined large and small ensemble curricular experience. The entire 7th grade orchestra class received a large ensemble curricular experience, with approximately one-half of the class members receiving a small ensemble experience as well during class time. The small ensemble time was spent on their own, with little teacher involvement. The large ensemble groups only served as the control groups, while the chamber music and large ensemble groups served as the treatment groups. An attitude survey and intonation test were administered at the end of the treatment.

During the first two weeks of the study all students were given Gordon's Music Aptitude Profile (1995) to determine that the music aptitudes of the groups were not significantly different. During the last two weeks of the study all students were tested

for intonation skills using the Carmody Intonation Test (1988), and attitudes toward music of all students were measured using the Zorn Music Attitude Inventory (1969).

Students in the experimental groups had significantly higher ($p = .003$) Intonation Test scores than those in the control groups, indicating that involvement in chamber music in a student's musical education made a positive difference in intonation skills. Also, the composite attitude survey scores showed that the experimental group students had a more positive attitude toward music than those students in the control groups ($p = .245$), though for 7th graders the attitude scores of those in chamber music were significantly more positive ($p = .004$). These results indicate that involvement in chamber music in a student's musical education may make a difference in positive attitudes toward music.

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CHAPTER I

Introduction

Instrumental music classes in school settings are designed to foster musical development by teaching students how to play with rhythmic accuracy, with good intonation, and with good tone quality. Other important goals of a successful instrumental music program include the development of a student's confidence in his or her playing ability, and a positive attitude toward his or her musical environment. Traditionally, large ensembles have been the mainstay of the educational system. Schools advocate a curriculum that requires or at least encourages the prospective instrumental teacher to participate in public appearances with large ensembles: marching bands to perform at football games and parades, orchestras to perform for musicals and graduation ceremonies, and so forth. That same curriculum, however, leaves little room for participation in the voluminous heritage of chamber music available for educational settings.

From the mid-1600s to the end of the 19th century, almost every composer who wrote large orchestral works also composed chamber works for strings, winds or brass. Many of these works are accessible to students in junior high and high school settings, and many are arranged and/or simplified to meet young players' educational needs. Modern-day composers who are writing large ensemble works specifically for educational settings are understanding the need for chamber music and supplying this type of literature as well. There are many lists available to teachers through orchestra

and band associations that grade chamber music from easy to difficult so that students, from their beginning instrumental years through graduation from college, can have access to chamber music suitable to their abilities and needs. "Chamber music is rich and varied in scope; it can be performed by anyone from the modest beginner to the virtuoso artist, using any instrument or combination of instruments of different families" (La Mariana, p. 40).

Though there is a ready supply of chamber music available for educational settings, music teachers themselves tend to perpetuate the same neglect of chamber music that characterized their education, and the cycle of neglect could likely continue as it has through past generations. One of the few avenues of chamber music exploration is the annual solo and ensemble festival in junior high and high school. Unfortunately, this is treated as a peripheral activity by the band or orchestra director, because this festival is an added responsibility for which the teacher is usually not compensated.

Customarily the symbols of success, in the eyes of the average school administrator, are the large numbers of students in the large ensembles and acceptable ratings in the annual festival, along with a few concerts during the year. Why should the teacher tax himself/herself further by adding chamber music to an already hectic schedule? These long-standing traditions and attitudes have strongly implanted themselves in our music education system. Today, we have opportunities to develop performance skills in ways that may enhance those skills already employed in large ensembles.

Related Literature

Benefits Claimed for Chamber Music Experience

The performance of chamber music has historically been acknowledged by musicians and music educators to be beneficial to every musician's development. Commenting on the role of chamber music, noted author Homer Ulrich (1966) stated that:

> The musical amateur often makes it his hobby and considers it the mainspring of his musical existence. The experienced layman finds himself richly rewarded for his intelligent listening. The professional musician turns to it for relaxation and for a kind of pleasure that no other field offers. (p. 2)

The performance of chamber music makes substantial technical demands on the individual players, as well as requires the highest degree of sophistication in ensemble playing (Dackow, 1981). The performance of chamber music requires the player to function as an individual, while concurrently contributing to a complex group sonority. Because all parts in chamber music are readily accessible to the listener, greater individual preparation is needed than is required for a large ensemble performance. Referring to chamber music, Joseph Machlis (1963) wrote, "It has been said that in no other kind of music is it so difficult to create a masterpiece. Certainly in no other kind is the texture (and the composer) so exposed" (p. 344).

Kaplan (1966) cited some special advantages of chamber music ensemble

experience. He stated that "chamber groups are the most challenging musically, and the most direct evidence that the conformity component of youth has given way to a self-reliance and independence, which invites only the more adult youth" (p. 54).

Technical ability enhanced through string chamber music ensembles

In a one semester (approximately 16 week) pilot study, Dackow (1981) assigned students to string quartets formed at appropriate difficulty levels for those involved. She assessed student ability through a formal audition or by long term observation of past musical progress. She met with each quartet for a weekly session of forty minutes before, during, or after school. In addition, each quartet met as often as time permitted without supervision in or out of school. Each string quartet technically mastered eight quartet movements at the appropriate difficulty level on a graded syllabus prepared by Dackow. Each group performed once for the band or orchestra (or another musical class) as part of the spring or fall student recital.

Dackow also required that the students be able to recognize with absolute accuracy a selection their group had learned when it was played on a recording or at a live performance, or when given any two pages of the ensemble score. The students also had to match composers and titles learned with their corresponding historical periods. In learning the pieces, students were required to extend technical proficiency as the music demanded it. The students overcame problems such as bowing, left hand position, or the coordination of the two, to the satisfaction of the teacher. The students developed new styles of bowing and phrasing to suit the styles covered, and

gained poise and control through public performance.

Though no specific outcomes were mentioned in this pilot project, Dackow noted that the students felt the experience constituted a "career education," and that they would benefit from participation in chamber music as a lifelong recreational activity. For some of the more accomplished ensembles, occasional freelance employment opportunities were also made available.

Kinney (1976) felt that many parents and school administrators did not recognize the role that the small chamber ensemble played in a musician's development. He found an effective venue of explanation was to present a demonstration/program appropriate for meetings, conferences, and clinics. During this program Kinney explained that the small ensemble provides a different experience for the player than is afforded in a large group. For some the experience is superior and more satisfying. He further claimed that chamber music experience develops the student's musicianship in ways that no orchestra or band experience can. Being the only player on a part is a great responsibility, and mistakes and weaknesses are immediately apparent. But as the player's confidence grows he finds out that he *can* play his part, enter at the right time, and keep up with the group without the help of a conductor or section leader.

Playing independence enhanced through string chamber ensembles

Cheryl Rudaitis (1995) collected positive testimonies of teachers that tried chamber music experiences with their school string classes. Michelle Winter was

concerned when starting her small ensemble program that chamber music can be intimidating, as it was the first time in these students' musical lives that they had ever played a part by themselves. As an introduction, Winter first divided her forty-eight middle school string students into twelve quartets according to ability, then gave every string quartet a Bach chorale that had already been read together as a class. This introduction facilitated a basic understanding of what the chorale sounded like so that the students would know that it was a beautiful piece and one worth their effort. After learning the chorale as a whole, however, each quartet demonstrated its independence by applying phrasing, technique and blend to the chorale, and then to pieces each group was subsequently given. The experience lasted three months, and "the kids loved it" (p. 32).

Pat Van der Veer (Rudaitis, 1995), extolled the virtues of introducing students to chamber music experience.

> Ensemble playing is a great experience for students because it teaches them independence. In orchestra, there's a sort of 'pack' mentality. . . If a student is unsure of a rhythm, for example, he or she can let the rest of the group carry the song along, but in chamber music, there's nowhere for a student to hide. (p. 33)

Darrell Stubbs (1983), professor of music at a western university, maintained that students never sufficiently hear their own performance in a band or orchestral setting and stated that several players on a part substantially mask mediocrity. Not so in a chamber music performance. As students begin successfully performing chamber

music that is at their appropriate skill level, self-efficacy and initiative are increased. The students' poise and confidence make the chamber music experience a positive one. When there are occasional challenges along the way, with the help of a mentor or teacher, the student will accept them and affirmatively surmount them. Thus, the sufficiently skilled chamber music performer enjoys a freedom and independence that spark spontaneity. Such intimacy and interaction with other performers and the audience are not found elsewhere.

Stubbs (1983) further commented that when the conductor is removed from the ensemble, the performer immediately becomes responsible. The player actively assumes the role of interpreter, a role that rapidly matures musicianship. Once a player begins to originate his own performance concepts, he becomes self-actualized, and over a period of time these concepts will form a nucleus upon which the performer learns instinctively to rely and apply in a given situation. The player's own personality will be displayed, which constitutes a great value and advantage in the non-conducted ensemble.

Stubbs (1983) was convinced that providing chamber music experience in the public schools would help students develop a significantly higher level of performance skill, and would help raise artistic levels of both large and small ensembles significantly as well as the level of aesthetic satisfaction through participation. Additionally, a more comprehensive exposure to and experience with chamber music literature would take place, and the students would be better educated and more highly motivated to organize and participate in chamber music experience later in life.

Finally, students would have an expanded appreciation and enjoyment of music because of this added dimension of improved power and skill. However, Stubbs formulated all of these ideas through his own experiences with chamber music and observation of chamber music ensembles with which he worked, not through empirical investigation.

Motivation enhanced through string chamber ensembles

Motivation of students is always a concern for educators, no matter the subject. It is felt by many educators that once students are motivated in a school situation, they have a better chance of continuing to be motivated outside of school as well. If a lifelong marriage with music is to be an attainable goal for all students, proper motivation in the school situation is a necessity. Hartshorn (1966) wrote:

> The skillful teacher will consistently use everything he knows about motivation to make certain that learning activities are motivated at the highest level possible. He will not hesitate to use lower levels of motivation if necessary, but he will try constantly to raise the level to the highest possible point. He will also analyze and evaluate the activities of his pupils to make certain that they are contributing to the desired learning outcomes rather than to others. (p. 217)

Concerning the development of motivation and favorable attitudes, Gary (1966) further stated,

> Closely related to this matter of student involvement is the fact that each

> member of a small ensemble is more important to this group than he is to a band or orchestra. He is enabled to develop more rapidly both because he plays more and because what he plays is more important to the total sound and interpretation of the music. The need for growth is made apparent to him--he is motivated. (p. 346)

Lawrence and Dachinger, in their 1967 study, pointed out that one of the reasons their subjects gave for not continuing musical activity was a "lack of interest" (p. 28). Motivating interest in or developing favorable attitudes toward music and music participation should be one of the main concerns of the music educator.

Rudaitis (1995), in the article mentioned earlier, also interviewed Liz Deger, a middle school string teacher, who started her ensemble instruction by letting the students choose their own small ensemble members, whenever possible. She claimed that students were more motivated to practice if they were with their friends, and she found this practice successful over the years.

Deger felt that a teacher's greatest challenge with middle-level string players was getting them to practice, and a chamber music contest was her means of providing that motivation. Deger said, "Giving students an incentive and some kind of recognition for working hard. . . goes a long way" (p. 33).

Thoms (1988), a high school music teacher in Ohio, found that the small ensemble was a highly successful motivational organization when it was carefully planned and used student ideas, which often emerged spontaneously and enthusiastically from the students' own interests. Thoms was able to involve many

professional and college level small ensembles in concerts with the school chamber groups. This type of collaboration was the major thrust of his high school music curriculum. These concerts included string quartets, jazz ensembles, dance troupes, Scottish bands, brass quintets, piano trios, female vocal ensembles, and early music ensembles. The professional groups helped to strengthen student performances and helped to motivate students to aspire to a more advanced level of playing.

Milch (1993), in a master's project in music education, commented that motivating students must be a consideration for the director who is implementing a chamber music program for the first time. It is important for educators to understand that the motivation for each student is different. For example, a tuba player may get the chance to play the melody in a brass quintet, a group of clarinetists or flutists may be able to play a piece in which they are not surrounded by such thick textures for a change, and saxophone players may be excited at the prospect of playing soprano saxophone. Other students may be motivated by the potential to improve as musicians, and still others by the prospect of being exposed to literature that was not available to them before. Though research indicates that achievement tends to be an excellent motivator (Asmus, 1986), because each chamber ensemble is decidedly different in character and personnel, the students may be motivated differently, both intrinsically and extrinsically.

Because of the challenging nature of the small ensemble and the role of each instrument in the group, the interest of the individual student is usually heightened (Kinney, 1980). One of the difficulties with a large band or orchestra is that often the

player who may be sixth or seventh chair, loses a keen interest in the music; he is able to simply "go along" with the players around him. He may even become bored. Not so in a small ensemble, where each part is very important and integral to the whole. Because each player in a small ensemble is the only one on his or her part, the player will feel a sense of importance in playing to the best of his ability. According to Kinney, though this may sound oversimplified, every small ensemble rehearsal he was able to attend found each student putting forth maximum effort in trying to do the best job possible. He could not, however, say that every time he witnessed large ensemble rehearsals he found the same effort being displayed by all students. Kinney explains that an "additional instructional objective...might be to motivate students to become interested in the possibilities of their instruments for musical expression" (p. 22). The small ensemble should offer a greater opportunity for the student to discover the various musical roles that his or her particular instrument can have, rather than the often stereotyped writing found in a large group. This should promote musical growth, that in turn should result in better performance with the large group.

Exposure in the community and earning money can be added incentives to participating in chamber music ensembles. "Students involved in chamber groups will often find that performance opportunities open to them which they may not have realized were possible" (Milch, 1993, p. 13). There are many community organizations that welcome and appreciate small groups from the schools to participate in their programs.

In discussing the benefits of cooperative dynamics, Glasser (1986) observed that

students can develop a sense of belonging that can lead to motivation. In the music classroom, the more skilled performers can assist the weaker ones, thus bringing added fulfillment. The weaker performers are also fulfilled by their contributions to the group and usually develop a sense of belonging. The entire framework frees the teacher to better facilitate group rehearsal strategies (Di Natale & Russell, 1995). These cooperative learning models can be implemented in all chamber music forums: string, wind, brass, percussion, and vocal.

Attitudes enhanced through string chamber music ensembles

Debbie Perkins, another middle school string teacher interviewed by Rudaitis (1995), held ensemble contests several times a year to focus students' energy on their playing when they might otherwise not be so focused--at the end of the school year and before holidays. One of her goals was teaching her students how to conduct themselves in a professional manner. She taught her students how to rehearse together, how to start and stop, and how to resolve conflicts without yelling at each other. She also gave each student a chance to lead the ensemble. Through this addition to the curriculum she observed that the attitudes of students towards music greatly improved. Perkins cautioned, however, against putting students into ensembles too soon, to ensure that the experience be a positive one.

Andreychuk (1946) discussed small ensembles as having great social value (the necessity for teamwork brings a spirit of cooperation), institutional value (good performance is an excellent advertisement for the school), educational value (the

training received carries over into later life), musical value (increased aesthetic values), and civic value (players become staunch devotées of good music). Di Natale and Russell (1995) further suggested that music skills can be enhanced through the application of cooperative learning models, which promote a healthier attitude, social skills and positive interdependence. Chamber groups consisting of two to five members fit the cooperative learning model perfectly, offering students the opportunity to be responsible for their own music learning experiences.

Di Natale and Russell (1995) stated that cooperative learning models can be further implemented in various musical forums. For example, when playing a Haydn string quartet, the 2nd violin, viola and cello players can be more supportive and lyrical in their phrasing if they are aware of the 1st violin's solo passages. This scenario requires a good listening ear and keen intuitive sense, rarely requiring a conductor. The required intuitiveness and intent listening skills that occur in these situations usually flow from a sense of cooperation and positive interdependence. These recommendations would apply to all levels of chamber music groups as well.

The marriage of ensemble programs and cooperative learning strategies has often been overlooked as a model for teaching music. Positive interdependence, a quality that no musical group can afford to be without, has been described by Glasser (1986) as "a term that means that the assignment is structured so that its success depends not on any one individual but on how well the team members work together" (p. 99). With positive interdependence, an ensemble has the collective energy and spirit of all its members. Without it, the ensemble must be carried by one or two

concerned members. According to Glasser, the difference between a good musical group and a great musical group comes down to member attitudes that encompass positive interdependence and its application through interpersonal qualities.

Van der Veer and Winter (Rudaitis, 1995) each claimed that, in order to maintain a positive attitude, the students' first chamber music experience should be with a piece they know and have learned in a group setting. This enables them to understand their goal when sent off by themselves into their practice rooms. Winter stated:

> To be able to play a piece of chamber music is much, much more demanding than it is to play in an orchestra setting with one's teacher, and, therefore, the level of music that students start to sight-read in chamber music situations should be a grade or two below their orchestra level. It's important to explain this so that kids don't feel insulted at being given an easy-looking piece of music. (p. 46)

Weerts (1972) stated that "advocating the utilization of small ensembles to build solid intonation, to build self-confidence in a one-on-a-part situation, and to help in overcoming nervousness is not anything new" (p. 110). Many students are actually quite solid players and make very strong contributions to the large performing group. However, whenever a solo is called for or a duet or trio within the group is played, some students tend to fall apart because of nerves. This is nothing new and is a standard part of all physiological and mental make-up. Nerves and the problem of nervousness will not disappear with the use of small ensembles, but the tremendous

hold that nervousness has on many students, that may deter them from their full potential as musicians, can be alleviated.

Weerts also mentioned that participation in a small ensemble will help each student gain confidence on his or her part, help to gain the boldness to be heard within the group, and will aid in controlling nervousness. Nerves do not go away but, according to Weerts, they can be controlled by much practice and performing.

