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**The Contribution of Technology to the Teaching of Music Listening:  
Historical Perspectives and Contemporary Developments**

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**The Contribution of Technology to the Teaching of Music Listening:  
Historical Perspectives and Contemporary Developments**

**by**

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## **Dedication**

I would like to dedicate this dissertation to my parents, Pandelis and Chrystalla, who have devoted their lives to providing the best educational opportunities for all their five children.

# **The Contribution of Technology to the Teaching of Music Listening: Historical Perspectives and Contemporary Developments**

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The purpose of the current study is to examine the contribution of technology to the teaching of music listening, to present a comprehensive account of the pertinent educational materials that have been developed in the past to assist teachers during the music listening activity, and to introduce a software application to make it easier for teachers to create music listening guides.

The role of technology in the teaching of music listening can be examined in four major historical periods, each roughly corresponding to a quarter of the twentieth century.

During the early 1900's, the invention of the first devices that could reproduce sound – the player piano and the phonograph – allowed music teachers to include music listening activities in classroom music instruction. The largest companies in the player piano and phonograph industry formed educational departments that produced a plethora of educational materials that helped to spread the music appreciation movement throughout the country.

The advent of the radio, followed by the television, constitutes the second historical period to be examined. Both inventions contributed to the establishment of music listening as an integral part of classroom instruction by broadcasting educational programs on a national scale, mostly in the form of youth concerts. Broadcasting companies also issued teacher guides and student workbooks to be used along with the programs.

The third period in question concerns the second half of the past century, when several improvements in audio equipment made the production of extensive recorded listening libraries possible. At the same time, the development of new devices enabled the production of educational audiovisual materials, such as films, filmstrips, slides, and transparencies.

The accessibility of personal computers marks the fourth and final historical period to be discussed. The new technology allowed the development of educational software for music listening.

Most listening materials developed by publishers to accompany the new technologies dictate both the music literature and the musical concepts to be introduced to students. The author has programmed a pertinent computer application to help teachers create their own listening material - specifically, animated versions of listening maps. A description of the computer application and its capabilities are presented in the final chapter of the study.

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# **CHAPTER I**

## **INTRODUCTION**

### **INTRODUCTION**

It is generally accepted by the music education profession that music listening needs to be an important part of school music lessons. In fact, the National Association for Music Education (formerly MENC, the Music Educators National Conference) emphasized its importance by including listening as one of the nine National Standards for Music Education. According to the Standards, public school students need to be able to listen to, analyze and describe music ("The School Music Program: A New Vision," 2008). The Standards likewise provide specific lists of listening abilities that elementary, middle and high school students need to develop. Such skills include the identification of music forms when presented aurally as well as the use of appropriate terminology in explaining music notation. Other skills include the identification of instruments and the recognition of the various musical elements (such as meter, rhythm, tonality, intervals, harmonic progression, tone color, etc) as they are heard during a performance. To help students develop these abilities, music teachers organize listening activities in their lessons, and they use educational materials that help students focus on the music. Also, they employ the latest technological advancements, such as CD players, MP3 players, educational films, computers and the Internet, in order to present recordings of music to students.

However, when music education entered the public school curriculum more than 150 years ago, music listening was not included in everyday classroom instruction. It was the advent of recording technology, particularly the player piano and the phonograph, that established the teaching of listening as an important part of music instruction. In fact, the

history of music education in public schools reveals that, during the 20th century, technological advancements played an important role in the introduction and spread of music listening in schools. On the one hand, technology provided the means for listening experiences in schools through the release of recordings and educational broadcasting. On the other hand, companies in the audio technology industry released a plethora of educational materials to enhance classroom music experience. As new technologies made their way to schools (such as overhead, film and filmstrip projectors, and computers) new materials were developed and used in music lessons. Music educators, educational institutions and music textbook publishers used elements of these materials and created new tools to help students focus on the music during listening activities.

Technology still contributes to the teaching of music listening today. For example, the latest educational materials used include listening maps and their animated versions. Listening maps are visual representations of a musical score and can be found in many music textbooks. Additionally, the latest developments in computers and Internet-based applications enabled the production of animated listening maps. Still, there is a limited number of such available educational materials and music teachers may need to create their own.

#### **STATEMENT OF THE PROBLEM**

Since the advent of sound reproduction, technology played a major role in the establishment of listening as an important part of public school music instruction. Also, during the past century, various technological advances contributed to the development of educational materials and techniques that influenced the way music listening was taught. However, the contribution of technology to the teaching of music listening has not been comprehensively investigated. Such documentation may help music educators to

understand how the teaching of music listening today is affected by the computer industry, the latest technological advancement that is used in education. The research would also allow teachers to develop educational techniques that would fully utilize the potentials of the latest technology to teach music listening.

Since the inception of listening activities in classrooms, teachers have been developing educational materials to help students focus on the music during the listening experience. Usually such aids initially emerged with the advent of new technology concerning the reproduction of sound, and later, images. Researchers, educators, publishing companies and classroom teachers refined, enhanced or even developed the existing aids into new educational material. Still, little comprehensive research has been conducted to investigate the introduction, development, and categorization of such educational materials since the time that they appeared in a plethora of media (through textbooks, small publishing houses, articles published in professional journals or in newspapers, or through audiovisual publications, extending from piano rolls to modern computer software). It is difficult for contemporary music teachers to have access to the educational aids concerning music listening used in the past and to adapt the ideas the teaching tools convey to lessons using the latest technology. As a result, they can only rely on the materials that are commercially available.

#### **PURPOSE OF THE STUDY**

The purpose of the current study is to examine the role of technology in the teaching of music listening, to present a comprehensive account of the pertinent educational materials that have been developed, and to provide today's teachers with the means to use such ideas in their own lessons using the latest technology. Specifically this study seeks to answer the following questions:

- (a) How did technology affect music listening in classroom lessons?
- (b) Which educational materials and techniques for listening were introduced for classroom use, and how were they developed?
- (c) How can contemporary music teachers create their own educational aids using the latest use the latest technology to adapt the ideas conveyed by the listening materials developed so far ?

### **LIMITATIONS OF THE STUDY**

The current research examines how technology affected the teaching of music listening in public schools. Although listening cannot be separated from other music experiences (i.e. students listen while singing or performing on an instrument) in this study the term “listening” is limited to *listening activities*—activities which require students to actively listen to a specific piece of music. Therefore, the study will present the tools, materials and techniques which were made available by technology and which are designed to help students focus on the music during a listening experience. Secondly, the study does not examine the effectiveness of the tools and materials for music listening. Such an investigation would be out of the scope of the study, which addresses the development of such tools from a historical perspective. Finally, the study examines the use of technology for teaching music listening in American public schools, so the data presented regards the United States only.

### **METHODOLOGY**

The current study uses information from several sources to answer the research questions. Historical data were used to describe the development of the several devices that contributed to the teaching of music listening, such as the player piano, the phonograph, the radio, the television, etc. Such data were found in newspaper and

magazine articles, and in studies investigating the development of such devices, as well as primary sources, like the manuals of the devices and interviews.

Biographies of inventors, like Thomas Edison, and pioneers in music appreciation, such as Francis Elliot Clark, provided additional information which is also related to the purposes of the current study.

A large amount of data were gathered by reviewing the addresses, papers and articles published in the proceedings of professional organizations, such as the Papers and Proceedings of the Music Teachers' National Association and the Journal of Proceedings of the Music Supervisors' National Conference. Additional information was found in teacher's opinions and thoughts on the use of materials for music listening. Such reports were published in journals, like the Music Supervisors' Journal and, later, the Music Educators' Journal. Numerous articles found in research journals were also used. Also, the author examined the original materials that are presented in the current study, such as piano rolls, recordings, educational tools, and early publications. Finally, in order to answer the third research question, the author created a computer program and used many publications that explained the programming language.