When a student practices he or she builds self-confidence. When he plays before others he gradually gains control of his nerves. Many students are very comfortable in the section of a large ensemble, feeling that others in the section are covering them up, but when they have to play alone they become very nervous. These same students can build the confidence needed and the self-assurance necessary if they are members of a small ensemble.

Zorn (1969) found that students involved in chamber music ensemble groups achieved statistically significant differences in positive attitude changes toward music. He used an attitude inventory of his own design in a 32-week experimental program with 30 brass and clarinet students in the 9th grade. All students showed positive attitude changes over the entire study, but those students involved in chamber music groups achieved statistically significant gains in positive attitude toward music, while those students involved in large ensemble groups achieved only moderate gains in positive attitude toward music.

Carmody (1988), using the Zorn Music Attitude Inventory (1969), found that positive attitudes of students toward music increased with their participation in

chamber music experience, which might help prolong interest in music performance. At the conclusion of this study Carmody suggested that chamber music experience should be included in school music programs.

Effects of chamber music experience on public school music education

Most of us are motivated through our vanity, ego and pride (Stubbs, 1983). We want to establish and continually project a favorable image and reputation, and enjoy acceptance and praise. In music performance, these emotional and psychological phenomena operate at their highest level when the performer is heard and responded to as an individual. "Any performing arena in which the individual is more exposed has the potential to offer an even greater degree of reward. Every performance educator should realize that chamber music is such an arena" (p. 35).

Many claims for the learning potential of chamber music ensemble experience have been published. Mursell (1948) said:

> An organization of small instrumental ensembles can provide an interesting and valuable liaison between the general sequence and the specialties.... They offer excellent opportunities for the exploration of musical literature and for the discussion of problems related to taste and discrimination.... A good deal of the handling of such an organization can often be entrusted to students. They can supplement orchestral experience in valuable ways by offering chances for the players of the inner parts. And they are effective seminars for the cultivation of

musical skill. (p. 287)

Kinney (1980) considers "one of the most important values of the small ensemble in a school music program is that it can be structured around the differences found in abilities, levels of understanding, and experiences of individual students" (p. 19). He explains that when a student is a member of a section in a large ensemble, he or she may tend to follow the leadership or playing styles of the stronger players and/or conductor without developing his or her own style or understanding of the part. Thus that student may never come to an individual understanding of the styles of music or of that particular instrument. Kinney suggests that by allowing students to perform in small ensemble groups each student can advance, play, and develop at his or her own rate without the pressure of the section leader having to pull him or her along.

Weerts (1969) mentioned that it would benefit a student to be placed in a small ensemble where he or she is the only student playing his or her particular instrument, so that the student will be required to do more and be challenged at a level commensurate with his or her abilities. For example, a fine clarinetist would be better served for guidance in musical development by performing in a woodwind quintet rather than a clarinet quartet.

An enormous amount of music literature exists for various groupings of instruments, as well as arrangements of larger works for the small ensemble. Kaplan (1966) was concerned about the lack of chamber music experience included as a regular element in the public school music curriculum:

> The presence of small units, well coached, but in some part self-reliant, is perhaps the clearest indication that a school performing music program is dynamic. Such a program puts additional strains on busy musician-teachers, but the long-range results for students and in the ensemble of the larger organizations of the school will be evidence in the course of time. (p. 54)

School music administrators have occasionally written about the value of chamber music ensemble experience in the instrumental music curriculum. Wilson (1959) stated that "while music educators have long considered the small ensemble an ideal means for providing enriched music experience for the musically gifted, the wise band director will see that all band students have opportunity for this kind of training" (p. 51).

Gary (1966) believed that the entire instrumental music program could be built around small ensembles in place of the traditional large performing groups. He cited three main advantages of such a program: (1) the teacher gets to know the student and his or her capabilities better than in the large group and can thereby provide more individual instruction; (2) all the students can be kept working the entire period, instead of waiting while other sections of the band are being drilled; and (3) the division of the band into small ensembles would be an aid in scheduling classes. The reader should remember these ideas were presented during the 1960's when homogeneous classes and pull-outs were more common. Since many of the instrumental programs today concentrate almost exclusively on large heterogeneous

ensembles, it would appear that instrumental directors as well as administrators are either not sufficiently aware of, or interested in, the potential benefits of small group activities, or that economics constrain their inclusion in the curriculum.

Chamber music experience might be a partial solution to dropout rates of students from instrumental music and the lack of carryover of instrumental music into adult life. Waln (1959) claimed that players are more apt to use chamber music ensemble performance in later life than they are a second trumpet part in the band. On the subject of adult participation in music, Gary (1966) stated that "it is easier to participate in a quartet than in orchestra if the student wants to continue to play after leaving school" (p. 345), although this may no longer be the case, especially with the growth in numbers of community orchestras throughout the country since 1966.

Sherburn (1984) further contends that small ensembles in a school setting provide an opportunity not only for the advancement of individual musicianship, but also for experience in a type of activity that can be continued pleasurably and profitably in adult life. La Mariana (1976) also writes that students who invest the time and effort in the performance of chamber music during their school years will draw interest in the form of relaxation and deeply rewarding musical experiences that no other field can offer so fully for the rest of their lives.

Janice Thomas (1995) introduced small ensemble madrigal groups into her school vocal program curriculum in the hopes that they would give the more advanced students a chance to use their skills. Thomas also hoped that the responsibility of singing in a small group would increase their confidence and pride and that they would

become natural leaders in the larger chorus. Thomas piloted a madrigal group, which rehearsed two or three times a week, outside of the school day. Rehearsals began by having students listen to professional performances of madrigals. They learned about technique, including clarity of articulation and tone, and the students became aware of the breadth of repertoire in this genre.

Thomas challenged the students to learn the other parts as well as their own. They gained valuable sight-singing experience, and by knowing all the parts, they understood the music better and could sing it more intelligently. Over a period of one year using this new curriculum all of her goals were accomplished.

As the madrigal group progressed over the years, Thomas' role evolved into that of adviser and coach rather than conductor. She and her students discussed phrasing, dynamics, and tempo in each piece, and they experimented to find what sounded and felt best. To further challenge the ensemble members, Thomas had them act as conductors, rotating this responsibility with each piece. It is very possible that these benefits could be generalized to participants in school string chamber music experiences.

"Too often, the only kind of playing experience the high school instrumentalist has is in a band or orchestra, whose section members play the same part" (Dackow, 1981, p. 38). Because of this, many students may learn only their part, without really listening to other parts of the ensemble, and still feel successful. A student who knows only the third flute part to six different pieces of music might not sit down years after graduation and play through those parts and gain much enjoyment. Nor

may that student really know or understand those pieces of music. In my own experience, many orchestra students do not even know what section of the orchestra has the melody at any given time unless it is brought to their attention by the conductor.

Milch (1993) explained that in a brass quintet, the student tuba player has "a chance to increase his repertoire beyond the endless sea of whole notes sandwiched between eons of rest" (p. 5). In the brass quintet setting, the tuba even manages to take a share of the melodic line in some pieces. Through chamber music, students have a chance to expand their role and playing skills in the large ensemble, fulfilling a more challenging position instead. "This can benefit the band program because it sparks interest among the. . . players" (p. 5).

Dackow (1981) claimed that when the chamber music player participates in a large group, he or she will more likely be conscious of intonation, will have a wider variety of tone colors and articulations at his disposal, will be more sensitive to the subtleties of ensemble playing, and will not depend excessively on the rest of the group or section. Milch (1993) also found that since chamber parts are more challenging than what students normally see in the large ensemble literature, "these challenges will lead to their improvement as musicians individually, and will improve (as a by-product) their work in the larger band setting" (p. 5).

The social aspect of performing as a unit sets a chamber music experience apart from other school offerings. The members of a small group have a responsibility not only to accomplish individual goals, but also to contribute ideas to the ensemble

regarding every aspect of the performance (Dackow, 1981), which contributions are usually made by the conductor in a large ensemble, not the performers. Along with the contribution of ideas also comes the growth and learning involved through acceptance, compromise and concession needed to fulfill the requirements of the chamber music performance as a whole. Rotating students in and out of groups provides another opportunity for socialization (Milch, 1993).

Reimer (1989) stated that music educators must be expert at assessing performance skills as well as giving students a variety of specific musical performance problems to solve. These performance problems involve technique, notation, stylistic interpretation, and ensemble. One should not over-emphasize evaluations of the finished product, but should take into consideration how performers engage themselves intelligently in dealing with problems of process, i.e., how they approach a performance problem, what imaginative ways they employ to solve it, how they use their musical understanding as an aid, and their critical judgments about their solutions. One must pay attention to assessing the growth of musical intelligence and musical independence as demonstrated by problem solving as relevant to performance.

Carmody (1988) found that students involved in chamber music benefited from small-group social interaction, exposure to an important body of literature, and experiences in making independent musical decisions. A short discussion of these three facets, as put forth by Carmody, follows.

1. Small-group social interaction. From a psychological standpoint, the interactive dynamics within a small group have been studied extensively. Hackman

and Vidmar (1973) defined a small group as having from two to seven members, and concluded that beyond seven or eight participants the effectiveness of group interaction declines. Bigger is not necessarily better. People react differently when they are in a crowd than when they are in a group of eight or fewer. This is one reason that seminars, which depend upon each individual's input, are often limited to ten or fewer members. Cartwright & Zander (1968) observed that:

> As groups increase in size, a smaller and smaller proportion of persons become central to the organization, make decisions for it, and communicate to the total membership. . . . We conclude that members find participation more satisfying and that group processes are more effective in smaller groups than in larger ones. (p. 499)

Although the Cartwright & Zander study did not specifically deal with musicians, it is reasonable to expect that similar group dynamics take place in performance ensembles. Critical decisions about performance are shared in the small group and delegated to a leader in the large group.

2. *Exposure to an important body of literature.* The choice of music to be studied influences the effectiveness of a school performance program both aesthetically and technically. Hirsch (1987) points out that in education, content must receive as much emphasis as skill. This is true because meaning comes from the content of what is read or played and not just from the skill necessary to read or play. Thus, music chosen for skill development must also have important music content.

While school ensembles are seldom able to perform large ensemble pieces by

great masters in their original form due to lack of instrumentation and/or technical skill, chamber music frequently does provide the opportunity for students to encounter music in its unarranged, original form. Baroque and early Classical period composers, including Bach, Vivaldi, Corelli and Mozart, to name a few, wrote many chamber pieces for two to four players that can be readily practiced and performed by string players with as little as two to three years of playing experience. The hand positions are elementary, with simple bowing techniques and tonal and rhythmic devices. Forms are also easy to understand because they are fairly basic at this level. Learning easier pieces can provide a strong foundation for future understanding of musical forms and styles which are associated with more masterful compositions. Many composers of the last twenty years have also realized the need for beginning chamber music, and much is available from this era as well.

Selected movements from early Haydn and Mozart string quartets and divertimenti are well within the range of the playing abilities of most intermediate level musicians, and for the more advanced players, Beethoven, Schubert and Mendelssohn, to name a few, are approachable but can also offer many challenges. Dackow (1981) provided a graded syllabus compiled of works from the standard string quartet repertoire, which is divided into three levels of relative difficulty, within the intermediate to advanced levels of playing. The first level includes a knowledge of the first three positions, some use of vibrato and the ability to handle some "off the string" bowing. The music of this level deals primarily with straightforward tonal and rhythmic concepts. The second level requires players to be able to perform passages

occurring in the first through fifth positions, and the ability to manipulate easy chords and double stops, vibrato, spiccato bowing in varying degrees, and more advanced rhythms and musical ideas. The third level requires that the performers be able to perform in the first seven positions, have a well-developed tone and vibrato, and have the ability to work out passages calling for chords and double stops. Flexible bowing techniques are essential, and sophisticated and complex musical ideas are inherent in the literature at this level. Educators who understand what technical knowledge is required of students to play chamber music can supply chamber music for all their students, even beginners.

3. *Learn to make independent musical decisions.* Because the students playing chamber music are completely responsible for their own individual parts, the performers develop an independent musical sense. Playing in a small ensemble requires the performers to make independent critical judgments about elements of performance including intonation, balance and style. Since most chamber music is performed without a leader, the students are left on their own to make such decisions instead of depending on a teacher or conductor. While large ensembles foster dependence on the leader, chamber music makes leaders and independent musicians of all who participate. With chamber music in a school setting there is never complete autonomy from the teacher, but much more so than in a large ensemble group. It is the responsibility of the teacher to assign the music for the playing level of each chamber group, and then possibly coach the groups in the areas that are needed, but the students are still able to decide as a group what interpretations and phrasings will

be used for their particular chamber piece. Decision-making skills, group communication skills, patience, and negotiation and compromise skills are all enhanced when students are put in charge of their own chamber music performance experiences.

Need for the Study

Many observations by various music educators seem to indicate that chamber music provides exceptional benefits for the students involved. There is a need for empirical research to substantiate these claims if chamber music is to become a more regular part of the school music curriculum.

Purpose and Problems

The purpose of this research study is to examine the effects of participation in a chamber music ensemble on 6th and 7th grade orchestra students. The specific problems of this study are as follows: to examine the effects of chamber music participation on the students' intonation and to survey the effects of chamber music participation on the students' attitudes toward music.

Design

This study was designed to investigate the above in two 6th grade and one 7th grade orchestra classes in the same school: one 6th grade class received a large ensemble curriculum experience only, while the other 6th grade class received a combined large and small ensemble curricular experience. The entire 7th grade

orchestra class received a large ensemble curricular experience, and approximately one-half of the class members received a small ensemble experience in addition during class time. This small ensemble time was spent relatively unsupervised on their own, with little teacher involvement. The large ensemble groups only served as the control groups, while the large ensemble and chamber music groups served as the treatment groups. The students' attitudes toward music were surveyed, and intonation skills were measured, following chamber music treatment. Both the 6th grade and 7th grade classes consist of second year string students, having had one year of school orchestra experience prior to the treatment period.

All students were given the Gordon Music Aptitude Profile (1995) to determine music aptitude. Even though the 6th grade classes were pre-determined classes and could not be changed, the mean of the rhythm and tonal sections of the music aptitude profile for both classes was 50. The control and treatment groups in the 7th grade class were determined in two ways: 1) allowing the students first to self-select their chamber music groups, and 2) once the groups were selected, making sure the chosen groups were such that the average score of the music aptitude profile for both groups was 50. If that was not the case, then the groups were modified by this researcher to achieve and average score of 50 for both groups. The chamber music group students changed groups approximately half-way through the study; some changes were made through self-selection, others changes were appointed by this researcher.

Definition of Terms

Small ensemble and/or chamber music is defined as music for any combination of instruments numbering from two to eight with one player per part and without the leadership of a conductor or teacher (Carmody, 1988).

Large ensemble is defined as any combination of at least eight players, with more than one player per part and under the direction of a conductor or teacher.

Intonation is the degree to which pitch is accurately produced in performance, especially among the players in an ensemble, as judged by a panel of experts.

Attitude is described as the mental position or feeling one has toward an object or purpose, as measured on an attitude inventory survey.

Limitation of the Study

There was no attitude survey given at the beginning of the research project because this study was designed to look at differences between groups (control and treatment), not just within groups. There was no intonation test given at the beginning of the research program since all students involved in the research project had received only one year of string instruction prior to the study, and the designed intonation test was too difficult. The Gordon Music Aptitude Profile (1995) was given to all students at the beginning of the study in order to make sure there no pre-existing differences between the groups, and to make sure the control and treatment groups were divided equally between high, medium and low music aptitude students.

Overview of Organization

Chapter Two details research and related literature concerning chamber music and its effects on students' intonation and attitude.

Chapter Three includes a description of the research procedures, subject selection, sample size, tools used for gathering data, and statistical tests used in determining the outcome of the investigation.

Chapter Four provides data results of the study, statistical interpretation, and summary of analyses.

Chapter Five summarizes the findings of the study regarding the relevance of the investigation to the teaching of music. Findings reported in related literature are discussed in relation to results of the study at hand, and implications for further study are suggested.

CHAPTER II

Review of Related Literature

There exists only a modest amount of empirical research regarding the effects of music student participation in chamber music. This chapter will explore the research on intonation and attitude of music students. Research relating to chamber music study will also be examined.

Intonation Research

The development of accurate intonation in string students is a topic of great interest to string teachers. The main body of investigation dealing with intonation is concerned with teaching methods that can help students play more accurately in tune. Training and remedial techniques for beginning string players have been proposed and studied by several educators and researchers. Research as to their efficacy has been inconclusive. In order to understand the many ways researchers have tried in the past to achieve good intonation among their students, several studies and articles pertinent to this one are presented below.

Cowden (1969) compared the effects of first- and third-position instructional approaches on 37 beginning violin students' intonation accuracy. The 19 experimental subjects played in the third position for eleven weeks, then changed to the first position for five weeks, with class lessons being held twice a week. The 18 control subjects played in the first position for eleven weeks, then changed to the third

position for five weeks, with class lessons being held twice a week. On the playing tests, Cowden found no significant difference in performance achievement of intonation and rhythmic accuracy between the control and experimental subjects.

Maag (1974) compared the effects of diatonic and pentatonic instructional materials on 146 fourth and fifth grade first-year string students' intonation. The students were divided into two treatment groups and taught in a similar manner except that treatment group A used only pentatonic scales and melodies that had no half steps and treatment group B used a textbook emphasizing diatonic scales and melodies and stressing half steps. The assignment of the beginning string classes to treatment groups was determined by the teachers themselves, using three factors: (1) the information available from Part I of the Gaston (1957) *Test of Musicality* as general information in helping the teachers assign their beginning string classes to one of the two treatment groups, (2) the teachers' first hand knowledge of the schools and the caliber of students attending those schools, and (3) the number of students enrolled in each of the beginning string classes.