#### **ORGANIZATION OF THE CHAPTERS**

The chapters follow a linear historical presentation of the contribution of technology to the teaching of music listening. Each chapter presents the development of the devices that were used in schools for teaching music listening, as well as their contribution to the establishment and dissemination of the way music listening has been taught. Also, the chapters present the educational materials and instructional practices that were developed during the period in question.

Chapter 2 investigates the invention of the first devices that could reproduce sound, the player piano and the phonograph, which allowed music teachers to have listening activities during classroom lessons for the first time. Both devices made their way through the public school system, and their use was welcomed by teachers, students, and professional organizations of music educators. The largest companies in the player piano and phonograph industries formed educational departments that produced a plethora of educational materials that helped to spread the music appreciation movement across the country.

Chapter 3 investigates the contribution of radio and television educational broadcasting. Both radio and television contributed to the establishment of music listening as an integral part of classroom instruction by broadcasting educational programs on a national scale, mostly in the form of youth concerts. Broadcasting companies also issued teacher guides and student workbooks to be used along with the programs.

Chapter 4 presents the technological advances that occurred after World War II and made their way into schools, as well as the advent of computers. During this period, music listening particularly benefited from the technological improvements in audio recording as they enabled the compilation of recorded listening libraries for school use. Several companies published educational films, filmstrips, slides, and transparencies that were produced to be used as supplemental materials for music listening. Furthermore, during this period, numerous educational tools were developed to help students focus on music during the listening experience, such as call charts, blueprints for musical understanding, listening grids, and listening maps. During the last quarter of the past century, personal computers were developed and used in schools. Many programs for computer-assisted instruction were published for classroom use, and many of them

addressed music listening. The latter consisted of interactive listening guides that were featured on hypermedia CD-ROMs. Also, computers facilitated the production of animated listening guides, which are the latest educational aids for teaching music listening today.

Today's music teachers still rely on educational companies to provide them with the necessary materials for teaching music listening. Despite the abundance of such materials, educational aids that meet the needs of a specific lesson might not be available; therefore, it might be necessary for teachers to create their own listening materials. The computer application developed by the author of the current study could be used to create such materials. The evaluation of this program is presented in the final chapter.

## **CHAPTER II**

### **THE FIRST QUARTER OF THE 20TH CENTURY: THE ADVENT OF THE PLAYER PIANO AND THE PHONOGRAPH AND THEIR CONTRIBUTION TO THE MUSIC APPRECIATION MOVEMENT**

#### **INTRODUCTION**

At the turn of the 20<sup>th</sup> century, several inventions that allowed the reproduction of sound for first time in history made their way not only to American homes, but also to schools. These devices, the player piano and the phonograph, began a new era in classroom music education: that of music appreciation.

The current chapter will investigate the ways these devices contributed to the development of teaching music appreciation. First, it will outline the practices regarding classroom music instruction during the last half of the 19<sup>th</sup> century in order to describe the historical context in which the devices made their appearance. This history will highlight the player piano's and phonograph's contributions to the development of music appreciation as an important part of classroom instruction. Secondly, the chapter will briefly investigate the history of the development of the player piano in order to clarify its possibilities and limitations, which are crucial to the player piano's use in schools. Then, the educational uses of the player piano will follow, along with the materials that were issued to assist teachers' use of the device in teaching music appreciation. Similarly, the history of the phonograph's development will be presented in order to demonstrate its potential as an educational tool and to understand its uses during classroom instruction. The phonograph's contribution to music appreciation will be shown by the activities

created by companies manufacturing phonographs and recordings, as well as by the educational materials that were published to accompany such recordings.

### **THE BEGINNINGS OF MUSIC APPRECIATION IN PUBLIC SCHOOLS**

Although music entered the public school curriculum in the middle of the 19<sup>th</sup> century, it was not until the beginning of the following century that music listening started to be included in everyday classroom instruction. The main reasons for the omission of such an important activity in music teaching might be attributed to (1) the emphasis on music reading and singing, (2) the influence of contemporary pedagogical theories, and, perhaps more importantly, and (3) the lack of devices that reproduced sound.

The prevalence of vocal instruction in public schools was an important factor that influenced the music instruction since the inclusion of music as a subject of public school curriculum in the early part of the 19<sup>th</sup> century. In fact, the first foundations of the technical knowledge of music had already been laid by the *singing school* movement. That movement refers to classes that were organized in communities where people desired to learn and read notated music, so that church singing, which had deteriorated dramatically by the early 1800s, could be improved (Birge, 1928). Singing schools were either sponsored by specific churches for their members, called *Congregational schools*, or by the instructors themselves (Silverman, 1976). The singing schools started in the beginning of the 18<sup>th</sup> century and were very popular, rapidly spreading throughout the colonies, especially in rural areas (Adkins, 2003). As a result, they helped to establish a

rich vocal tradition in many communities: they sparked the formation of choirs that performed not only in church, but also for other public assemblies, sacred and secular, like funerals, dedications, ordinations, celebrations, and festivities. Perhaps not surprisingly, when music was included in public schools the popular singing school model, with its emphasis on music reading and singing, was followed. (Mark, 1978). Vocal instruction dominated the music curricula of many states (samples of which can be seen in Keene, 1982). Even the very first public school music program, established in Boston in 1838 under the supervision of Lowell Mason, was based on vocal instruction (Pemberton, 1971). In addition, the first music textbooks developed for classroom use (such as L. Emerson's *Golden Wreath*, R. Loury's *Bright Jewels*, H. Palmer's *Song Queen*, L. Mason's *Carmina Sacra*, L.W. Mason's *National Music Course*, and H. Holts' *Normal Music Course*) only contained anthologies of notated songs and hymns, as in the case of the tune books, which were used at singing schools (Avery, 2001).

Music reading and singing also formed the core curriculum of public school teachers' education during the 19<sup>th</sup> century. Reviewing the curricula of *normal schools*, which the majority of teachers attended, Keene (1982) affirms that vocal music, solo singing and music literature were offered almost every semester, whereas instrumental music could only be taken as an elective. Similarly, Goodman (1982) points out that vocal instruction prevailed in the curricula of musical institutes sponsored by music publishing companies during the 1890s, such as those sponsored by the American Book Company, Silver Burdett and Company, C.C. Birchard and the Ginn Corporation. As a result, it is possible that the majority of the teachers at that time favored and incorporated

singing into their everyday instruction. It must be also noted that, until the 1880s, school teachers did not receive music instruction. Specialized programs in music education did not appear until almost fifty years later (Verrastro & Leglar, 1992). It is probable, therefore, that due to a lack of formal music instruction, teachers prior to the 1880s might have taught music the way *they* had been taught, that is, by singing.

Music listening began to be taught systematically in public schools at the very end of the 19<sup>th</sup> century as a result of three main factors: (a) the society's newfound interest in music appreciation, (b) several inspired teachers' efforts to include music listening in their lessons and, perhaps most importantly, (c) the invention of devices allowing for sound reproduction.

During the 18<sup>th</sup> century there were several efforts to aid the concert-going public in better understanding the composer's and performer's art. The first such efforts for public music appreciation took place in Europe with what Dunham defines as *lecture-recitals* (Dunham, 1961, p. 1). The latter, as the name implies, were lectures on the nature of a particular piece of music, followed by either a demonstration of the music at the piano or a concert. Such lectures made their debut in Germany as early as 1824, when Hans-Georg Nageli toured several cities giving such lectures, which he later published (Marretta-Schar, 2007). John Curwen followed Nageli's example in England during the 1870s (Colles, Jones, & Rainbow, 2007). At the same time, across the Atlantic, Professor John Knowles Paine gave lectures on music appreciation at Harvard University starting in 1876 (Roberts & Schmidt, 2007), and during the 1880s Thomas Whitney Surette presented many lectures in music, illustrating his points to "people of all sorts and

conditions in villages, towns, and cities, at universities, at working men's centres, at schools, convents, and other institutions" (Surette, 1906, p. 109), usually using a small ensemble (Carpenter, 1901).