At the beginning of the school year all students were administered the Gaston *Test of Musicality*, which was designed to yield data regarding a students' musical background and attitude toward music in Part I. Part II tested the ability of the students to match pitches in a tonal setting, detect melodic and rhythmic errors, predict melodic direction, and test for tonal memory. The Gaston test scores were used to determine whether the two treatment groups were equal on basic musical capabilities before any treatment took place. The mean and standard deviation of the groups were

compared and showed that the groups were very similar. A *t*-test further substantiated that no difference existed between Treatment Group A and Treatment Group B.

At the end of the sixth month of the experiment, each subject in each treatment group was asked to perform a short melody. Students in Treatment Group A played a pentatonic scale beginning on D and the same short pentatonic folk song. Students in Treatment Group B performed a D major diatonic scale and the same short diatonic melody in the key of D major, chosen because of its use of half steps. The first performance of each student was tape recorded. At this point in the experiment all students were readministered the Gaston *Test of Musicality*, Part II. This test was used to determine whether there was improvement on the part of the students in their ability to hear music and organize the sound stimuli. The first part of the test (page 1) was not readministered as this section of the test is concerned with only the background and attitude of the student toward music and would serve no purpose for further evaluation. During the next four-week period the treatment groups were reversed and those students who had played only pentatonic scales and melodies were introduced to the diatonic scale and melodies with half steps, and those students in Treatment Group B were introduced to the pentatonic scale and pentatonic melodies. At the end of this four-week training period the students were taped on their first performance of the scale and melody of the new performance practice. The taped student performances were judged on a five-point Likert scale by three expert judges.

Data used to analyze the work of the subjects included the test scores from the Gaston *Test of Musicality*, Part II, both pre-test and post-test, and the ratings of the

judges on the taped performances of 146 pentatonic scales and melodies and the corresponding 146 diatonic major scales and melodies. The results from the data indicated that while the pentatonic group was not significantly different from the diatonic treatment group, the intonation and the scores on the Gaston *Test of Musicality* tended to be better for the treatment group using the prepared text of pentatonic scales and melodies.

The musical qualities measured on the Gaston test are many of the same qualities that are considered necessary to play in tune, i.e., matching pitches in a tonal setting, predicting melodic direction, and tonal memory. Was the gain made on the Gaston *Test of Musicality* between the pre-test and post-test as equitable for Group A as it was for Group B? The pre-test mean for Group A was 26, and the post-test mean for Group A was 31.55, a gain of 5.55 points. The pre-test mean for Group B was 26.19, and the post-test mean for Group B was 13.58, a loss of 12.61 points. Maag suggested that there was no difference between Treatment Group A and Treatment Group B in the scores of the subjects on the Gaston pre-test and post-test due to the fact that when he compared the scores using a $\underline{z}$ test for two independent samples no significant difference was observed at the .05 level, indicating that neither method was superior in training students to organize sound stimuli. Notwithstanding the fact that the experiment showed no significant difference between pentatonic and diatonic teaching, it did raise many unanswered questions concerning beginning string instruction and showed the feasibility of continued research in string instruction.

Salzberg (1980) compared the use of corrective verbal feedback, tape-recorded

playback, and model performance feedback on intonation accuracy. Fifty subjects were randomly selected from the population of music majors who were string instrumentalists at a large university. Subjects were randomly assigned to one of five instructional groups: contingent verbal feedback, tape-recorder playback, model performance, free practice and no instruction (control). Subjects in all groups performed four music tasks: scale, arpeggio, double stops and melody. Subjects in all five groups performed all four music tasks. Each task was played four times--twice before and twice after instruction. Students in the verbal feedback group received specific, contingent verbal feedback from the experimenter as to the intonation accuracy of their performance. Subjects in the tape-recorder playback group listened to their own performance and were instructed to focus their attention on the accuracy of intonation, ignoring all other aspects of musical performance. Subjects in the model performance group listened to a model performance of the music immediately after playing the first pair of trials for each task. Subjects were asked to focus their attention on the intonation of the model performance and to imitate it in their own playing of the repeated trials of the task. Subjects in the free practice group had 1 minute of free practice between pairs of trials. Subjects were instructed to practice using any technique that they believed would help improve intonation. Using a stopwatch to time the 1 minute practice session, the experimenter instructed subjects when to start and stop practice. Subjects in the control group did not receive any instruction between pairs of trials. The results of the study found that corrective verbal feedback alone had a significant positive effect on performance pitch accuracy

when pitch inaccuracies were corrected as they occurred. In terms of the present study, the opportunity for immediate verbal feedback is greater in chamber music settings than in large ensemble rehearsals.

English (1985), in a nine-week study that examined the effect of the use of piano accompaniment on intonation accuracy, randomly assigned 42 sixth-grade beginning string students into three groups: class one had 14 students and used no piano accompaniment during instruction, class two had 17 students and used accompaniment 50% of the time, and class three had 11 students and used accompaniment 100% of the time. All three classes were taught by the same teacher, and received the same teaching procedures and beginning strings class method book. The only difference in instruction was the amount of piano accompaniment. English found that subjects in the unaccompanied group were superior in the areas of intonation and rhythmic consistency and accuracy compared to students who had piano accompaniment. Interestingly, those students exposed to limited piano accompaniment (50% of the instructional time) were superior to those students exposed to significant piano accompaniment (nearly 100% of the instructional time). Thus, the study showed a statistically significant positive relationship between the absence of piano accompaniment and performance achievement. This study agrees with Gordon's (1997) Music Learning Theory regarding accurate intonation. If students are not audiating--hearing and comprehending music for which the sound is not physically present--they will be unaware as to whether or not they are playing in tune. If there is a fixed pitch instrument constantly accompanying students' performances, they may

only be imitating the pitches rather than audiating them, and therefore unable to know whether or not they are playing in tune. Many large ensemble groups I have observed are accompanied almost 100% of the time with a piano or other keyboard instrument. Students involved in string chamber groups do not have a piano or other fixed pitch instrument on which to rely for correct intonation. Accordingly, students involved in string chamber music groups are immersed in a learning environment that may enrich their opportunity to learn how to audiate, thereby helping them play with better intonation.

Smith (1985) studied the effect of the use of fingerboard markers on beginning string students' intonation. Eighty-three 4th and 5th grade string students were assigned to three groups: one that used no markers for the entire treatment period (32 weeks), one that used markers for only the first half of the treatment period (16 weeks), and one that used markers for the entire treatment period. She found that the students who used the finger placement aids did not produce any significant gains in performance pitch accuracy, and the use of tapes actually had an adverse effect on the students' intonation when they were removed. This study, much like English's (1985) study, suggests that students may learn to rely on a visual or external aural stimulus rather than on an inner aural stimulus for correct intonation, and their opportunity to learn to audiate may be stunted.

Smith and Brick (1990) used 28 4th and 5th grade students in two intact string classes during a 16-week treatment period. The control group, consisting of 14 subjects, met for 50-minute class periods three times a week, and the experimental

group, consisting of 14 students, was excused from regular class instruction for two 30-minute weekly training sessions with the *Pitch Master*. Subjects in the control group were allowed to experiment with the *Pitch Master* using a set of audio tapes that came with the machine. The experimental group used a set of audio tapes to be used with the *Pitch Master* consisting of 64 musical exercises, 16 each in the keys of D, G, F, and C major. The subjects listened to the exercise once and, after a 10-second pause, listened to the exercise a second time and then sang into the *Pitch Master*. This machine has a numerical counter that visually tells the student how well he or she is doing at correctly matching pitches when sung into the machine. When the response is correct, the student is immediately reinforced by the registering of an increased score on the counter. In the study, if the numerical counter indicated that they reached the required criterion score, they turned off the tape and played the exercise on their violins. The subjects listened to the exercise one more time and then proceeded to the next exercise. If the subjects did not obtain the required criterion score, they rewound the tape and played the exercise again. The dependent variables in this study were aural pitch discrimination and performance pitch accuracy. The pitch subtest of the Colwell Music Achievement Test (1967) was administered as a pre- and post-test to measure gains in aural pitch discrimination. Each subject also tape-recorded performances of a 16 measure melody in the key of D major at the beginning and end of the treatment period. Three public school string teachers judged the recordings and rated each subject's performance pitch accuracy on a scale ranging from 5 (poor) to 1 (excellent). The pitch subtest of the Seashore Measures of Musical Talent was also

administered to each subject prior to the beginning of the study. These scores were later used to adjust for pretreatment differences in musical aptitude. Smith and Brick found that the aural-oral pitch-matching training also produced significant gains in beginning violin students' aural pitch discrimination and performance pitch accuracy.

In another study, Smith (1995) used 96 sixth-grade students over a 16-week duration. This was similar to the Smith and Brick (1990) study in that it also utilized the TAP Pitch Master Machine for aural-oral pitch-matching training, but differed from the former in that (a) pitch-matching exercises were developed for all four orchestral string instruments (violin, viola, cello, and double bass) and (b) the control subjects performed the same exercises in class on their instruments but did not sing them. The pitch subtest of the Music Achievement Test (Colwell, 1967) was used to measure gains in aural pitch discrimination. Each subject also tape-recorded three musical exercises on his or her instrument, one each in the keys of D, G, and C major, at the beginning and end of the treatment period. These taped exercises were judged by three public school string teachers and rated for intonation accuracy on a scale that ranged from 5 (poor) to 1 (excellent). The findings suggested that the experimental treatment had a significant positive effect on the development of performance pitch accuracy.

Sogin (1986) observed string instrumentalists' intonation performance within the duration of selected pitches while performing ascending and descending pitch sets. Additional aspects of the study investigated the effects of directionality on intonation of performed pitch sets, intonation tendencies associated with vibrato versus no

vibrato, and differences in intonation performance among specific instrument groups. Forty-eight string players were divided into four equal groups of violinists, violists, cellists and double bassists. Each subject performed ascending and descending pitch sets with vibrato and without vibrato. Performance tones were tape recorded and analyzed according to cents sharp or flat relative to equal temperament and placed on a standard positive scale where 50 equals zero cents deviation. Individual pitches were analyzed for the highest and lowest frequency deviations, thus providing data for two pitch locations per pitch. Results indicated that descending pitch sets were performed significantly sharper than ascending pitch sets, with significance beyond the .01 level. Use of vibrato or no vibrato showed no significant difference and did not interact with any of the other factors. There were no significant differences between instruments; however, all string instrumental groups performed sharp relative to equal temperament.

All of the foregoing studies focus on music educators and/or researchers investigating ways to improve the intonation of string students. Several tests were used, with varying results. The foregoing studies were helpful in determining which intonation test to use for this study.

Attitudinal Research

In addition to testing the effect of chamber music on intonation, this study also tests the effect of chamber music experience on students' attitudes toward music. A person with a positive attitude toward music is likely to continue to support it, listen to it, and make it. "An attitude is a kind of limited attention. It will make salient what

is relevant to it and tend to exclude other information " (Fogiel, 1984, p. 316). If positive attitudes about music are to be fostered and continued participation in music is to be promoted through educational opportunities, then understanding the process of developing, influencing, and changing attitudes is essential.

Shaw and Wright (1967) describe attitude as a "relatively enduring system of evaluative, affective reactions based upon and reflecting the evaluative concepts or beliefs which have been learned about the characteristics of a social object or class of social objects" (p. 3). An attitude toward music then would be defined as a relatively stable system of evaluative reactions or beliefs that is learned and causes one to respond in a particular way to the musical environment. Each of the beliefs or evaluative concepts is influenced by the affective realm and thus contributes to the embracing concept of attitude (Pogonowski, 1983).

Fishbein and Ajzen (1975) advanced a theoretical statement on attitude formation. They emphasize that:

> A person's attitude is determined by his salient beliefs about the object's attributes and by his evaluations of those attributes. At any point in time, a person holds a limited number of salient beliefs about any given object, action, or event, and those beliefs serve as the primary determinants of his attitude toward that object, action, or event. (p. 287)

The authors employ the term attitude to refer to a person's position on a bipolar affective dimension with respect to some object, action, or event. They contend that a person is automatically and simultaneously acquiring an attitude about an object as he

forms beliefs about the object. In this context, beliefs represent the information a person has about an object, and each belief connects the object to some attribute. It is the function of the person's evaluations of these attributes that constitutes his attitude toward the object.

From the description of attitude formation offered by Fishbein and Ajzen (1975), it appears that a student may develop an attitude toward a specific target, for example, a particular music experience or activity, that is part of the ongoing music curriculum. At the same time he may be developing an attitude that generalizes across different targets, one that is more global by nature. That is, attitude toward music class, as differentiated from attitude toward a particular music class experience or activity, is the product of a student's evaluations of attributes associated with all parameters of music class. This global attitude toward music class may be influenced by the teacher's interpersonal relationship with students, his or her use of authority and control, mode of instruction, and selection of activities (e.g., chamber music). Further, Pogonowski (1983) found that the student's concept of learning music and his or her views regarding the social structure and climate in which this learning takes place reflect upon his or her global attitude.

An attitude and preference study by Wapnick (1976) suggested that an accelerated interest in conducting attitude studies had recently occurred in music education. Wapnick stated, "Attitude and preference investigation has thus clearly emerged as a major trend in current music education research" (p. 2).

Though interest in attitudinal research in music education had increased by the

mid-seventies, results were varied. Studies by Badeval (1969), and Neale and Proshek (1967) have indicated that in general, attitude toward school declines in most children during the upper elementary school years. Haladyna and Thomas (1979) examined 2,845 elementary and junior high school students' attitudes toward school and various subject matters with respect to grade level and gender of the student. The sample of students was judged to be fairly representative of the entire population of students in the state of Oregon. The students were given a nonverbal attitude inventory that was devised for the purpose of determining the relative degree and magnitude of attitudes toward school and from five to seven subject matter areas. The mean attitude toward school scores showed a steady decline from grades one through seventh and eighth grades, with the sharpest drop occurring between grades one and two, between grades four and five, and between the sixth grade and grades seven and eight. Of interest to the researchers was that attitude toward school did not seem to carry over to some specific subject areas, with reading, mathematics, physical education, and art as subject matters having fairly stable patterns across the grades. The authors found that "music was the only subject matter to exhibit this downward tendency throughout all the grades. . ." (p. 20) In seven out of eight scales used by the researchers for all subject areas, a large magnitude decline occurred between the sixth grade and grades seven and eight. The only exception to this was general music classes, which began a large decline a year earlier.

The decline of attitudes toward music across grade levels has been corroborated by several studies in music education. Broquist (1961), Crawford (1972), Hulbert

(1972), Nolin (1973), Svengalis (1978), Vander Ark, Nolin, and Newman (1980) and Taebel and Coker (1980) found general music students to have less positive attitudes toward their musical experiences with each increasing grade level. Clearly, the pervasiveness of this downward trend of attitudes is a major concern to educators who care about the affective development of students.

One of the significant findings in the Haladyna and Thomas (1979) study was that the decline in attitudes towards school was more serious for boys than for girls. Fitt (1956), Lunn (1969) and the team of Berk, Rose, and Stewart (1970) also found that girls tended to have more favorable attitudes toward school than boys. The findings have been corroborated for music by the above studies in music education and by an earlier study done by Gaston (1940).

The reported findings agree that attitudes in general music classes grow more negative with increasing grade level, especially among boys, but less clear is the influence of other factors such as: (a) socioeconomic status, (b) the particular music curriculum being used in general music, and (c) the musical activities and other relationships that may bear upon instructional processes. In addition, it is important to understand that these last findings of attitude decline surround the compulsory involvement in general music classes, not the voluntary involvement in elective classes such as band, orchestra and choir. Also, the most recent research above was 20 years ago.

Understanding the decline in the interest of general music classes in school, Shaw and Tomcala (1976) hoped that a research study might provide an answer for

moderating this trend, especially for minority children and children from lower socioeconomic groups. A 44 item Music Attitude Inventory was given to 110 fifth grade students in a low socioeconomic, inner-city minority school. A factor analysis was completed indicating 14 factors were being measured by the instrument. The same scale was also administered to 168 upper middle-class suburban children, with a subsequent factor analysis indicating 13 factors present. The results of the scale clearly indicated that the inner-city children had more positive musical attitudes than the upper middle-class suburban children. Shaw & Tomcala stated that a possible reason for this could be, "Where general academic achievement is so low, music could be the one area in which inner-city children are able to feel positive results from their efforts in the elementary school" (p.79).

Zorn (1969), whose study will be discussed more thoroughly in the next section, found that students who were involved in large band rehearsal along with brass and clarinet chamber music ensembles had a more positive attitude toward instrumental music class than those students who were only involved in brass and clarinet sectional rehearsal groups along with their large band rehearsal experience.

Carmody (1988) also found that students who were involved in chamber music experiences along with large ensemble experiences had a more positive toward their music program than did the students who were involved only with large ensemble experiences. Carmody's study will be more completely discussed in the next section as well.

Examining an ample amount of research involving attitudes toward music in

public schools revealed many discrepancies and incompatibilities. When researchers measured the students' attitudes toward the general music classroom over time, the trend seemed to be that there was a decline in positive attitudes. But when researchers were able to combine the instrumental music classroom experience with a more varied music experience (e.g., large ensemble *and* small ensemble) the attitudes toward music class escalated. This study is intended to help elucidate these discrepancies.