As the general public's interest towards music appreciation grew, several books regarding music listening for the general public came into circulation. Although such books were published in Europe much earlier (e.g., Nageli's lectures were published in 1826, while Francois-Joseph Fetis' *La musique mise à la portée de tout le monde*, [Music for everyone] was published in 1830), it was not until the 1880s that they made their appearance in North America. The first such publication, published in 1885, was *How to Understand Music* by William Smythe Babcock Matthews, which was intended to be used for his piano studio, following the example of Riddley Prentice's *The Musician*, published in London two years earlier. From 1890 to 1910 more music appreciation books were published and widely circulated throughout North America (Dunham, 1961, provides a comprehensive lists of these publications). The authors of such books are characterized by the British music historian Percy Scholes as pioneers "of a new branch of education, the education of the listener" (Scholes, 1935, p. 6).

Soon, American society's shift toward this new branch of education, which was later called "music appreciation," made its impact in public schools with the efforts of inspired educators. One of the first documented cases of systematic music appreciation teaching is found in Central High School of Springfield, Massachusetts, where Mary Regal developed and taught such a course from 1896 to 1926 (Regal, 1917). At the same time, Will Earhart taught music appreciation at several schools in Richmond, Indiana,

while Francis Elliot Clark was giving a series of ten-minute lectures on music appreciation in high schools in Monmouth, Illinois (Clark, 1901). The list of music teachers offering music appreciation classes during the very early years of the 20<sup>th</sup> century expanded (Rhetts, 1921).

During the late 19<sup>th</sup> century, music teachers and supervisors of music at schools started to collaborate with orchestra directors and organized the first *youth concerts*, which were usually given by local city orchestras to school students who had been prepared for them by their teachers through classroom listening lessons. Among the first documented concerts was the “*Young People’s Matinees*,” a series of 24 concerts given by Theodore Thomas between 1885 and 1886 in New York using his own orchestra. In October of 1891, Walter Damrosch started the series of “*Symphony Concerts for Young People*,” which were held every Saturday afternoon in the recently opened Carnegie Hall with the New York Symphony. (Martin, 1983, p. 175). Soon, music supervisors started to embrace such activities and by the first quarter of the 20<sup>th</sup> century youth concerts were organized in great detail (the example of Mabelle Glenn, Music Supervisor in Kansas City, was a model for the preparation of such concerts according to Holgate, 1965, p. 28).

Despite the efforts of notable music teachers, the lack of sound reproducing devices was, perhaps, the major factor that deterred the development and inclusion of listening in the music curriculum during the 19<sup>th</sup> century. As a matter of fact, prior to the invention of such devices, public school students had limited opportunities to listen to music as a part of a music lesson. That is, they could only do so by attending concerts (which were essentially available only in select urban areas), by performing the music

themselves (such as the example of Francis Elliot Clark's lessons) or by listening to their teacher play the piano (if there was one available in the school and if the teacher had the pertinent performance and arrangement skills, like the example of Mary Regal). This situation changed with the invention of devices that could easily and economically reproduce sound: the player piano and the phonograph.

### **THE PLAYER PIANO**

The player piano was the first commercially successful mechanical device that reproduced musical sound and its impact on American society (and therefore, education) was extensive. Many music teachers and supervisors of music adopted it and used it in their music classes, thus establishing music listening as an important activity in their daily lessons. The player piano industry further contributed to the new device's use in schools by publishing the first listening materials for classroom use.

### **The Development of the Player Piano**

The invention of the player piano cannot be attributed to a single individual, as Harvey Roehl, a notable piano historian, points out (Roehl, 1961). Several pioneers in the field of piano making conceived similar ideas independently and put them into action by designing and making pertinent devices at about the same time. In fact, automated music instruments had been invented and used since the Renaissance (Ord-Hume, 1970, lists several such devices dated since the 1600s). Still, the first patented mechanical piano player that operated on pneumatic principles, thus paving the groundwork for the development of such mechanical instruments, was the *Pianista*, invented and patented by

Frenchman Napoleon Fourneaux in 1863 (Parakilas, 1999). The device was a cabinet that was positioned in front of an ordinary piano, so that its set of wooden “fingers” were placed over the piano’s keys. Inside, there was a mechanism in which a vacuum, operated by a handle, released air through a roll of punched paper, thus activating the device’s fingers that played the keyboard of the ordinary piano.

The American public first saw the *Pianista* at the Philadelphia Exposition in 1876, and soon several individuals began developing their own mechanical pianos. Their efforts have been recorded by Alfred Dolge in his monumental work, *Pianos and Their Makers*, published for the first time in 1911, then reissued in 1913 and later in 1972 (Dolge, 1972). Among the first such American inventors were Professor Merritt Gally of New York, who patented a device similar to Fourneaux’s and called it *The Autophone* (“The Autophone,” 1879). William D. Parker of Meriden, Connecticut patented his designs in 1891 and invented the first commercially successful cabinet-style player piano, the *Angelus Orchestral*, which was put into production by Wilcox & White Company. Parker also filed for a patent with Edward H. White for a piano player that contained reeds and could be operated as an automatic reed organ as well, while Melville Clark introduced his *Apollo* player, the first mechanical player to cover all 88 keys of the piano (previous piano players had only 65 fingers). Eventually, there were numerous patents that had been granted for improvements in player mechanisms, while a plethora of different piano players were put on the market, mostly by small companies. Names like *Aerial Pianos*, the *Simplex*, the *Harmonist*, the *Peerless*, the *Phonola*, the *Dea*, and the

*Paragon* were frequently featured in advertisements during the first decade of the 20<sup>th</sup> century.

The *Pianola*, however, was the invention that set the course for mechanical piano players. Dolge points out that, “before the advent of ‘Pianola’ there was neither competition nor encouragement from the piano trade” (Dolge, 1972, p. 328). Its inventor, Edwin Scott Votey, designed a mechanism that sounded much more realistic than its rivals, since even the prototype “embodied the flexible, elastic touch and the varying degrees of wind pressure that made the contrasting dynamic, the basic principles upon which the success of the Pianola was based” (Ord-Hume, 1984, p. 26). This flexibility drew the attention of William and Harry Tremaine, the father and son who were successively the presidents of the Aeolian Company of New York. The company bought the rights to manufacture and distribute the pianolas and soon, the device was pushed by the most aggressive advertising campaign, which “stunned the old-timers in the piano trade” (Dolge, 1972, p. 330): the “instrument” appeared almost everywhere, from ordinary pamphlets and posters, to newspapers, For example, there are literally hundreds of such advertisements in *The New York Times* at the beginning of the 20<sup>th</sup> century and magazines (e.g. a 1902 edition of *Cosmopolitan*, in an article spanning four color pages, a kind of an advertisement that had not been conceived before that time).

This advertising, and the *Pianola*’s technological features, soon started to pay off for the Aeolian Company. Although *Pianolas* were much more expensive than the other similar devices (Bowers, 1967, points out that they cost \$250, while the average price of the 65-note piano players manufactured by other companies was between \$50 to \$100),

Aeolian's sales were always in rise. Dolge, for example, points out that "the demand for their [Aeolian's] players has always been ahead of their capacity to supply, and artists of the highest standing are praising the dominant features which distinguish this instrument from many others" (Dolge, 1972, p. 333). As a result, according to figures calculated by the *Pierce Piano Atlas*, (2003), the Aeolian Company employed over five thousand people with a capital of more than fifteen million dollars, had twelve factories, expanded overseers, and, by 1910, "occupie[d] the proud position of being the largest manufacturer of musical instruments in the world" (Dolge, 1913, p. 32). Finally, the *Pianola's* impact on the player piano market can be shown by a statement by Roehl who wrote that "while this was a trade name, copyrighted and registered by one company, the name caught on so well that for all practical purposes it became a generic term applied to all types of piano players" (Roehl, 1961, p. 9).

Soon, boosted by its commercial success, the player piano industry made significant improvements to their products. First, it was apparent from the beginning that the piano player, being a device separate from the piano itself, "was at best a cumbersome contraption, tricky to position at the keyboard and with the ever-present risk of damage to the slender, felt-covered fingers at the back" (Ord-Hume, 1984, p. 27). The solution to the problem was to place the player mechanism inside an ordinary piano so that the latter could be played both manually and automatically. The first such pneumatic self-playing piano was constructed by R.W. Pain in 1880, and it could play only 39 notes (Dolge, 1972). Such interior player pianos often faced mechanical problems due to their

delicate mechanism, but, until 1909, the full-note, self playing pianos dominated the market, replacing the cabinet-style ones (Roell, 1989).

Secondly, by 1910 all player pianos were constructed with the ability to play all 88 notes of the piano, replacing the older 65-note models. Similarly, at an industry conference held in Buffalo in 1908, a generic standard of the piano roll was agreed upon, thus ending the chaotic flood of different rolls in the market, which in many cases were compatible only with one piano player model.

Thirdly, player piano manufacturers began to emphasize the expressive abilities of ordinary piano playing: phrasing and dynamics. The first devices did not offer such abilities and resulted in mechanical-style performances, as evidence by Whiting's statement that "the early models of the player had the exuberant spirits of a machine gun" (Whiting, 1919, p. 830). Soon, effects like dynamics, pedaling, theme expression and phrasing were assigned to small levers, which could be used by the performer independently of the musical playing action to achieve the desired expression. Eventually, such expressions were included in the roll itself, so that the player piano could *reproduce* the original performance of the artist in order to make the master roll. The *Welte-Mignon* was the first cabinet-style piano player that could reproduce the "full virtuosity of the artist—the nuances, the phrasing, and all the shadings" (Roell, 1989, p. 42), and it entered the American market from the German manufacturing company of M. Welte and Söhne in 1907. Notably, Welte recorded performances by all the great artists of the day, including Grieg, Debussy, Strauss, Respighi, Bartok, Leschetitzky, and Paderewski. The American manufacturers, perhaps taking advantage of the fact that

Welte's assets were seized during the First World War, developed their own versions of advanced player pianos. These devices were known as *reproducing pianos* (originally a trademark name of Aeolian which became the generic term applied to all similar piano players, as was the case with the *Pianola*.) The first American reproducing piano was the *Duo-Art*, introduced by the Aeolian Company in 1913, followed by the *Ampico*, marketed by the American Piano Company of New York in 1916.

Also, according to Roehl (1984) piano rolls could be (and were) published completely error-free, since any recorded performance's mistakes could be easily detected, removed or corrected under the supervision of the artists themselves. In fact, as Sitsky reports, the recording pianists would edit, approve and sign their master rolls before they went into mass production (Sitsky, 1990).

Subsequently, as Roell points out, "until the advent of the high fidelity phonograph and magnetic tape recorder, there existed no more advanced technology for recording piano music than the reproducing piano" (Roell, 1989, p. 44). Similarly, *The Piano and Organ Purchaser's Guide for 1919* states that "the reproducing piano is the highest expression of the artistic and mechanical genius of the musical instrument industries" and that "for fidelity in reproduction the reproducing piano has no equal" (reprinted in Roehl, 1961, p. 70).

### **The Impact of Player Piano on American Society**

The impact of the player piano on American society was phenomenal, as can be seen from the many different instruments produced and from their sales. According to

Ehrlich, by 1904 there were more than forty different kinds of automatic pianos on the American market (Ehrlich, 1990). Also, piano manufacturers began making automatic instruments that could play not only pianos, but other instruments as well. Such instruments, according to Hitchcock, were the *Automatic Harp*, which was advertised as “especially desirable where a piano cannot be used, on account of its being too loud,” the *Violano-Virtuoso*, which played a violin with a piano accompaniment, the *Banjarahchestra*, which could play the banjo with support from piano, triangle, drums, tambourine and castanets, and several *Orchestrions*, which were mechanical pipe organs capable of also playing more instruments (Hitchcock, 1988). Bowers (1967) and Roehl (1961) offer a thorough review of these instruments, which were intended for both private and commercial use, since they could be coin-operated (Roehl, 1961, points out that by the middle 1920s, coin pianos were *everywhere*.)

Sales of mechanical pianos in the United States were astonishing—so much so that Lewis Graham, a later connoisseur and collector, claimed that “between 1895 and 1912 there were more player pianos in the United States than bathtubs” (Robertson, 1966, p. 41). According to figures reported by the United States Department of Commerce, their sales grew to exceed those of conventional instruments during the first quarter of the 20<sup>th</sup> century. These figures are shown in Figure 1, which was constructed using information from several sources (Ehrlich, 1990; *Historical Statistics of the United States, Colonial times to 1970*, 1976; Roehl, 1961).

Year	Instruments produced (in thousands)	
	Ordinary Pianos	Player Pianos
1900	171	6
1909	319	45
1914	231	95
1919	133	209
1921	99	122
1923	142	206
1925	168	168
1927	123	95
1929	94	37
1931	49	2
1935	61	0.5

*Figure 1: Production of Conventional and Mechanical Pianos in the United States*

Ehrlich (1990) has suggested several reasons for mechanical instruments' remarkable success in the United States. For instance, he claims that American society has consistently embraced novelty and, hence, embraced player pianos since they were something new and highly mechanical. Also, the conventional piano was a pastime for females, while the player piano appealed directly to men, something that was frequently suggested by advertisements in which successful businessmen are seated at player pianos performing to ladies in evening dresses. Finally, piano sales might have been boosted by the fact that the public was bombarded not only with advertisements, but also with discussions and papers published in magazines and newspapers addressing various issues concerning player pianos, such as the mechanical aspects of the various instruments and the benefits they provided (i.e. "Discriminating Player-Pianos," 1913; Piano-Players and Player-Pianos," 1913; Piano-Players, Human and Mechanical," 1913).

## **The Uses of Player Pianos in Education**

The idea of using player pianos in education, particularly in music and music appreciation lessons, was conceived by music educators as soon as the instruments appeared on the market. As a matter of fact, during his previously mentioned music appreciation lectures, which took place from the 1890s until 1906, Thomas Surette sometimes used the *Pianola* as a substitute for his personal performances (Keene, 1982). As music appreciation gained favor in the beginning of the 20<sup>th</sup> century, the player piano was considered an indispensable tool for music appreciation lessons, as Professor Ada Fleming suggested: “The need of a mechanical player for this work [teaching music appreciation] goes without saying. The mechanical player doesn’t mean mechanical interpretation; it means the presentation of otherwise impossible selections; it means perfect technique—and nothing else worthy; it means unlimited repetition if desired” (Fleming, 1908, p. 28). Likewise, Caroline Smith used the player piano while teaching a music appreciation course in State Normal School of Winona, Minnesota in 1907 (C. V. Smith, 1907). As player pianos spread in schools, new educational materials were issued, and the instruments were used in more systematic ways.

### ***Educational Material Using Player Pianos***

The educational uses of player pianos became available with the technological improvements of the piano rolls. Quite early in their history, in 1906, rolls with songs began to be printed with the lyrics stenciled along one side, Ord-Hume (1984) reports. As the roll was rotating, the corresponding lyrics were displayed. This innovation was so successful that by 1909 most companies always included the lyrics on song rolls. Soon, as buttons and levers enabling the operator to control the various expressive features of the piano player were attached to the instruments, companies started to write instructions

on the rolls using both text and pictures, letting the operator know how to effectively perform the music (e.g., there were dynamic and tempo marks and instructions as to which buttons and levers to manipulate). Thus, “the serious player-piano operator could produce a perfect interpretation from an ordinary roll, given a good piano and the desire to master it and to learn the roll” (Ord-Hume, 1984, p. 37). Soon, the rolls’ capacity to display text and pictures along with music was used for educational purposes.

The Aeolian Company was the first company in the player piano industry to form an educational department to promote the use of their products in schools. As early as 1908, Aeolian issued a whole series of courses for use in secondary schools and colleges called *The New Musical Educational Courses*. In his remarkable research, Dunham reports that the materials included not only piano rolls, which had special commentary written along the sides, but also lesson pamphlets and the corresponding sheet music or miniature scores. By 1908 there were nine available courses, covering a large gamut of music, such as Chopin’s piano works, Beethoven’s symphonies and ensemble works, Wagner’s operas, program music and selected works by celebrated composers (Dunham, 1961).