Chamber Music Research

The research most closely related to this study was conducted by Zorn (1969) and by Carmody (1988). Zorn's study was a 32-week comparison of the effectiveness of chamber music ensemble experience with the full band experience for 50 members of a ninth grade band in the areas of performance ability, cognitive learning, and student attitudes. The experimental groups consisted of brass and clarinet chamber music ensembles. The control groups consisted of brass and clarinet sectional rehearsal groups. Both groups received a 50-minute large band experience three times per week with the experimental group receiving an additional 50-minute chamber music experience per week and the control group receiving an additional 50-minute band parts sectional rehearsal experience per week. In order to test performance ability, Zorn used the Individual Recorded Performance, a researcher-designed test that rated student performance on his or her instrument according to the following six criteria: (a) lyrical phrasing; (b) accurate subdivisions of rhythm; (c) steady maintenance of the beat; (d) control of dynamic changes; (e) flexibility and control of

articulation; and (f) range and endurance. Zorn tested music aptitude by using the Musical Aptitude Profile, Part III: Musical Sensitivity, by Edwin E. Gordon (1995), a widely used standardized test that measures students' sensitivity toward phrasing, balance, and style in music. He felt that the data gathered from this test might influence the outcomes in the main areas of performance, cognitive learning, and attitudes. Zorn concluded that the students in the experimental chamber music ensemble groups indicated no statistically significant changes in their ability to perform as compared with the control sectional rehearsal groups. While all groups showed improvement from their pre-test to their post-test mean scores, and the experimental groups indicated greater gains than the control groups on their mean scores, the results of an analysis of covariance *between* groups indicated that the gains were not statistically significant.

Subjects also were asked to demonstrate through written and verbal response their cognitive understanding of the following information: (a) basic performance terminology such as allegro, legato, tutti, and rubato; (b) basic theory terminology such as chord, tonality, tone row, ostinato, and basso continuo; (c) main style periods in music, including polyphonic Baroque, Classic, Romantic, Impressionistic, Modern; and (d) historical information about music such as that composed by Wagner, Mozart, Haydn, Stravinsky, Bach, and others. Zorn (1969) evaluated those responses through the use of the Music Information Inventory, which was a researcher-designed test to measure cognitive learnings in music. Zorn also used the California Test of Mental Maturity, which is a widely used standardized test by Sullivan, Clark, and Tiegs

(1964) to measure subjects' general intelligence or mental ability. Results from these tests indicated that the students in the experimental chamber music ensemble groups were not significantly different in their learning of cognitive information from the students in the control groups. Although the gains achieved *within* each group were found to be significant, the results of an analysis of covariance *between* groups indicated that the greater gains achieved by the experimental groups were not statistically significant.

Finally, students' attitude changes toward music and music participation were evaluated through their written and verbal responses according to these criteria: (a) more willingness to practice; (b) more willingness to listen to various types of music; (c) more interest in concert events; (d) greater realization of the importance of music in society; (e) greater emotional reaction to listening and performing music; (f) more enjoyment in performing in various size groups; (g) greater self-assurance about his or her abilities; (h) more interest in cognitive learnings about music; and (i) greater realization of his or her role in the performance group. Again, two tests were used by Zorn (1969) to evaluate these results. The first was a researcher-designed test entitled Music Attitude Inventory, which measured changes in attitudes toward music and music participation. The second was a standardized test by Bennett, Seashore, and Wesman (1959) entitled Differential Aptitude Tests, which was developed to provide an integrated, scientific and well standardized procedure for measuring the abilities of students in grades eight through twelve for purposes of educational and vocational guidance. Only four of the eight batteries were used for the Zorn study, which tests

were in the areas of verbal reasoning, numerical ability, abstract reasoning, and mechanical reasoning. This test had been administered to the students in the previous school year when they were in eighth grade. Results from these tests indicated gains in mean scores measuring attitude changes from their pre-test to their post-test scores *within* groups. Further, an analysis of covariance *between* groups indicated that the results achieved by the experimental groups were significantly greater than those achieved by the control groups. Zorn concluded that the experimental chamber music ensemble groups achieved significantly more positive attitude changes than the control sectional rehearsal groups.

Although Zorn (1969) found little difference in the performance ability and cognitive learnings of students involved in chamber music experiences as opposed to students involved only in sectional rehearsal experiences, he did find a difference in the attitudes of the students in the different learning experiences. He felt the improved attitude toward music might be reward enough.

The purpose of Carmody's (1988) 14-week research study was to determine if student participation in a chamber music experience was positively related to their intonation skills and their attitudes toward music. The advanced string classes of two junior high school string programs were compared, one offering chamber music experiences in addition to large ensemble experiences, and the other, with an identical number of instructional hours, offering exclusively large ensemble experiences. The two schools were similar in their size and ethnic configuration, socioeconomic status of the school populations, and reputations of the two teachers concerning their ability to

produce high quality groups. The control group consisted of 21 subjects and the experimental group consisted of 26 subjects.

The experimental program had a highly respected chamber music program already in place, meeting one hour per week after school. The teacher went from group to group offering assistance and coaching, but fostered student group independence as much as possible. The groups needed varying amounts of attention depending on their maturity and musical development.

In order to equalize the instructional time for both the experimental and control groups, the string program used for the control group also met one extra hour per week outside of school, but instruction in autonomous small ensemble playing was not offered. There is no mention of actual grades or ages of the students involved in either group.

Carmody (1988) used one test each for measuring intonation and attitude, both pre- and post-test. The first was a researcher-constructed Intonation Test (1988), and the second was the Zorn Music Attitude Inventory (1969). In the Intonation Test, the fourth of five researcher-designed compositions was used to test students' ability to play in tune. The test music, arranged in string quartet format, included harmonic and melodic intervals of varying complexities with no rhythmic difficulties. Each subject sat next to a member of a professional string quartet whose part provided a reliable standard of pitch. The performances were recorded, randomized, and evaluated by a panel of five experts. The intonation test scores indicated that the inclusion of a chamber music experience in a student's musical education did make a positive

difference in intonation accuracy, but not significantly. It is inconclusive that chamber music was an effective means of developing intonation skills over the 14-week treatment period. This test seems to indicate that students who are involved with chamber music experiences may play more in tune than students who do not receive chamber music experiences. However, the presence of a professional model in the test situation may have skewed results by allowing all students to imitate rather than audiate pitch.

The Zorn Music Attitude Inventory (1969) was used to measure student attitudes toward music. Both tests were given to the students twice, with a 14-week period between the tests to assure that the post-test was not contaminated by the pre-test (i.e., practice effect). The results of this attitude survey indicated that the attitudes of students who experience making music in a large and small ensemble environment improved over time more than the attitudes of students who only experienced making music in a large ensemble and sectional rehearsal environment, but not significantly.

These studies found that music student attitudes definitely improved through the use of chamber music ensembles. They also found positive differences in the intonation skills of students involved in a chamber music experience as opposed to those students involved only in a large ensemble or sectional rehearsal experiences. Carmody (1988), in his 14-week research study, used junior high students enrolled in the advanced string classes of two California junior high schools, and taught by two different teachers. No specific grades or ages were given for the Carmody study. Zorn (1969), in his 32-week study, used 9th grade students enrolled in band at a ninth

grade annex building which housed the entire ninth grade class of about 500 students in New York.

This research study is designed to further test both the intonation skills and attitudes toward music of 6th and 7th grade students involved in small and large ensemble experiences at one Michigan middle school. An entire 39-week school year, more than twice as long as the Carmody (1988) time period, will be devoted to this study to ensure valid results. This researcher was the only music teacher for all the students during the study, and in fact was a regular member of the school's faculty, as was Zorn (1969) in his study.

In summary, while chamber music performance is recognized by many educators as crucial to musical development, there has been little experimental research to support such claims. Therefore, this study is important because it adds strength, and perhaps clarity, to that body of experimental research dealing with the effects of chamber music on intonation development and attitude.

CHAPTER III

Methodology

Research Design

To test the effect of chamber music participation on students' intonation and attitude toward music, a 39-week experimental design was used. Three orchestra classes, two from the 6th grade and one from the 7th grade of a Michigan suburban middle school, participated. The two 6th grade classes received identical large ensemble orchestra instruction. Twenty-two students (16 violins, 1 viola, 4 cellos, 1 bass) in one of the 6th grade classes served as an experimental group by participating in chamber music experiences during their class, along with the large ensemble experience. The 20 students (15 violins, 3 violas, 2 cellos) enrolled in the other 6th grade class participated in large ensemble rehearsals solely and served as a control group. No 6th grade students were receiving private lessons.

Because only one 7th grade orchestra class existed at this middle school, approximately one-half of the students participated in the experimental group by participating in chamber music ensemble experiences and large ensemble experiences, while the other half of the students participated in large ensemble experiences only. Of the 30 member class (18 violins, 4 violas, 7 cellos, 1 bass), 17 students were chosen to participate in chamber groups, consisting of duos, trios and quartets. Each of the 17 students participated in two different chamber ensembles: one during the first semester (20 weeks) and the other during the second semester (19 weeks). The

remaining 13 students served as the control group. In the experimental groups, one-third of the students' total regular class time was spent practicing with their chamber ensembles. There were four 7th grade students taking private lessons, two in the experimental group and two in the control group.

At the beginning of the treatment period there was some instructor input regarding choosing the personnel for each chamber ensemble, picking out repertoire, helping the students begin any unfamiliar pieces, and answering student questions. Mostly the students were left on their own to negotiate the chamber pieces. The following list contains the names of either composers or editors whose chamber music books were used for this study. This is only an indication of the music used, not an exhaustive list: Applebaum (1972, 1986), Blair and Lyon (1993), Starr and Starr (Eds.) (1996), Stent (1997), Suzuki (1971), and Whistler and Hummel (Eds.) (1954).

The 7th grade orchestra students met for one 44 minute class period daily for the entire school year. The 6th grade orchestra students met for one 44 minute class period every other day (on an A-B schedule) throughout the school year, such that both 6th grade classes received the same amount of total teaching time. The only small and large rehearsal time allowed was during the regularly scheduled class period. To maintain consistency in teaching style and practice, all the classes were taught by this researcher, who has 3½ years of public school teaching experience and ten years of college and/or university teaching experience.

On the days that the experimental group students were allowed to participate in chamber music ensembles, at least one group performed in front of the entire class

during the last five minutes of the class period. Consequently, each chamber group was able to perform 4 or 5 times in front of their classmates. These chamber ensembles also performed as part of the winter and spring orchestra and band concerts at the middle school. Rather than take time during the concert, these groups performed in the various entranceways and hallways leading to the concert venue, approximately 15 minutes prior to the beginning of the concert.

All the students involved in the program were enrolled in a suburban middle school approximately 20 miles northwest of Detroit, Michigan. Though there were no exact demographic or socioeconomic data available on students attending this school, within the six-mile radius of the school there was evidence of a wide range of incomes. The school district, of which this middle school is part, is culturally and ethnically diverse, including Hispanic-American, Asian-American, Indian-American, Chaldean-American, African-American and European-American students. Religious backgrounds include Moslem, Jew, and Christian, as well as many subdivisions of these.

Instrumentation

Since all the students in both the experimental and control groups were second year string students, it was impossible to pre-test their string performance intonation skills with the designed intonation test, as it was too difficult. All students involved in this research study are students who voluntarily signed up for an orchestra class during the regular school day, an indicator of positive attitude toward learning how to play a

stringed instrument. During the first two weeks of classes all students in both the experimental and control groups were given the Tonal Imagery and Rhythm Imagery portions of the Gordon (1995) Musical Aptitude Profile test in order to equitably assign students to the experimental and control groups.

During the last two weeks of the study all students were given the following tests: (1) all five sections of the Carmody Intonation Test (1988) to measure intonation skills, which was modified by this researcher as stated below, and (2) the Zorn Music Attitude Inventory (1969) to measure attitudes toward music. The Carmody Intonation Test was tape recorded and assessed by three judges, two of which are professional violin and viola studio teachers and one which is a professional in the string music industry. The performances of the students were rated for intonation. All five sections of the test were rated using a nine-point Likert scale of intonation accuracy.

Gordon Musical Aptitude Profile (1995)

The first two sections of the Musical Aptitude Profile are Tonal Imagery (melody and harmony) and Rhythm Imagery (tempo and meter). Since this researcher was also the teacher of the three string classes, reasons for giving this test included ascertaining the abilities and levels of each student to know how best to instruct to individual differences, to formulate educational plans for the music classes, provide objective information for parents, and establish the most homogenous groupings of students possible for chamber ensembles.

The time required for testing the first two sections of the Musical Aptitude Profile was approximately two forty-five minute periods. It therefore took at least two full class periods to complete the testing of all the students. According to Gordon (1995), no prior formal music achievement is required for taking the test. Valid and practical results will be obtained if each student brings to the testing situation no more than a seriousness of purpose and a general exposure to the sound of music. Knowledge of music theory, music notation, and music history are not necessary.

When taking the Tonal Imagery and Rhythm Imagery subtests of the Musical Aptitude Profile, students were asked to compare a short musical phrase with a musical answer and to decide if the musical phrase and musical answer sound alike or different, exactly the same or different, or to decide which of the two was a more musical performance. The students had separate answer sheets on which to indicate their answers. If the students were in doubt about the answer to a question, they marked the question mark (?) column. Thus, students were not forced to make decisions on all questions; they could have responded to only those questions they felt comfortable in answering.

Carmody Intonation Test (1988)

Most tests of intonation have subjects match pitches with a given standard, often isolated from a musical context. However, this intonation test was designed to identify the ability of students to bring pitches in tune with an authentic model (i.e., professional string players) while actually performing complete musical examples.

Carmody (1988) chose this procedure over testing the students' ability to match an electronically produced tone because of its real-world qualities. College-level and/or professional musicians were used to perform the melody along with the testing students because of their ability to produce a clear, steady pitch with good intonation and tone quality. This researcher modified the Carmody Intonation Test in that no live college-level and/or professional musicians were used when testing the students, nor was the melody played along with the subject. Instead, professional musicians audiotape-recorded the three supportive parts of the test (e.g., the 2nd violin, viola and cello parts), and this was played when the students were being tested. All students played the 1st violin part for their intonation test. For viola students, the 1st violin part was transposed to the alto clef; for cello and bass students the 1st violin part was transposed to the bass clef (see Appendix A for the complete intonation test).

If students had truly learned to play in tune, they would be able to audiate (Gordon, 1997). "Audiation takes place when one hears *and comprehends* music silently when the sound of the music is no longer or never has been physically present" (p. 11). If a professional musician producing a pitch standard is present when the students are tested, a judge will not be able to tell if the student is merely imitating the pitch played by the professional musician, or truly audiating his or her own intonation. Therefore, no professional musicians performed the 1st violin part of the intonation playing test along with the students; they only performed the harmonic parts, and presumably only students who were audiating would have played in tune.

Gordon (1997) has also stated the following:

> Musical instruments are extensions of the persons who perform on them. Unless children can audiate with a sense of tonality, a sense of meter, good intonation, a consistent tempo, and good rhythm, they will not be able to make their instruments demonstrate those attributes. Though there may be keys, valves, or frets on an instrument, it remains the performer's responsibility to make the necessary adjustments in order to play with good intonation. (p. 103)

Each student must be able to demonstrate these attributes independently.

The criterion piece for the intonation test was the fourth of five short compositions prepared by Carmody (1988) (see Appenix A). The three pieces preceding the intonation test were designed to prepare the student for the actual test of interest, i.e., piece number four, by familiarizing the student with the playing environment, focusing his or her attention on intonation, allowing the student to blend with the other voices on the recorded model, and reviewing the playing skills which were to be tested.

Each composition had a specific purpose related to the testing experience. Piece number one consists of unison D major scales and primary chords. Piece number two utilizes echo effects similar to those used in the test piece. Piece number three is a chorale found in the Grove's Dictionary of Music and Musicians, fifth edition, under the heading of "Temperaments" (Lloyd, 1954). The piece, of ambiguous tonality, originally composed for the organ by the 16th century composer John Taverner, was arranged by Carmody (1988) so that the subjects each had an

independent sustained part with various harmonic and non-harmonic tones. Although this composition has no technical or rhythmic demands, it is, nonetheless, difficult to play in tune and requires focus on balance and attention to intonation nuance. The fourth piece is the test piece and is discussed in detail below. The final piece is designed "just for fun" so that the students will leave feeling good about the experience.

Five areas of intonation are covered by the intonation test (i.e., piece number four): (1) measures 1-4 provide tuning harmonic intervals of a P5, M3, m7, and M6 above a standard, (2) measures 4-8 use unison passages involving awkward melodic intervals, (3) measures 9-12 provide tuning to tonal memory, (4) measures 13-14 provide tuning harmonic intervals of a P8, and m3 below a standard, (5) measures 15-17 tune notes within a chord which involves identifying the chord tone and its harmonic and melodic tendencies. Half position and extended first position notes are used throughout to require left hand readjustment.

The piece, written in common time at a slow tempo, uses long note values (quarter note and longer) to give the subjects time to adjust their tones. This also allows the judges time for evaluation of each tone.

Carmody (1988) attempted to validate the intonation test during its development. A panel of experts who were not judges critiqued the early versions of the measure. A consensus was reached as to which intervals should be tested, and how. Those suggestions were implemented in the final version of the composition. The results of a pilot study indicated that the test had strong content validity (i.e., the

test examples were similar to real music examples) and strong construct validity (i.e., the test actually evaluated the identified skills).