Aeolian published more rolls with extra information, called *Audiographic* rolls. Sitsky (1990) reports that these rolls contained pictures, biographical information, program notes, and analysis of the music the roll was playing. The idea was first developed by the Aeolian Company in England during the 1920s, and such rolls were also made in America a few years later. In order to produce the series, Aeolian used the services of prominent music educators and pianists like Walter Damrosch, Percy Grainger, Ernest Newman, Landon Ronald, Percy Scholes, Franz Schreker, Siegfried Wagner, Charles Marie Widor and Henry Wood. The rolls were informally divided into a number of categories. First, biographical information about the composer was included

before the music on some rolls, which were called *biographical rolls*. Stravinsky, for instance, recorded the complete *Firebird Ballet* on six rolls and each of those rolls contained a brief biography of the composer. Notably, on some biographical rolls the first eight feet of paper were indented to be read prior to producing any music at all (Ord-Hume, 1984). Secondly, *analytical* rolls had a running commentary throughout the roll, and the player could stop the roll at any time in order to read the comments. Grieg's *Piano Concerto* and Debussy's *L'Isle Joyeux* were published in this piano roll format. Thirdly, *annotated* rolls contained veritable music appreciation courses printed on each roll and were intended to be used in the lesson environment. On these rolls, brief descriptions of the music were shown as the music was playing, in the form of text that appeared on the side of the roll. Eugene Goossens and Cyril Scott performed their music for such rolls. Finally, *Children's Rolls* contained not only descriptions, but also musical notation and pictures. Examples of these include Schumann's *Album for the Young*, as well as "Musical Settings to Story Poems for Recitation," played by Phyllis Fergus. Other rolls in this category contained games and dances, like the series of rolls composed by Jessie L. Gaynor.

Aeolian published another educational series which included all the different kinds of Audiographic rolls described above. The series, entitled *The World's Music—A New Aeolian Library of Illustrated and Descriptive "Duo-Art" and "Pianola" Rolls*, was edited by Percy Scholes. The rolls in this series were issued as *Biographical Rolls*, *Analytical Rolls*, *Running Commentary Rolls* and *Rolls with Explanatory Introduction*. Some rolls incorporated elements of two or more categories. The rolls, briefly described by Ord-Hume (1984), gave concise details about the composer and the music, while statements describing the music currently playing were displayed along with music. These were called Annotated Rolls and "Aeolians," as Ord-Hume refers to the people of

the Aeolian company, “were certainly the most enterprising of the roll makers” (Ord-Hume, 1970, p. 41).

Finally, it is notable that Aeolian promoted the educational use of their products (and thus, of the player piano in general) by organizing educational meetings with important music educators. One such meeting was that of the *German Honorary Committee for the Promotion of Musical Studies, by Means of the Duo-Art and Pianola* (Ord-Hume, 1970). The committee’s first meeting took place in Berlin in 1927 and its objectives were (a) to expand the educational use of the *Duo-Art* and the *Pianola* instruments and rolls (b) to make suggestions for technical improvements on the music available through the Aeolian catalog and (c) to recommend a selection of new compositions to be recorded by the company. Musical personalities that participated in the meeting included Max Bauer, Siegfried Wagner, Bruno Walter, and Percy Scholes. The latter presented his *World’s Music* series and his book, *The Appreciation of Music by Means of the Pianola and Duo-Art*, which was published the previous year.

### ***A Reconstruction of a Listening Session, Using an Annotated Roll from the World’s Music Series***

An example of an Annotated Roll from Schole’ World’s Music series will be presented in order to reconstruct a typical listening session. The roll was loaned to the author of the current study by Mr. Kenneth Caswell, retired director of the Austin Symphony Orchestra and player piano connoisseur, who has published numerous recordings of historical performances on player pianos by famous composers, such as Debussy, Ravel, Granados, Scriabin, Respighi, and Casella. The roll is a performance of

Chopin's Polonaise in A flat, Opus 53 (the "Heroic"), and it contains a Listener's Introduction and Running Commentary.

In a 1920's classroom, the teacher would attach the roll on the *Duo-Art* player piano, start the rotor mechanism, and the students would watch the roll slowly unfolding. For the first few minutes, no music is heard, as students see the title of the work, a picture of the performer (Josef Hofmann), some information regarding the World's Music series, followed by a picture of Chopin (see Figure 2).

Then, the Listener's Introduction section follows, consisting of paragraphs of text, accompanied by two pictures. The first paragraph is entitled "How the Polonaise was Danced," and the teacher might stop the roll in order to read the following text to the students:

The Polonaise, unlike the Mazurka, was an aristocratic dance. It took the form of a processional march, and generally opened the ball. It was led by the most distinguished person present, whose privilege it was to conduct the whole file of the dancers or to break it up. It became customary for the leader to end the Polonaise at a certain point, when all the cavaliers would leave the ladies alone in the middle. These would then choose new partners and the dance would continue. In the days when the Polonaise was something more than a mere piece of etiquette it was danced with a marvelous ability and a gravity full of nobleness; the dancer making gliding steps, with energy but without skips. The pageantry and colour of the scene were enhanced by the brilliant military dress of the men, whose

sabres and tucked-up coat-sleeves were “distinctive signs of a free man and a warlike citizen”. The Polonaise in A Flat, known as the “Heroic”, seems to suggest the medieval courts of Poland. The comments which accompany the music on this roll suggest an entirely personal and unofficial interpretation, which may help to stimulate the imagination of the listener, and call up the brilliance of the scene.

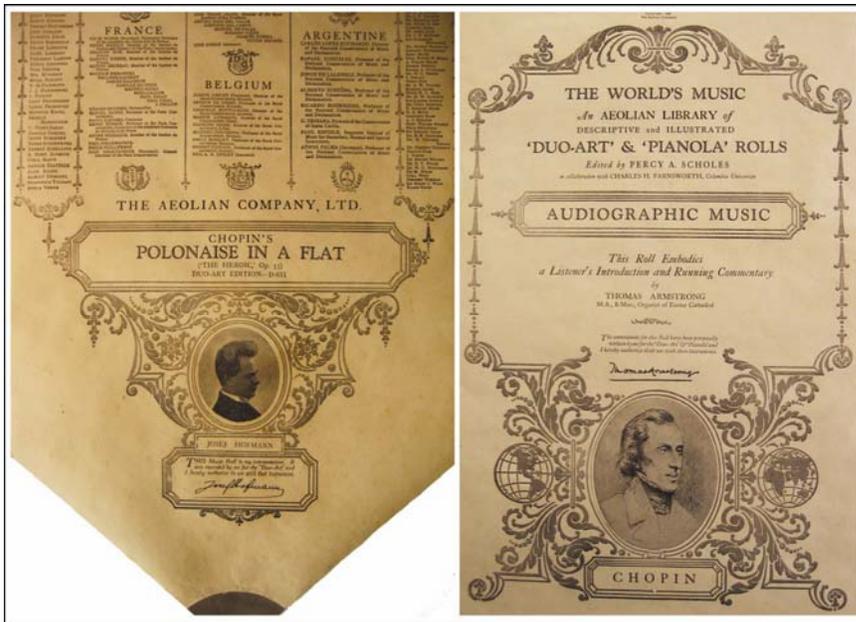


Figure 2: Photographs of the beginning of Aeolian’s Annotated Roll, with number D-671

The second paragraph is entitled “The Spirit of Poland in Music” and provides information about Chopin’s Mazurkas and Polonaises:

Passionately loving his country, proud of its sturdy independence and thrilled by the history of its glorious struggles against oppression, Chopin remained a true Pole, for all his residence in Paris. The national dances of his country inspired some of his finest work. His Mazurkas and

Polonaises, while preserving the dance rhythms, are more than mere tunes for dancing. Some of them, especially of the Polonaises, are long heroic poems, in which the composer's imagination burns at white heat: they give us glowing pictures of Poland, now under the heel of the oppressor, now triumphant. There is a story to the effect that the playing of one of his Polonaises one night raised Chopin to such a pitch of excitement that he had a strange, uncanny vision. Just as he stopped playing, the door of his room opened and a long train of Polish knights and ladies entered and filed past him. So real was the phantom procession to his heated imagination that he rushed from the room and dared not return to it during the whole night.