Interrater reliability (i.e., consistency of the judges' scores for a particular subject) was examined prior to throwing out the high and low scores for each subject. Out of a nine-point scale, the mean separation between the high and low scores was 3.2 with a standard deviation of 1.2 and a standard error of 0.1. Based on these observations, the interrater reliability was found to be acceptable. Normally a correlation coefficient is used when finding interrater reliability, but Carmody (1988) did not report one, nor did he explain the reason for throwing out the high and low scores for each subject.

The procedure in giving the Intonation Test for this study involved one student at a time playing along with the pre-recorded "minus-one" track audiotape that had the three supportive parts (2nd violin, viola and cello) being played by professional musicians on a Sony CFD-17 CD Radio Cassette-Corder machine. All the notes and rhythms that make up the five short compositions are notes and rhythms both the 6th and 7th grade students had learned and played during the school year. All students were tested the first time they are asked to perform the pieces.

All the subjects then played the melody or 1st violin line on their acoustic instrument along with the "minus-one" track, recording it on a JVC TD-W717 Double Cassette Deck in Dolby B-C NR Hx PRO machine using an Audio-Technica MB 3000L microphone. The 1st violin line of all five compositions was originally written in treble clef. This researcher transposed this 1st violin line to alto and bass clefs to

enable the violists, cellists and basses to read the line (Appendix B). The violin part had been written such that it maintained first position throughout piece 4 (the piece on which the students were tape recorded and judged). In order to maintain the same key as the violin part, and also to maintain first position throughout the alto and bass clef transpositions, measures 10 through 12 were shifted down an octave. Although this may have had a slight effect, the effect of keeping it in the same octave would have been more detrimental. Therefore, this researcher feels that the transpositions caused no disadvantage to any of the students.

A pilot study of the modified Intonation Test was performed with six students enrolled in either 6th, 7th or 8th grade in and around Lansing, Michigan. All of these students understood the directions given, performed the pieces as assigned, and their performances of the criterion piece were audiotape-recorded. The judges were able to listen to and judge these recordings first to give them some experience of using the 9 point Likert scale system and to gain a better understanding of what was expected of the students involved in this study. Interjudge reliability was achieved on the pilot study at $r = 0.58$.

Zorn Music Attitude Inventory (1969)

Sherburn (1984) provided an excellent analysis of the Zorn Music Attitude Inventory (1969). The following is largely based on his observations. See Appendix C for a copy of the complete survey and the key to the taxonomy of the objectives in the affective domain.

Zorn (1969) developed the attitude survey to study the attitudes that students hold toward music and music participation. The test was taken anonymously with student-selected codes used in lieu of names. In this test, each student responded to 35 statements on a five point Likert scale, indicating agreement or disagreement with the statements. Neither Zorn or Carmody (1988) mentioned if they performed a pilot study on this attitude inventory before using it for their final studies.

The students could respond to the statements in one of five possible ways:

1. I strongly agree with the statement.
2. I agree somewhat with the statement.
3. I am uncertain how I feel about the statement.
4. I disagree somewhat with the statement.
5. I disagree strongly with the statement.

The Zorn (1969) test was designed to elicit attitude responses in the following areas: (a) performing in large or small groups, (b) the importance of music participation to the individual, (c) the importance of the individual's contribution to the group, (d) the inclusion of cognitive information in the instrumental music curriculum, (e) the role of music in adult life and society in general, (f) the enjoyment of various phases of performance and listening.

Two sample items from Zorn's (1969) test will serve as examples:

2. During ensemble rehearsal, I often get bored with music.
7. When I play a piece of music that I like, I feel it emotionally.

Zorn (1969) based his thinking in this area on the Taxonomy of Educational

Objectives: Part II, the Affective Domain by Krathwohl, Bloom, & Masia (1964). The authors of this book state,

> Affective: Objectives which emphasize a feeling tone, an emotion, or a degree of acceptance or rejection. Affective objectives vary from simple attention to selected phenomena to complex but internally consistent qualities of character and conscience. (p. 7)

The affective domain categories are intended to be hierarchical in order, arranged along a continuum of internalization from lowest to highest. The categories and their subdivisions are as follows:

1.0 Receiving (attending)

- 1.1 Awareness
- 1.2 Willingness to receive
- 1.3 Controlled or selected attention

2.0 Responding

- 2.1 Acquiescence in responding
- 2.2 Willingness to respond
- 2.3 Satisfaction in response

3.0 Valuing

- 3.1 Acceptance of a value
- 3.2 Preference for a value
- 3.3 Commitment (conviction)

4.0 Organization

4.1 Conceptualization of a value

4.2 Organization of a value system

5.0 Characterization by a value or value complex

5.1 Generalized set

5.2 Characterization (p. 95)

Krathwohl et al. (1964) hoped that, with the classification of objectives in the affective domain, better communication about them would be fostered. They further state:

> A second value to be derived from the creation of a classification scheme would be to provide a convenient system for describing and ordering test items, examination techniques, and evaluation instruments. (p. 5)

The first category relays concern that the learner be sensitized to the existence of certain phenomena and stimuli; that is, that he or she be willing to receive or attend to them. This is the first and crucial step if the learner is to be properly oriented to learn what the teacher intends.

The second category represents the process through which the student is committing himself in some small measure to the phenomena involved. The student is doing something with or about the phenomenon besides merely perceiving it.

The third category symbolizes that the abstract concept has been given worth in the student's estimation. An important element of behavior characterized by *Valuing* is that it is motivated, not by the desire to comply or obey, but by the individuals'

commitment to the underlying value guiding the behavior.

As the learner successively internalizes values, he encounters situations for which more than one value is relevant. The necessity arises for (a) the organization of the values into a system, (b) the determination of the interrelationships among them, and (c) the establishment of the dominant and pervasive ones. Therefore, the fourth category is needed to describe the beginnings of organizing elements of worth into a value system.

The fifth category demonstrates that the learner has internalized the values within his or her own value hierarchy, has organized them into some kind of consistent system, and has adapted his or her own behavior in accordance with the value. In other words, the individual acts consistently in accordance with the values he or she has internalized at this level.

Zorn's (1969) test was designed to elicit responses from each level cited: five from 1.0 (receiving); seven from 2.0 (responding); nine from 3.0 (valuing); seven from 4.0 (organization); seven from 5.0 (characterization by a value or value complex). Two-thirds of the statements in Zorn's test are phrased to express a favorable attitude and one-third of the statements are phrased to express an unfavorable attitude. It is probable that Zorn reversed these statements to discourage pattern marking. For scoring purposes, those statements phrased negatively were reversed to indicate all in the same direction. Those answers reversed were the following statement numbers: 2, 12, 15, 18, 20, 29, 30, 31, and 34 (Appendix C). It is important to remember that the more positive attitude towards music is represented by the lower number. The Zorn

Music Attitude Inventory was administered to all involved students during the last week of the study.

A pilot study of the Zorn Music Attitude Inventory (1969) was taken by 32 students at a neighboring middle school, who were not taught by this researcher. Results showed that students receiving chamber music experiences did show a more positive attitude toward music than students not receiving chamber music experiences, though not significantly ($p = .303$).

Evaluation Procedure

The recordings of the Intonation Test were randomly numbered and sent to three judges for evaluation. The judges graded each of the subjects on a nine-point ordinal Likert scale of intonation accuracy that is divided into three sections: low (1-3), average (4-6) and high (7-9). Attitude surveys were compared between the control group and the experimental group, with the lower number representing the more positive attitude toward music. The surveys were evaluated by this researcher.

Hypotheses

A t-test statistical procedure was used to test the difference in the intonation and attitude scores between those who participated in chamber ensembles (experimental group) and those who did not (control group).

Hypothesis 1. The experimental group will obtain higher mean scores on the intonation part of the Carmody Intonation Test (1988) than will the control group.

Hypothesis 2. The experimental group will obtain higher mean scores on the Zorn Music Attitude Inventory (1969) than will the control group.

In order to find the interjudge reliability of the intonation test, Pearson's *r*/correlation coeficient was used.

CHAPTER IV

Analysis and Interpretation of the Statistical Findings

Data on the students' intonation skills and attitude surveys at the end of the period of instruction were secured by the tests described in Chapter Three. The scores achieved on these tests then were analyzed to determine if those of the experimental groups were statistically significantly greater than those of the control groups in the areas of intonation and attitude. The independent sample t-test statistical procedures were run on the SPSS 10.0 for Windows program.

Intonation Test

All the 6th and 7th grade string classes were administered the Carmody Intonation Test (1988) comprised of five short compositions at the end of the 39-week study.

Three judges were able to pilot the intonation test first by hearing audiotapes of six students from the 6th, 7th and 8th grades in and around the Lansing, Michigan area. Once the judges established an understanding of the study and range of scoring during the pilot study, they then listened to the audiotapes of the 72 study students and assessed each students' performance on a Likert scale of 1-9: 1-3 representing a low score, 4-6 representing an average score, and 7-9 representing a high score. Using the Pearson's *r*/correlation coefficient, the interjudge reliability for this test was $r=.743$, which is an acceptable level. The results of this intonation test are presented in Table I.

TABLE I

CARMODY INTONATION TEST STATISTICS

Group	*N*	Mean	Std. Dev.	Std. Error
Total Control	**33**	**3.5152**	**1.7532**	**.3052**
6th Grade Control	20	3.5000	1.4650	.3276
7th Grade Control	13	3.5385	2.1902	.6075
Total Experimental	**39**	**4.8590**	**1.8687**	**.2992**
6th Grade Experimental	22	3.7803	1.2561	.2678
7th Grade Experimental	17	6.2549	1.5977	.3875
Total		**t=3.127**		**p=.003**
6th Grade		t=.667		p=.508
7th Grade		t=3.933		p=.001

Interpretation of Table I shows that the Intonation Test composite scores of the control group and experimental group were significantly different (p =.003). The results further show that the Intonation Test scores of the 7th grade control group and 7th grade experimental group were significantly different (p =.001), but the Intonation Test scores of the 6th grade control group and 6th grade experimental group were not significantly different (p =.508). Although the chamber music experience cannot account for all the differences in the overall intonation skill of each student, the analysis of the intonation test scores indicates that the students who received chamber music experiences played with more accurate intonation than students who did not receive chamber music experiences. In other words, chamber music was an effective treatment for the development of intonation skills over the 39-week treatment period.

In Zorn's study (1969), chamber groups met for one 50-minute period per week in a 32-week school year, for a total of 26 and 3/4 hours over the duration of the

study. In Carmody's study (1988), chamber groups met for one hour per week in a 14-week semester, for a total of 14 hours over the duration of the study. In the current study, the 7th grade chamber groups met during a 39-week school year for approximately one-third of the daily 44-minute class periods, for a total of 46 hours. This amount is almost double the amount of time that the chamber groups met in the Zorn study, and almost four times the amount of time that the chamber groups met in the Carmody study. This may account for such a significant difference in the 7th grade intonation test scores. The 6th grade classes met only every other day (on an A-B schedule) such that the 6th grade chamber groups met for a total of approximately 23 hours during the school year, which is similar to that of Zorn's study. The 6th grade intonation scores were higher within chamber music groups, but not significantly, again similar to those of Zorn's study.

Attitude Test

The answers to the Zorn Music Attitude Inventory (1969) were recorded for analysis via the SPSS 10.0 for Windows program. The values of the answers to the negatively phrased questions (2, 12, 15, 18, 20, 29, 30, 31, and 34) were reversed to retain consistency in positive attitude scoring. The scores were then summed and recorded for analysis, keeping in mind that the more positive attitude toward music is represented by a lower number score.

Table II shows the results of the comparison of the experimental and control groups on the attitude measure.

TABLE II

ZORN MUSIC ATTITUDE INVENTORY RESULTS

Group	*N*	Mean	Std. Dev.	Std. Error
Total Control	**33**	**2.9554**	**.5729**	**.0099**
6th Grade Control	20	2.9343	.7072	.1581
7th Grade Control	13	2.9879	.2852	.0079
Total Experimental	**36**	**2.8032**	**.5061**	**.0084**
6th Grade Experimental	20	3.0271	.4339	.1581
7th Grade Experimental	16	2.5232	.4569	.1142
Total		**t=1.172**		**p=.245**
6th Grade		t=.500		p=.620
7th Grade		t=3.345		p=.004

Interpretation of Table II shows that the Zorn Music Attitude Inventory (1969) composite scores of the control group and experimental group were not significantly different (p =.245), though the experimental group students displayed a more positive attitude toward music than did the control group students. A breakdown of the composite results show that the Zorn Music Attitude Inventory scores of the 7th grade experimental group were significantly lower than those of the 7th grade control group (p =.004), meaning that the 7th grade experimental group students had a significantly more positive attitude toward music than the 7th grade control group students. However, the Zorn Music Attitude Inventory scores of the 6th grade experimental group were higher than those of the 6th grade control group, but not significantly (p = .620), meaning that the 6th grade experimental group did not have a more positive attitude toward music.

A possible reason for the difference in the attitudes toward music between the 6th and 7th grade experimental groups could be that the 7th grade class met for string class every day and the 6th grade classes met for string class only every other day, thus increasing the chamber music contact hours for the 7th grade students. Further, the 7th grade students were allowed, in most cases, to self-select their chamber groups, which could also contribute to a more positive attitude toward music.

One 7th grade experimental group student and two 6th grade experimental group students had marked their attitude surveys with straight 5s, indicating pattern marking. These three attitude surveys are considered outliers, and their attitude surveys were removed from this analysis.

Analysis of the Zorn Music Attitude Inventory (1969) scores indicates that overall, the students who received chamber music experiences had a more positive attitude towards music than students who did not receive chamber music experiences, though not significantly. In other words, chamber music may have been an effective treatment overall for the development of positive attitudes toward music over the 39-week treatment period.

A possible reason for the difference in attitude surveys between this study and the Zorn (1969) study may be that the students misinterpreted the scoring of the attitude surveys and reversed the values so that a more positive response was represented by a higher number. Another possible reason may be difference in the ages of the students; 9th grade students tend to have a more positive attitude in general than the attitudes of 7th grade students.

Neither Carmody (1988) or Zorn (1969) questioned the validity of the Zorn Music Attitude Inventory. This researcher feels that more, and more closely scrutinized pilot testing should be considered before using the Zorn Music Attitude Inventory again, especially regarding reversing the 1-5 numbering on the survey, perhaps such that the higher number is the more positive response. When recording the attitude survey scores I was surprised to find that many students, who had expressed a good attitude toward music during the school year, had many items of their attitude surveys with 4s and 5s, rather than 1s and 2s. It is possible that some of the students could have misinterpreted the scoring of the attitude surveys and reversed the values so that a more positive response was represented by a higher number. As mentioned earlier, there were three survey sheets that had a 5 written for every response. If there were students who truly disliked music and/or music class, then it would stand to reason that the nine negatively phrased responses would have been marked with a 1, not a 5. But since these survey forms contained only 5s, it leads this researcher to believe these students did not read the questions and were simply pattern marking.

CHAPTER V

Discussion

Summary

This study investigated the effectiveness of using chamber music experience as a means to improve intonation skills and to improve attitudes toward music in middle school strings class. In order to enhance student attitudes toward music and raise intonation levels of beginning string players, this study compared an alternative approach to teaching strings via inclusion of chamber music experience to the more traditional practice of teaching exclusively through large ensemble experience. The practice of including a chamber music experience along with the traditional large ensemble experience was studied to see if it might lead to improved intonation skills and better student attitudes. Specifically, this study examined the effects of chamber music participation on the students' intonation, and surveyed the effects of chamber music participation on the students' attitudes toward music.

Although research studies have shown mixed results, many music educators have observed that chamber music provides exceptional benefits for music students, especially in the areas of intonation and attitude.

To test the hypotheses an experiment was designed to examine the effects of participation in a chamber music ensemble in three existing 6^{th} and 7^{th} grade orchestra classes. A control group with exclusively large ensemble music experience ($n=33$)

was compared to an experimental group that included large ensemble as well as small ensemble music experiences (n=39). The Music Aptitude Profile was used to ensure that the groups were comparable in music aptitude at the beginning of the study. It is important to remember that all the 7th grade students spent the same number of hours per week playing in school groups, and all the 6th grade students spent the same number of hours per week playing in school groups.

To test for intonation skills each subject played an independent melody line along with a tape recording of professional musicians. The students' performances were audiotape recorded while playing the fourth in a series of five carefully designed short pieces of music. These audiotapes were then evaluated by three judges using a Likert scale from 1-9, one representing a low score and nine representing a high score.

To survey for music attitudes, each subject was given the Zorn Music Attitude Inventory (1969) consisting of 35 responses. These survey scores, and the intonation test scores, were evaluated statistically by using an SPSS 10.0 for Windows program. The tests for intonation and attitude were administered in June of 2000, after an entire school year (39 weeks) of instruction.

Conclusions

The first purpose of this study was to examine the effects of chamber music involvement on students' intonation skills. In this study the intonation skills of all students receiving chamber music experiences were significantly higher than the

intonation skills of students who received no chamber music experience. In looking at each grade, the intonation skills of the 7th grade students receiving chamber music experiences were significantly higher than the 7th grade students who did not receive chamber music experiences. The intonation skills of the 6th grade students receiving chamber music experiences were higher than the intonation skills of the 6th grade students who did not receive chamber music experiences, but not significantly.

The second purpose of this study was to survey the effects of chamber music involvement on students' attitudes toward music. Based on this study, attitudes toward music of all students receiving chamber music experiences were more positive than the attitudes toward music of students who received no chamber music experience. In looking at each grade, the attitudes toward music of the 7th grade students receiving chamber music experiences were significantly more positive than those of the 7th grade students who did not receive chamber music experiences. The attitudes toward music of the 6th grade students receiving chamber music experiences were not more positive than those attitudes toward music of the 6th grade students who did not receive chamber music experiences, though not significantly.

Zorn (1969) found that the groups receiving chamber music experiences showed a significant difference in the test scores on positive attitude changes, but no significant difference in performance ability when compared with the control sectional rehearsal groups. In comparing my data with that of Zorn, whose testing was done 30 years earlier and with 9th grade band students, I found the opposite when looking at composite scores, in that the groups receiving chamber music experiences showed a

significant difference in their performance ability and intonation skills, but no significant difference in the test scores on positive attitude changes when compared with the control groups.

Carmody (1988) found that the groups receiving chamber music experiences showed a difference in the test scores on attitude and in performance ability when compared with the control groups, though not a significant one. Neither Zorn (1969) or Carmody found chamber music experiences to have a significantly positive effect on the intonation skills and attitudes toward music of students in their studies, but merely a tendency in the positive direction.

Recommendations for Future Research

Future research in this area should include pre- and post-test attitude surveys as well as pre- and post-test intonation tests. By using pre- and post-tests in both of these areas comparisons can be made not only between groups, but within groups as well. This may give more insight and more firm answers as to whether or not chamber music aids in the development of positive attitudes toward music and better intonation skills of beginning and intermediate string players.

It is important that thorough pilot testing be done with both the intonation test and the attitude survey, to ensure confident test results. Student journaling in both small ensemble and large ensemble experiences would also provide more qualitative data on their attitudes.

It is subsequently suggested that future research studies be conducted to determine if the social aspects of participation in chamber music experience enhances attitudes.

Implications for Music Education

This study provides further evidence that playing chamber music may have positive effects on students' intonation skills and attitudes toward music. Chamber music had been shown, through other observations and anecdotal evidence, to positively affect students' intonation skills and attitudes toward music, and may affect other aspects of musicianship such as motivation, rhythmic accuracy, and the ability to achieve proper balance and blend. Future research should investigate the relationship between playing chamber music and these other aspects of musicianship.

An interesting implication that can be found from this study is the fact that the 7th grade students who received orchestral instruction daily achieved much higher results on both the attitude surveys and intonation tests, than did the 6th graders who received orchestral instruction only every other day. This can lead to further research as well as evidence to school administrators that the more exposure to string instruction during the school year, the better the students will become.

Based on this and other research, school music teachers and administrators should give serious attention to the nature of the instrumental music curriculum. There should be more emphasis on more teacher contact hours, smaller groupings, and less

emphasis on solely large ensemble activities.

New teaching materials and methods could include instruction for small ensembles as well as large ensembles. There is a particular need for small ensemble music useful at early stages of development to promote listening and blending skills, which can subsequently lead to better intonation.

High quality programs must include training that will carry over into adult life. Chamber music has been shown, through this study and others, to be effective in developing the short-term skills, such as intonation, which are necessary to the growth of the school program.

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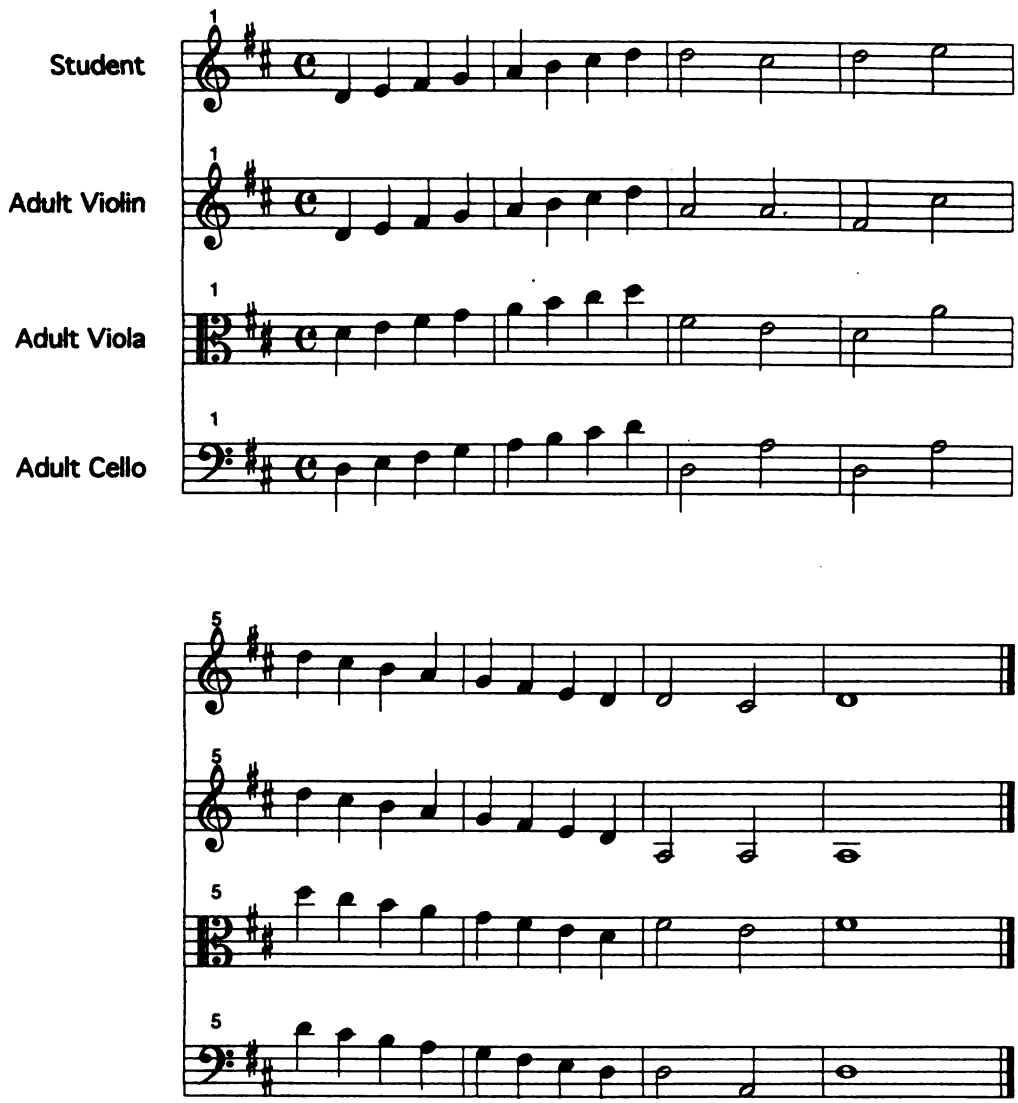
Appendix A

Carmody Intonation Test

Piece No. 1



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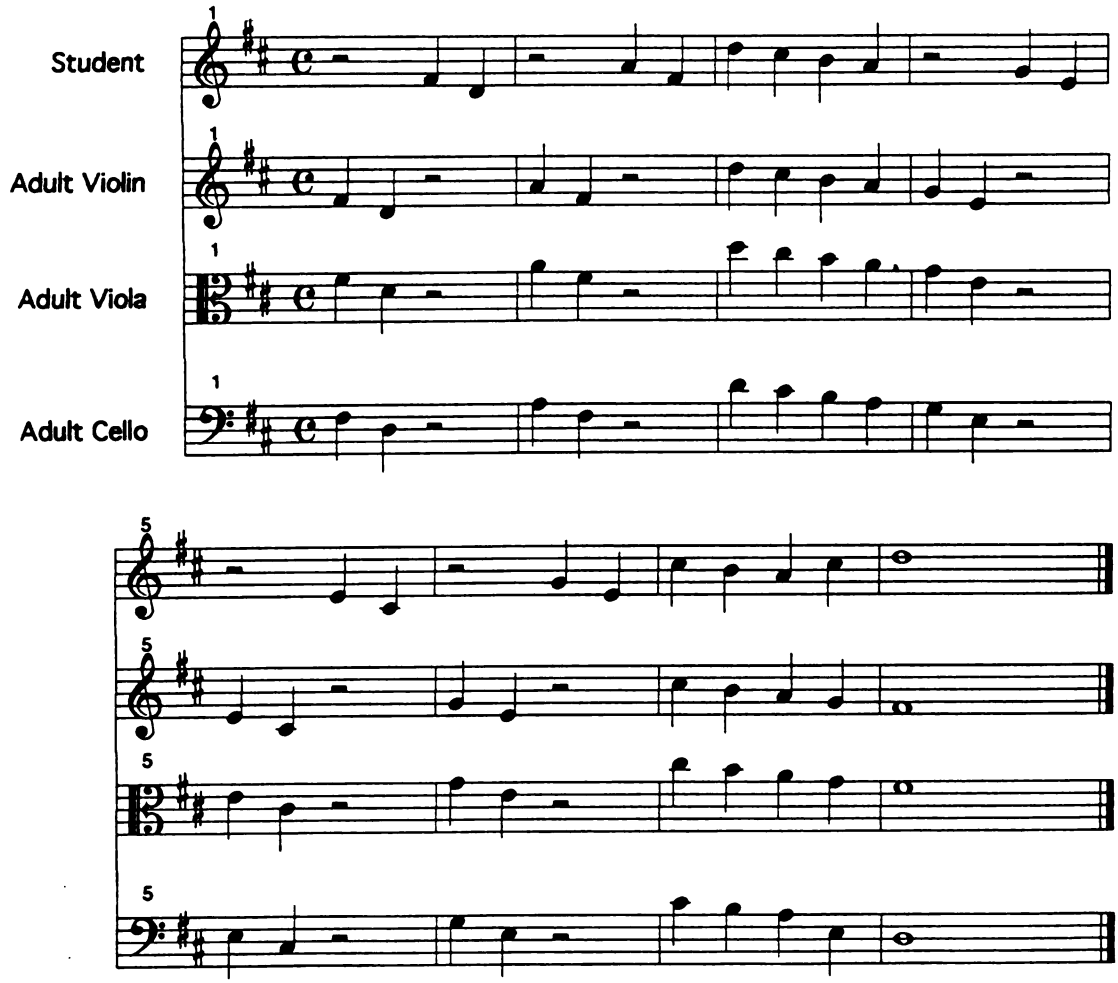

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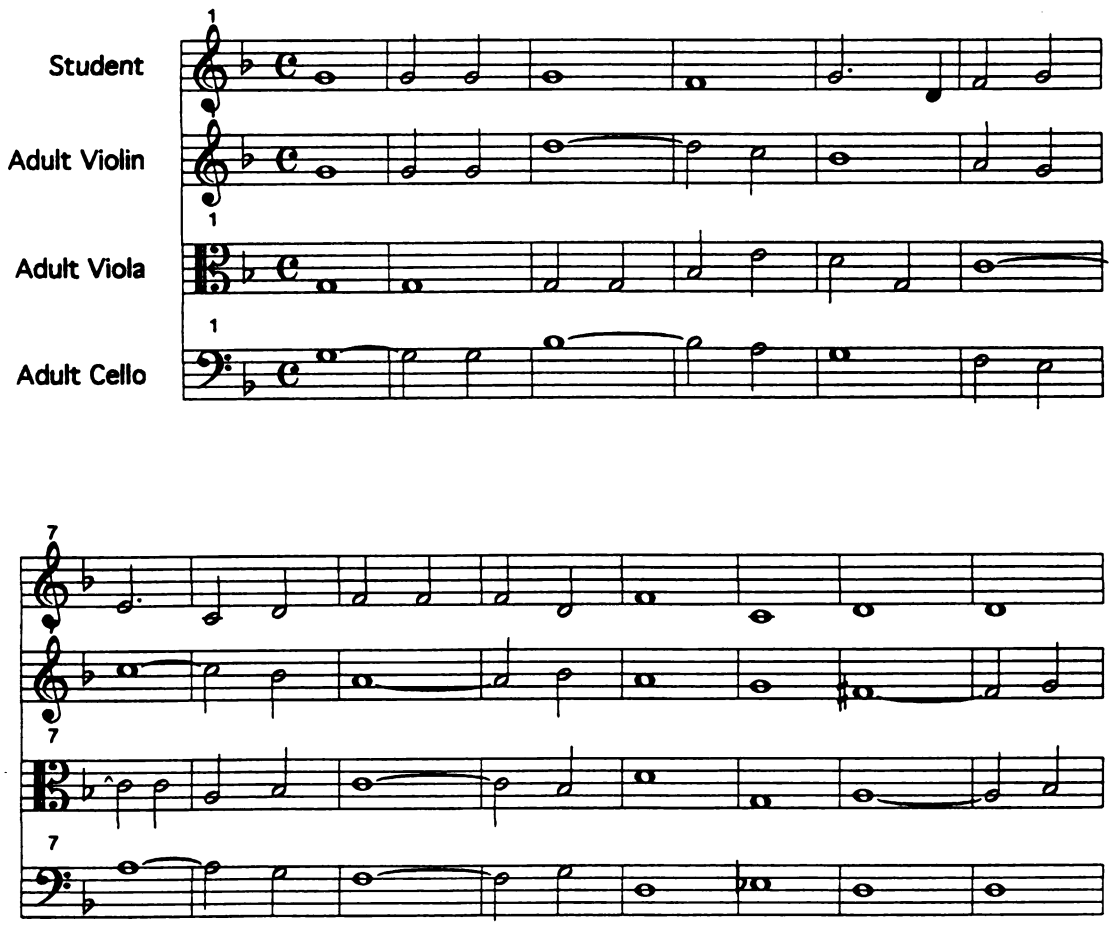

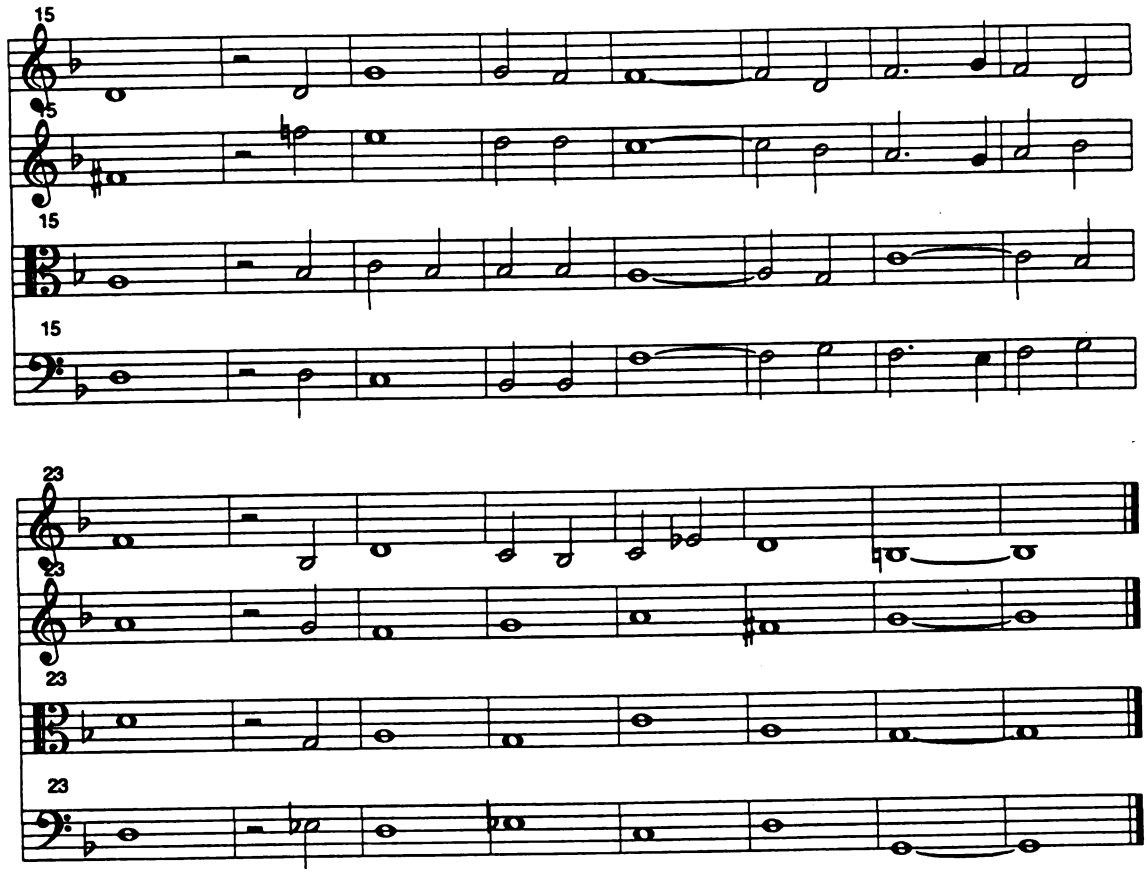
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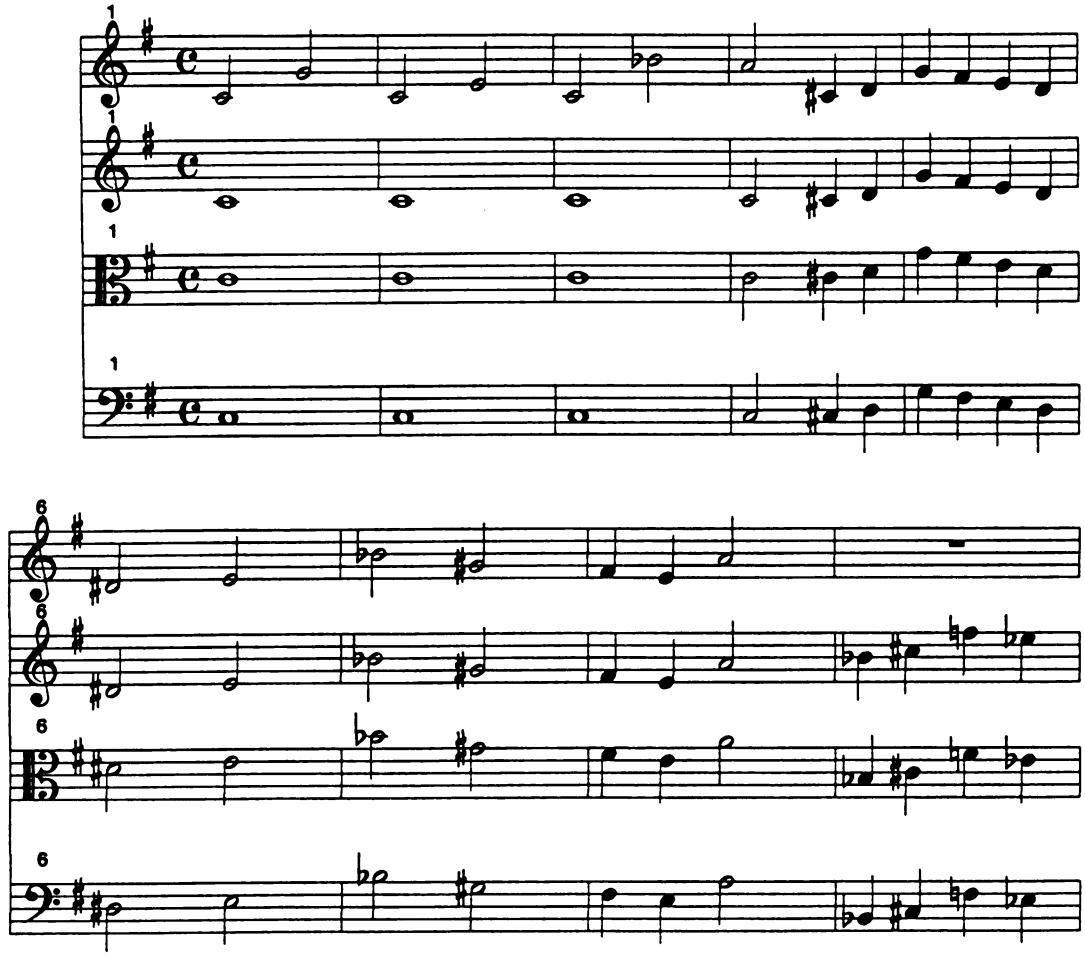