After reading the second paragraph, the music would begin, displaying the Running Commentary. When the music is played, the roll displays a continuous flow of several items, rolling from the upper side of the roll to the lower side. First, in the middle section of the roll, one can see the holes that the player piano mechanism utilizes in order to produce the notes. The horizontal position of the holes depicts the key to be pressed, while the length of the hole shows the length of time the key is depressed (holes punched at the far sides of the roll indicate the pedal and velocity with which the key is pressed, but, otherwise, are not very useful from a music classroom teacher's perspective). Secondly, a dotted red line displayed along the holes indicates the dynamics. As a result, the phrasings can be easily tracked. Finally, at the right side of the holes, text is displayed in short segments (this is the Running Commentary). The latter are connected with a line, in order to facilitate the reading of the story, which is unveiled as the music is played. The beginning of the Running Commentary is shown in Figure 3.

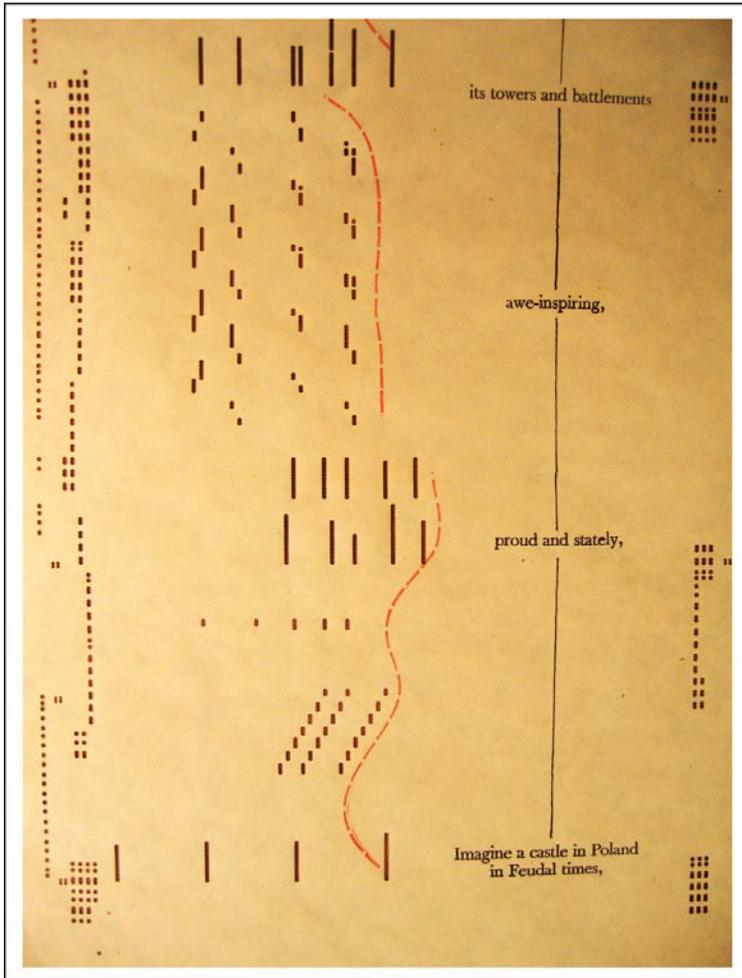


Figure 3. A Photograph of the Beginning Section of the Roll's Running Commentary

The full text of the "Polonaise in A Flat" Running Commentary reads as follows:  
Imagine a castle in Poland in feudal times, proud and stately, awe-inspiring, its towers and battlements, overtopping deep woods. The great hall is ablaze with light, a scene of pomp and splendour, as the guests assemble, swords clanking, and jewels sparkling. The band strikes up a stirring Polonaise. All is bustle and movement, as the dancers take their partners, and, with proud gaiety, fall in behind the leader. A flourish from

the band, and all are ready to begin the dance. The first dancers step off with many a sweeping gesture. The others follow in brilliant procession. In pomp and state they march round the hall, the embodiment of dignity and racial pride, swords and jewels flashing in torches' glare. The first part of the dance ends. At a signal from the leader, the procession breaks up. The men draw aside. The ladies are left alone in the middle to choose new partners. Now all are ready again and the dance is resumed. The procession moves forward, the men bowing with lordly air, the ladies curtsying, as the march proceeds in brilliant, dazzling splendour once more round the hall till the figure is complete. Suddenly the gaiety is arrested. All stop to listen! The sound of distant horsemen! Martial music is faintly heard gradually approaching. Trumpets sounds, muffled by the trees. A glimpse of a cavalcade. Gradually it approaches. It reaches a clearing in the forest and bursts into view for a moment. Excitement and suspense are everywhere. Friend or foe? They are lost to sight again. On they come! Louder grows the martial music; trumpets sounding, nearer and nearer! Now they are clear of the trees! In full view! A dazzling array, they reach the castle gates. They are seen to be friends, eagerly welcomed. The martial rhythm blends with the dance strains. The whole troop is now in the castle courtyard, which is gay with music. Soon, however, it comes to an end. This excitement over, quiet strains issue from the castle, and the dancers set out through the gardens. We hear, in imagination, their whispering, as they move to and fro, their laughter mingling with airy nothings, rising and falling as they move along the garden walks. Their voices sink to murmured confidences in the quiet garden places. The

music grows fainter and fainter. Then, rounding a corner, they approach another entrance, the music swelling as they reach the hall again. On with the dance! The new arrivals join in and add to the brilliance of the scene. The grace and charm of the ladies and the brilliant garb of the Knights make a gorgeous picture, and the dance becomes more and still more animated in a climax of intoxicating rhythm till it ends in a blaze of triumph.

As it can be seen from the roll described above, the educational piano rolls were unique in many ways. First, they were among the first educational materials that were specifically developed to help students focus on the music as it is played. That is achieved by presenting various musical elements as they occur during the performance, such as melodic contour and phrasings: the melody is depicted by the holes on the scroll; the phrasings are shown by the continuous red line (each line segment represents a different phrase). Secondly, the publishers of the scrolls employed a new educational technique, the use of a fictional story to describe absolute music. The story is such that it corresponds with music as it unfolds during the performance, thus sustaining the students' attention to the music. When a loud passage is heard, for example, short exclamations are used (e.g. "*All stop to listen! The sound of distant horsemen!*"), or when the main theme returns, the story says that "the dance is resumed". Finally, all the information on the music performance (melodic contour, dynamics, phrasings and the corresponding story) are presented at the same time as they occur. Consecutively, the annotated rolls constitute the first educational aids that *guide* the students' attention to the various musical elements as they take place during the performance. The next occurrence of listening guides which present the musical information in such a dynamic way took

place more than half a century later, with the development of computers and multimedia (which will be presented in the fourth chapter of the current study).

### *The use of player pianos in schools*

Despite their overall successful sales, there are no records indicating the actual number of player pianos that were purchased by schools. It can be presumed, though, that they were widely used, especially in urban areas, as seen from papers and reports by music teachers and supervisors. Among the first such reports is Alice Clement's account from 1906, which indicates that two schools in New York raised funds to purchase player pianos (Clement, 1906). Edward Birge, supervisor of music in Indianapolis reported that nine schools owned player pianos in 1909 (Birge, 1909). The next year he stated that 14 schools had them, and he expected that 24 schools would be equipped with mechanical pianos by the following year ("Discussion following paper on 'The Automatic Player in Public Schools', by Mr. Thompson," 1910). Since these reports indicate that player piano sales to schools were rising, it is possible that by 1910 many schools had them. In addition, it seems that the player piano made its way into higher education; an Aeolian advertisement in 1908 claims that the *Pianola* was used by professors at institutions like Harvard University, Vassar College, The University of Michigan, Oberlin College, Columbia University and Amherst College ("The Pianola in the School," 1908).