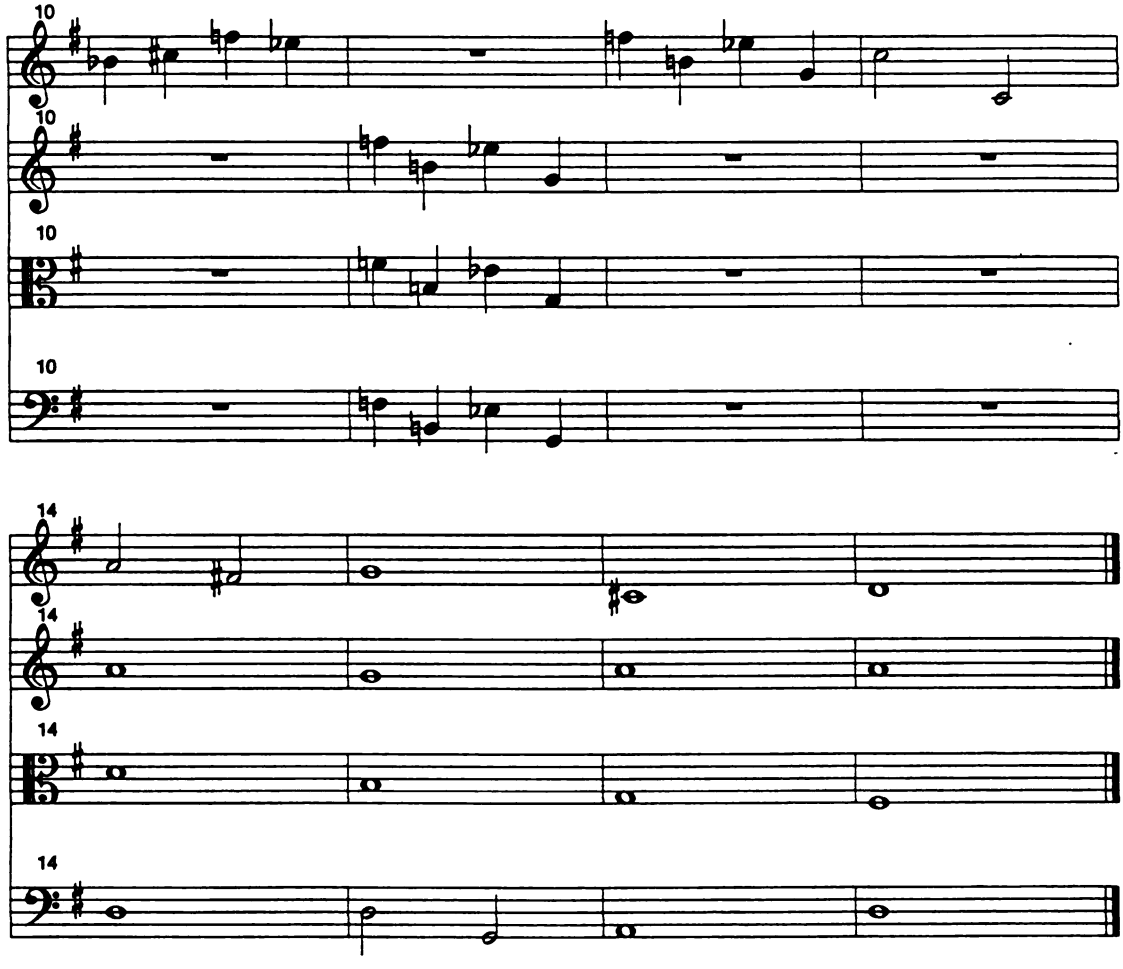
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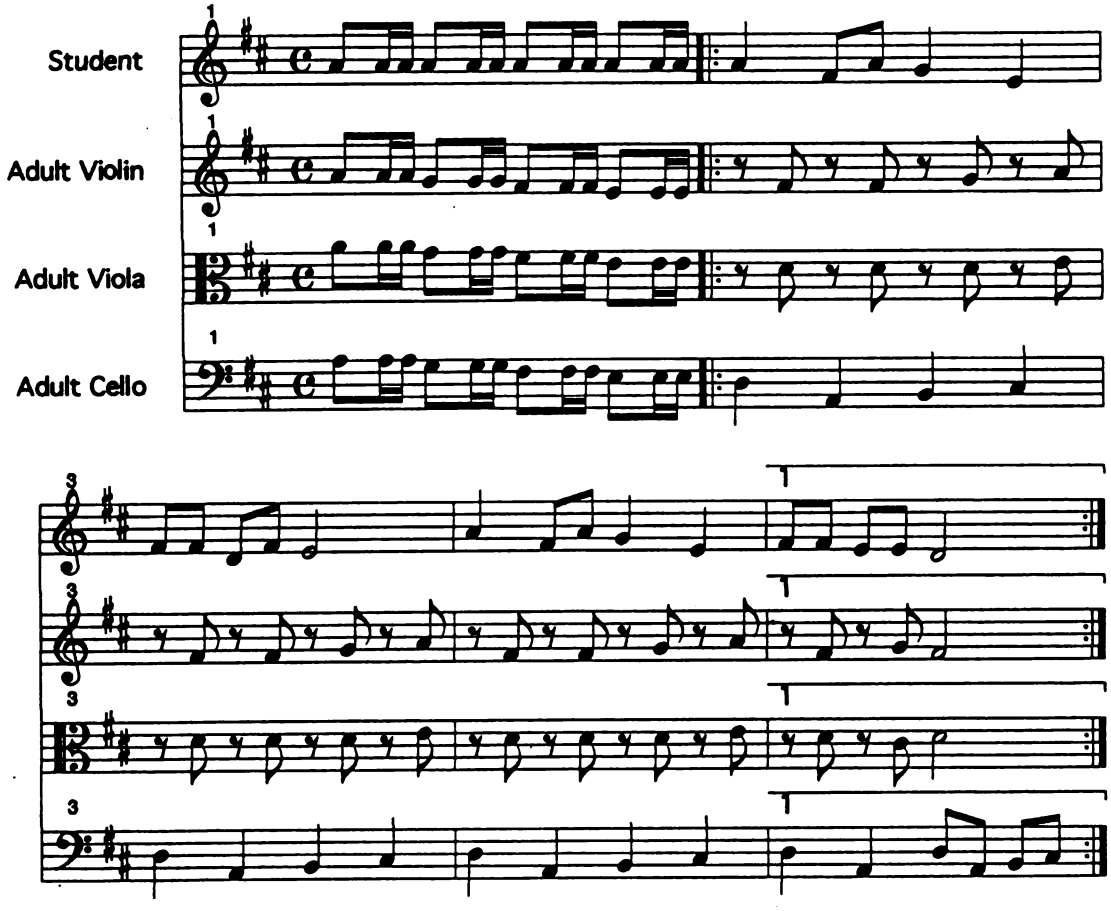

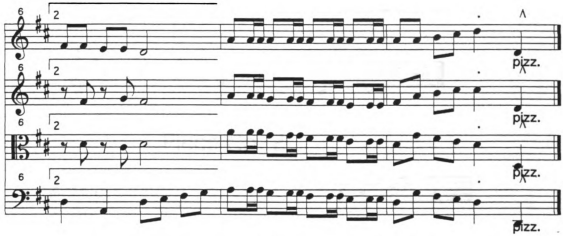
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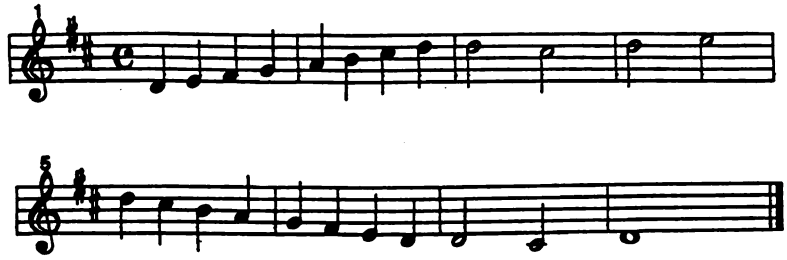
Appendix B

Carmody Intonation Test

Violin Part

Piece No. 1



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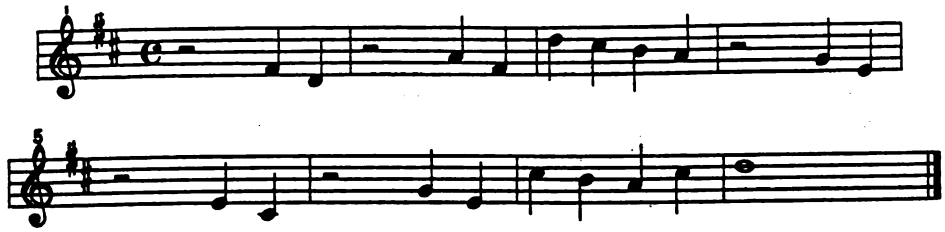

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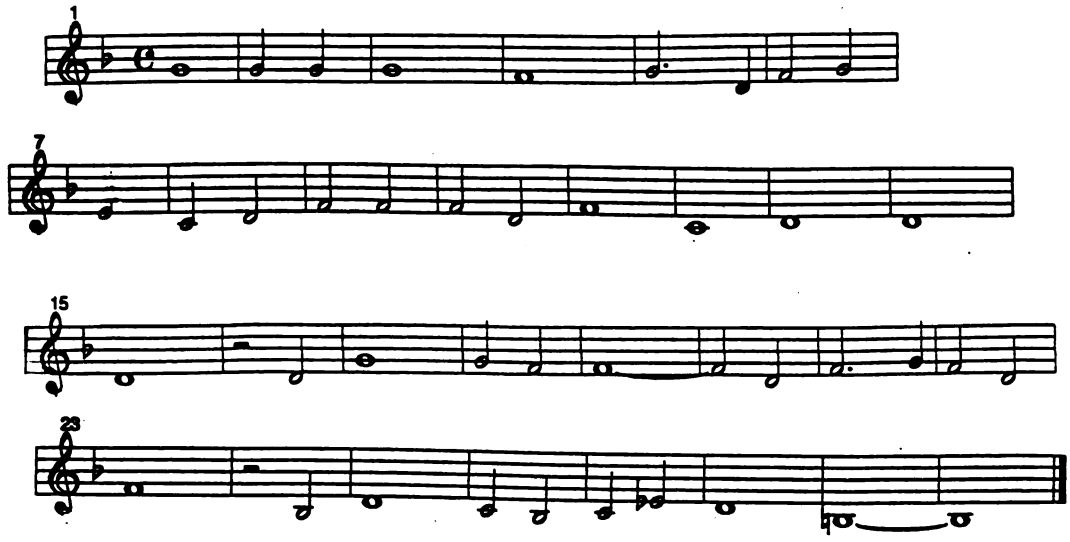

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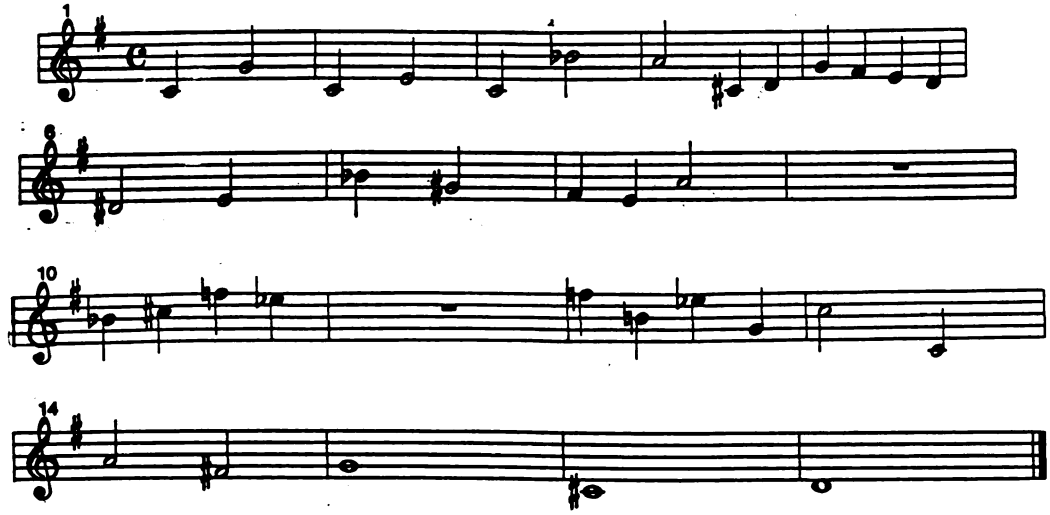

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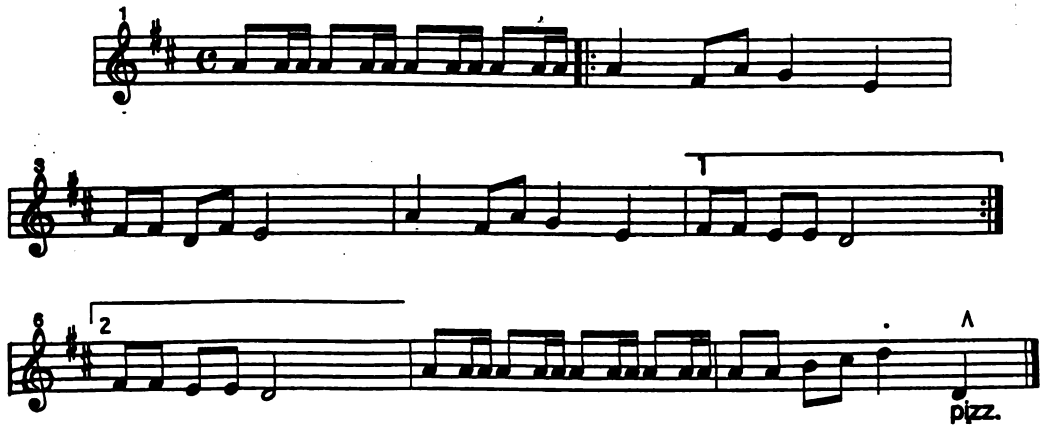

Carmody Intonation Test
Viola Part

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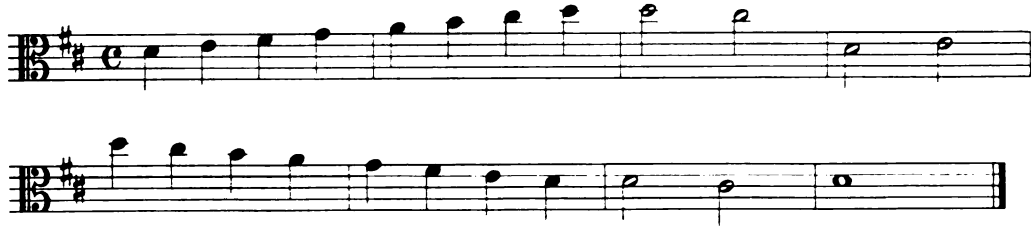

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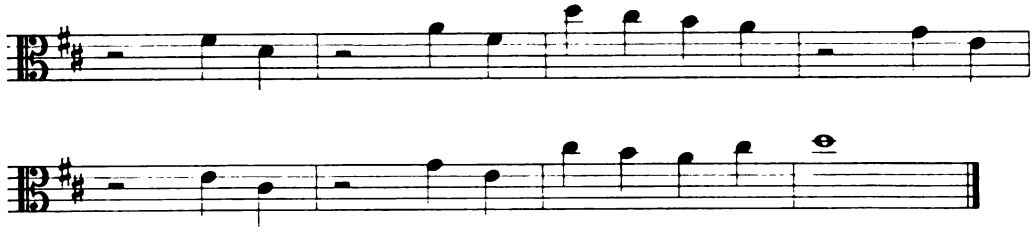

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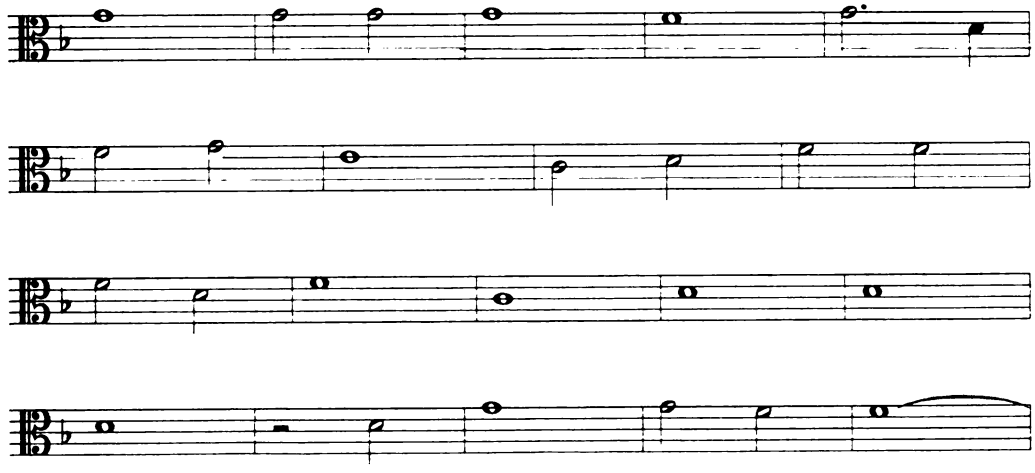

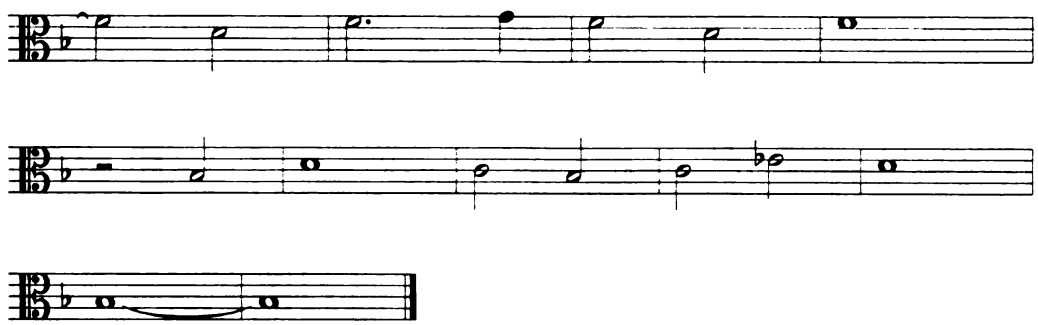

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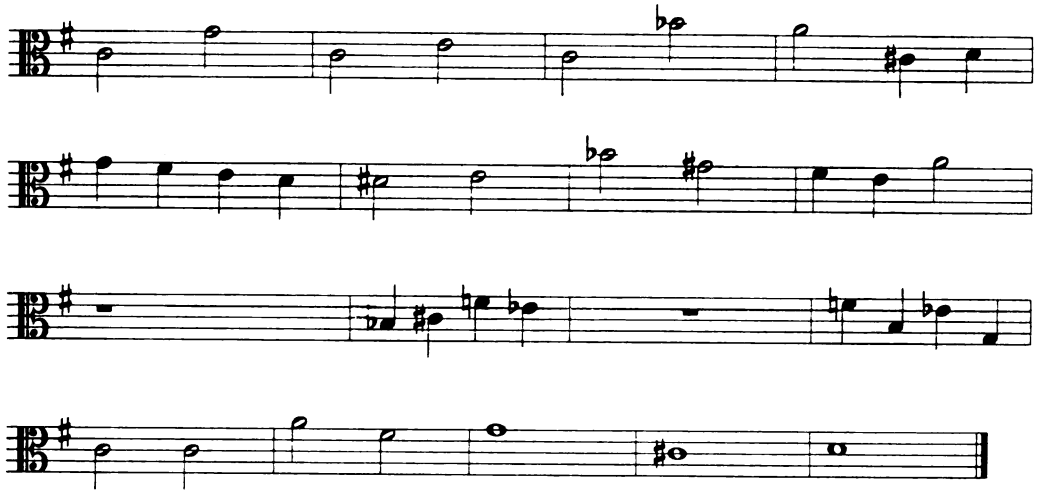

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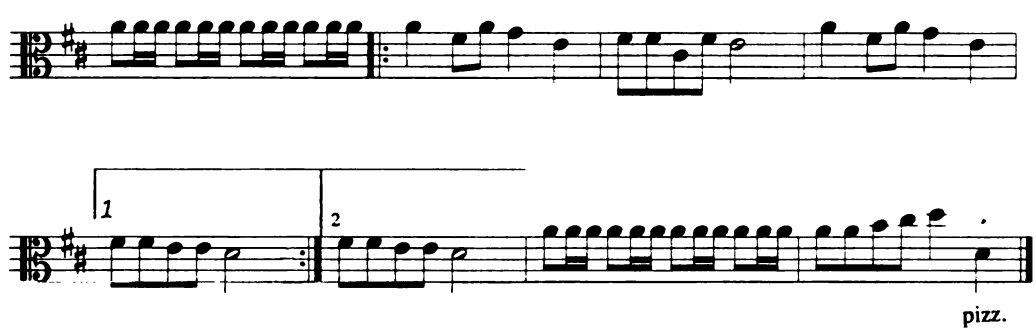
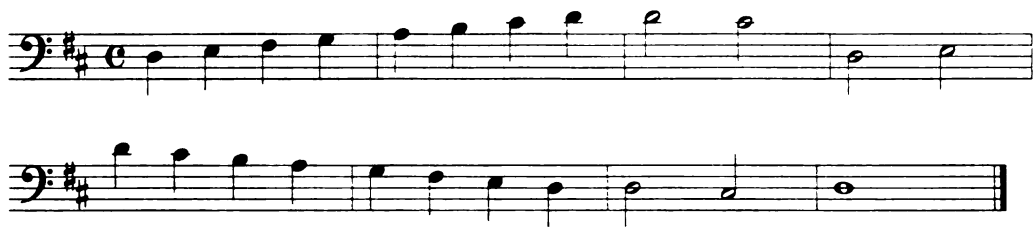


Carmody Intonation Test

Cello and Bass Part

PIECE NO. 1



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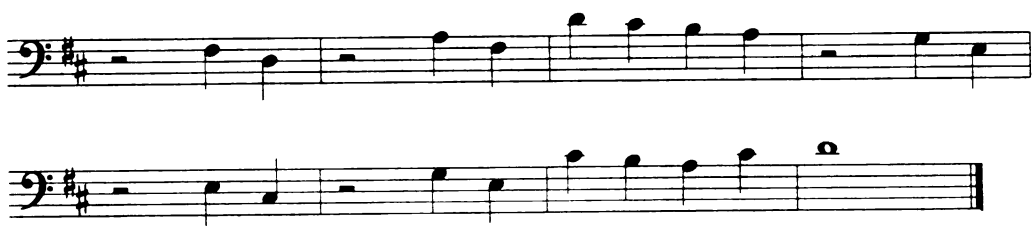

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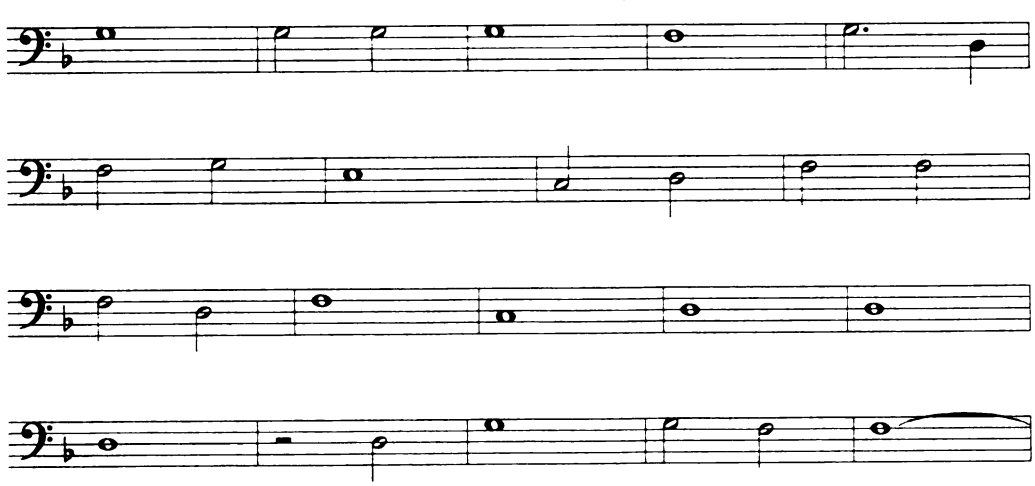

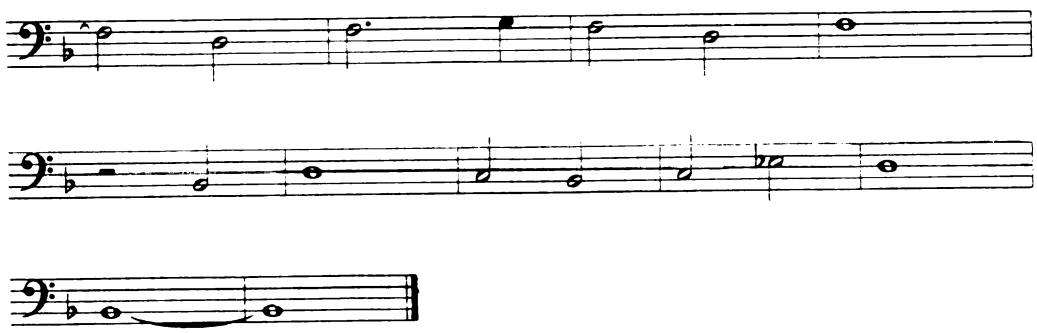

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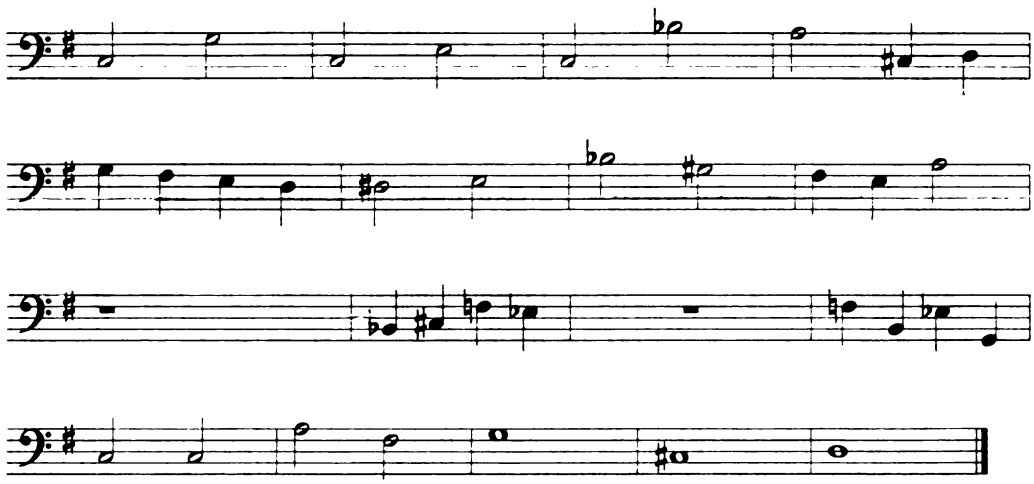

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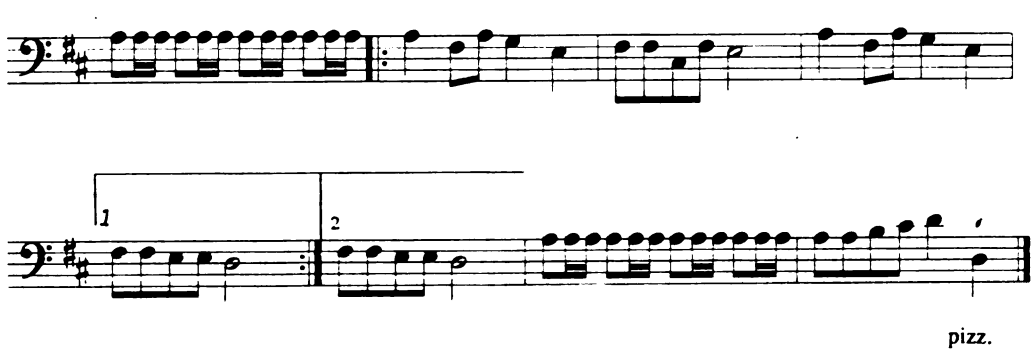

Appendix C

Zorn Music Attitude Inventory

Name (code)_____

Instrument_____

Date_____

Directions: The purpose of this questionnaire is to discover what you really think about music. Consider each question carefully and answer it honestly and as frankly as you possibly can. There are no "right" answers as such. It is not expected that your own thoughts or feelings or activities relating to music should be like those of anyone else.

There are five ways to mark your answers: CHOOSE ONE!

1. I STRONGLY AGREE WITH THE STATEMENT.
2. I AGREE SOMEWHAT WITH THE STATEMENT.
3. I AM UNCERTAIN HOW I FEEL ABOUT THE STATEMENT.
4. I DISAGREE SOMEWHAT WITH THE STATEMENT.
5. I STRONGLY DISAGREE WITH THE STATEMENT.

_____ 1. I wish I had more time at home to play and listen to music.

_____ 2. During the band rehearsal, I often get bored with the music.

_____ 3. I would like to learn more about how music came about, particularly some type of music we play, like the "overture".

_____ 4. At home, I often browse through different pieces of music and try to play them on my instrument.

_____ 5. When I come upon concert events or other musical items in the newspapers, I often read them.

_____ 6. I sometimes discuss the music we play at school and some of the problems of my instrument with my friends and other members of the orchestra.

_____ 7. When I play a piece of music that I like, I feel it emotionally.

_____ 8. Often when I listen to music I become so absorbed that I am almost unaware of what is going on around me.

_____ 9. After working on a composition I usually like it better than the first time I played it.

_____ 10. I would enjoy just playing with a band or ensemble, even though I knew we would not be performing that music for a concert.

_____ 11. After playing a composition in orchestra or ensemble, I would be interested in hearing a professional group playing that work at a live concert.

_____ 12. A person either has talent or doesn't--practicing really doesn't make much difference.

_____ 13. I often compare two or more pieces by one composer and make a decision about the merits of that composer's works.

_____ 14. There is one particular composer whose music I enjoy so much that I want to play anything he has written.

_____ 15. I like to make up my mind about a composition the very first time I hear it and I usually don't change that opinion later.

_____ 16. Listening to records is fine, but you can't compare it with a live performance.

_____ 17. Music is important and the local or federal government should aid it financially.

_____ 18. Since we live today, it is not important how other people in other times lived.

_____ 19. For my level of ability, I feel I am doing very well with my playing.

_____ 20. It is not the music that is important, but how well it gets played.

_____ 21. I think it is more important to play in small groups than in large groups.

_____ 22. Later on in life, it will be important to me to live in a community where there are concerts to go to and groups I can play with.

_____ 23. If there are no groups to play with in a community, I will try to get a few other players together to play quartets.

_____ 24. Art and music are a way of looking at life through the senses. With the push-button age of automation taking over a lot of skills, I think that playing an instrument will become more important than ever.

_____ 25. It is still possible to be well educated and know very little about music.

_____ 26. Considering everything, I estimate my talent for music to be above average.

_____ 27. I usually feel uncomfortable when asked to play a passage of music alone while the rest of the group listens.

_____ 28. With the music we are playing, I find I want to practice more

_____ 29. I don't think the parts I play are very important to the whole group.

_____ 30. I don't find that music from other times interests me.

_____ 31. To play second or third parts is not half as much fun as playing the first parts.

_____ 32. I enjoy playing music more this year.

_____ 33. As it stands now, I want to play in orchestra (band) until I graduate from high school.

_____ 34. When you learn more about the details of music, you enjoy it less.

_____ 35. It is not important how much talent one has or how fast one can play, but how much one enjoys what he is doing.

Key to Taxonomy of Objectives in the Affective Domain
Zorn Muisc Attitude Inventory
(Krathwohl, Bloom & Masia)

1.0 Receiving (five statements)
- 1.1 Statement 5
- 1.2 Statements 1, 2
- 1.3 Statements 3, 34

2.0 Responding (seven statements)
- 2.1
- 2.2 Statements 4, 23
- 2.3 Statements 7, 8, 19, 27, 32

3.0 Valuing (nine statements)
- 3.1 Statements 6, 9
- 3.2 Statements 12, 13, 15
- 3.3 Statements 16, 17, 30, 33

4.0 Organization (seven statements)
- 4.1
- 4.2 Statements 11, 14, 20, 21, 22, 28, 35

5.0 Characterization by a value or value complex (seven statements)
- 5.1 Statements 10, 26, 29, 31
- 5.2 Statements 18, 24, 25