Teachers used the mechanical instruments in various ways. Birge (1909) reported that 20-minute recitals with player pianos were given twice a week in front of all the students of the Indianapolis schools that owned the device. The titles and the composers were written on the blackboard, and once a month a short memory contest took place; children had to identify the pieces and the composer by listening to excerpts of music played on the player piano. Such activities also took place under the direction of Charles

Tremaine, a music teacher in New Jersey, who offered a prize to the children who could name the composer and the piece played by the mechanical piano (Charles M. Tremaine, 1919). Osbourne McConathy used player pianos for his three-year music appreciation course, which he started in 1906 at his schools in Chelsea, Massachusetts. Class work required students to listen to compositions played on the player piano after school (Platt, 1973).

### **The Benefits of Player Piano as Seen by Music Educators**

The player piano, being the first commercially available device offering music reproduction, was quickly embraced by music educators, who appraised its benefits in articles published in newspapers and professional journals as well as in the annual meetings and conferences organized by music teachers and supervisors. The advantages of the new devices for the teaching of music and especially music appreciation, as cited by many educators at the beginning of the twentieth century, will be presented in the current section.

First and foremost, the player piano enabled the teaching of music appreciation in every school that owned one. Before its advent, as previously mentioned, there were limited, expensive and time-consuming opportunities for public school students to listen to music. Birge mentions that teachers wishing to incorporate music listening into their lessons needed either to play the desired piece themselves on the piano, have the students perform it, obtain the assistance of musicians from outside of the school (Birge, 1922a), or, according to Lewis (1908), organize school visits to concerts. The player piano

overcame these obstacles and made it possible for every school student to hear music, thus establishing music listening as an important part of music lessons. As a result, by 1910, many public schools were offering elective courses in music appreciation (Birge, 1922a).

Secondly, the mechanical players allowed an appreciation of piano, organ, and even orchestral literature, thus expanding the schools' music programs, which had been limited to vocal music (Roell, 1989). Birge, in his capacity as the Director of School Music in Indianapolis, states that "the player piano especially is capable of giving not only adequate interpretation of piano literature, but also of presenting a fairly good idea of orchestral music and of all other instrumental forms" (Birge, 1909). George Dickinson, Professor of Music at Vassar College, suggests that not only orchestral but organ works can be "reached adequately through the player pipe organ," mentioning that there was an "alluring" array of rolls available from Bach to Strauss (Dickinson, 1918, p. 201). His colleague at Vassar College, George Gow, points out that piano reductions of orchestral works, played by mechanical players, could adequately present the form of a piece. Gow, using an Aeolian Organ transcription of Mozart's G minor Symphony as an example, remarks that "the clarity of outline, the firm, incisive upbuilding of climax with a minimum of material, the charm of recurrent mood and of reticent ending – these come before us in organ tones with something of the same conviction as in the orchestra" (Gow, 1910, p. 86).

The player piano also enabled students to familiarize themselves with the works of famous composers, thus developing a deep musical understanding. This possibility is

highly emphasized by John Thompson, Principal at Slate Normal School in Fitchburg, Massachusetts:

As one with literature and for a much longer time with sculpture and painting, until very recently this [understanding and loving the works of the art] has been practically impossible with music. The pneumatic player which is being so rapidly improved makes it possible, however, today to familiarize public school pupils with the works of the great masters of music, to make the study of these works a part of their daily living, so to fill their minds and hearts with them that they will be stimulated and inspired to hear them at every possible opportunity and to desire to have them produced in the most perfect manner. (Thompson, 1910, p. 6).

Similarly, Henry Eames, Professor of Music at the Cosmopolitan School of Music in Chicago, points out that the player piano allowed pupils to hear renowned artists “interpret the classics where before their very existence was unknown” (Eames, 1916, p. 95). Also, Lewis suggests that the player piano “established the possibility of consistently developing power to think music” (Lewis, 1908, p. 387).

Long-term benefits elicited by player pianos were also cited by some educators. Gow (1910) emphasizes the fact that prolonged listening to rolls has a profound effect on students, improving their musical taste. The same idea is also suggested by an article in *The Outlook*, which in 1917 stated that player piano manufacturers “raise the level of public’s musical taste, to help them distinguish good music from mere ragtime” (cited in

Roell, 1989, p. 39). Charles Rice, Supervisor of Music in Worcester, Massachusetts, also emphasized the contribution of the player piano to developing musical taste by stating that “the so-called mechanical player piano is destined to do more toward popularizing good music to the country over than the three great orchestras of Chicago, New York, and Boston combined” (cited in Roehl, 1961). Along the same lines, Birge observed that the use of the player piano in class resulted in “the desire on the part of the children to not only hear but see the artists who are performing music” (Birge, 1922a, p. 191), an opinion also shared by Eames (1916). P. A. Browne, Professor at Stowe School, suggested that the player piano “affords excellent scope for a study of interpretation,” since students can listen to and compare the performance of the same piece by different artists (Browne, 1927, p. 868). He suggested that students should be able to explain why they prefer a particular performance and also be able to recreate it using the player piano, activities that would further reinforce their musical and aesthetic understanding. Thus, he concludes, “happy the music master whose school possesses such a potent ally [a player piano] in his work” (Browne, 1927, p. 868).

The player piano was welcomed by studio piano teachers as well. Maguire suggested that students can learn to express themselves musically with the help of the player piano (Maguire, 1914). Also, Borchard emphasized the importance of piano player in changing the attitudes of students towards studying music:

The significant fact about the player-piano is that it does not limit its work to cultivating the desire to hear music, but is equally effective in stimulating the desire to produce it. The child soon wants to master the

technique and create the music himself. It is the instinct to do which, once awakened, is the teacher's most potent ally. It means that the child will begin his lessons voluntarily, not simply under parental compulsion. (Borchard, 1919, p. 18).

### **Detrimental Uses of Player Pianos in Education**

Despite the euphoria player pianos brought to music educators, there were many scholars who criticized them, both in terms of their limited abilities and their poor usage by schools. In his article, "The Pros and Cons of the Mechanical Player," George Gow traces a series of problems leading to ineffective player-piano performances: (a) the melody could not be heard easily, (b) the rhythm is monotonous, (c) due to the steady pace, the player piano fails to produce phrasings, (d) dynamics are not successfully employed, and (e) musical color is absent. "In brief", Gow summarizes, "the manipulated playing-machine is at present too crude to give with exactitude any of the finer distinctions, save those of pitch, that enter into a work of musical art" (Gow, 1910, p. 84). Similarly, Charles Needham, the president of the Music Teachers National Association, expressed his concerns in his address to the association's 30<sup>th</sup> annual convention in 1908:

I grant that the inventions are wonderful—as inventions. Perhaps in technique some of them are fine, excelling the human hand. I do not know, but I have yet to hear machine-made music which moves me as does the music which comes directly from human hand or throat. You can

photograph the human face, but not the soul; you may copy sounds, but not always the interpretation (Needham, 1908, p. 10).

It must be noted, however, that both Gow's and Needham's concerns had been expressed prior to the arrival of the reproducing pianos – pianos that could reproduce the exact performance of the artist that was used to produce the roll, as described in a previous section of the current subject.

Furthermore, there were instances of improper use of player pianos by schools. Frank Beach, Professor at the State Teachers College, reported that in many school music programs in Kansas player pianos were used as a “source of entertainment or revenue; only in rare cases was a definitely organized course in the appreciation of music in operation, or regular lessons in the lower grades conducted with a specific aim of developing intelligent listeners” (Beach, 1912, p. 8). Music Supervisor Edward Bailey Birge also testified that all player pianos in his schools were purchased by using money from fundraising activities, since “the Board of Education regard them as objects of amusement” (“Discussion following paper on 'The Automatic Player in Public Schools', by Mr. Thompson," 1910, p. 12).

Concerns were also elicited from studio piano teachers. Eames expressed his concerns about the consequences the player piano brings towards the study of applied music, since he believed that player pianos “did deter thousands from the study of applied music,” and had “discouraging and even destructive effects ... upon the ambition, efforts, and efficiency of children and adults who if not already studying were at least eligible to the teacher's and parent's list” (Eames, 1916, p. 94).

Music educators emphasized the importance of the *effective* use of the player piano in lessons. “Machines are good and necessary,” Helena Maguire concludes in her article addressing beginning teachers, “but we have our work to do, which will be necessary and profitable in proportion as we make it good” (Maguire, 1914, p. 809). Similarly, Eames points out, “Machine-made music wants and needs our intelligent co-operation, quite surely as we to-day, in my judgment, needs theirs,” and adds that “this co-operation requires our time, our thought and our sympathy. It will pay us in results. Machine-made music can and should be a real asset to our studios” (Eames, 1916, p. 96).

### **THE PHONOGRAPH**

Despite their impact on public school music teaching, by 1910 the procurement and use of the player piano in schools gave way to the increasing popularity of a new sound reproducing device: the phonograph. Music educators favored the phonograph over the player piano “because of its portability, economy and its ability to produce examples of both vocal and instrumental music,” as Peter Lutkin, Professor at Northwestern University pointed out in 1911 (Lutkin, 1912, p. 1012). Unlike the player piano, which was generally capable of generating only piano tones, the phonograph was the first invention in history that could reproduce a prerecorded sound. It is generally accepted that this invention altered the course not only of music education, but also that of mankind.

In the current section, the author will investigate the impact of the phonograph on music teaching. First, a brief review of the device’s development will be presented. Then,

a historical profile will be made of the Victor Talking Machine Company, since it was the company's educational department, under the supervision of Francis Elliot Clark, that influenced to a great extent the teaching of music listening in public schools. Finally, the educational materials developed for classroom use will be listed.

### **The Development of the Phonograph**

The conception, invention and development of the phonograph have been thoroughly recorded by many studies during the past century. An examination of the development of the phonograph is beyond the scope of the current research. It is important, however, to present a brief historical review of the device's invention and development in order to place it in its historical context and to better understand its contribution to the music appreciation movement that took place in the first quarter of the 20<sup>th</sup> century.

Various sources of information have been used in order to construct this investigation. First and foremost, historical studies were used to track the history of the phonograph (Cooper, 2003; Gelatt, 1956, 1966, 1977; Kittler, 1999; Klein, 1990; Read, 1976; Rogers, 1931; Welch, 1994; H. L. Wilson, 1926; P. Wilson, 1957) and its successor, the gramophone (Cooper, 2003; Kittler, 1999; Klein, 1990; Rogers, 1931; H. L. Wilson, 1926; P. Wilson, 1957). Other studies that were used refer to the life and work of Thomas Alva Edison, the inventor of the device (Adler, 1990; Baldwin, 1995; Collins, 2002; Dooling, 2005; Israel, 1998; Millard, 1990; Munson, 2005; Steffen, 2005).

### ***The invention of the phonograph***

On December 22, 1877, an article in *Scientific American* described the visit of Thomas Edison to the magazine's offices in New York City:

Mr. Thomas A. Edison recently came into this office, placed a little machine on our desk, turned a crank, and the machine inquired as to our health, asked how we liked the phonograph, informed us that it was very well, and bid us a cordial good night. These remarks were not only perfectly audible to ourselves, but to a dozen or more persons gathered around, and they were produced by the aid of no other mechanism than the simple little contrivance explained and illustrated below. ("The Talking Phonograph," 1877, p. 384)

The phonograph developed as a result of Thomas Edison's work on two other inventions, the telegraph and the telephone, and was invented rather accidentally. In fact, between the summer of 1876 and the spring of 1878, Edison was working on improvements for the telegraph and telephone under a contract with the Western Union Telegraph Company. While working on a carbon transmitter for Alexander Graham Bell's telephone, Edison had to improvise in order to judge the amplitude of the signal coming from the line since he could not trust his deteriorating hearing. Thus, he attached a short needle to the diaphragm of the telephone receiver, which would prick his finger, extending the vibrations of the diaphragm. Then he reasoned that the needle could prick a paper tape as well, thus recording the spoken message in the form of indentations. Such a paper recording could be taken to a central telegraph station and transmitted through the

wires. Thus, he constructed a machine that was able to record spoken vibrations with a needle that made indentations on a piece of tin foil wrapped in a cylinder (he replaced the paper with tin foil since the latter could also be used to reproduce the recording, whereas paper could only be used to record the message). Although the official date of the first successful recording was August 12, 1877, it was not until the following autumn that the phonograph was assembled.

Edison was not the only man concerned with recording sound. Twenty years before his invention, Leon Scott de Martinsville's *phonautograph* was able to record sound. In 1863 the *Electro Magnetic Phonograph*, created by Joseph Fenby, could reproduce inputs from a keyboard that were punched into a paper tape. Four months before Edison's first recording, a paper describing the process of recording and reproducing sounds was submitted to the Academies of Science in Paris by Charles Cros. In fact, the device described by Cros had only minor differences from Edison's phonograph. Magoun suggests that such precedents could explain why Edison's lawyers titled his patent "Improvements on Phonograph or Speaking Machines" (Magoun, 2000).

The phonograph was an instant success, and Edison began exploring the possibilities his invention offered. He established the Edison Speaking Phonograph Company on January 24, 1878, which manufactured and sold phonographs and cylinders. Edison himself also offered possible future uses for the phonograph in his article "The Phonograph and its Future," published in the *North American Review* in June 1878. He suggested that the device could be used at offices, specifically for letter writing, since secretaries could listen repeatedly to the spoken dictation, thus making the services of a

stenographer obsolete. The phonograph could be used to record books, thus helping blind people read, while it could be similarly beneficial for teachers who needed specific instructions to be repeated. Families could create a registry of sayings and reminiscences, and they could also record the last words of dying persons. Similarly, it would be “possible to preserve for future generations the voices ... of our Washingtons, our Lincolns, our Gladstones, etc., and to have them give us their greatest effort in every town and hamlet in the country, upon our holidays” (Edison, 1878, p. 534). Toys and music boxes could have phonographs installed, while clocks could announce the time. Even linguists could benefit through the preservation of precise pronunciations. Finally, the phonograph could be used to reproduce music, not only for entertainment but also for music education. Quoting from Edison,

The phonograph will undoubtedly be literally devoted to music. A song sung on the phonograph is reproduced with marvelous accuracy and power ... As a musical teacher it will be used to enable one to master a new air, the child to form its first songs, to sing him to sleep. (Edison, 1878, p. 533)

### ***Improvements to the phonograph***

Despite its initial success, the phonograph was not improved for almost a decade. As Gelatt points out, it went “into torpid retirement. The tin-foil apparatus had had its day; the public had lost interest; the glorious prophecies were unfulfilled” (Gelatt, 1956, p. 33). In fact, Edison’s device faced significant problems: it required skill to operate the

phonograph, the sound quality was poor, the grooves on the tin-foiled cylinder would wear off after a number of playbacks, and only two minutes of sound could be recorded. Also, Day reports that the cylinders were expensive and were bought mainly for coin-operated machines (Day, 2000). Edison abandoned the development of the phonograph by October 1878, and concentrated on experiments with the incandescent lamp. With him absent from the race, others intervened and proceeded with the development of the marvelous device.

The first significant improvement to the phonograph involved the materials used, both in the device and the cylinder. Chichester A. Bell and Charles S. Tainter presented the *Graphophone* in 1887, which incorporated cardboard coated with wax instead of Edison's tin foil, resulting in sharper, better-defined recordings. Instead of using Edison's metallic needle, the Graphophone employed a loosely mounted stylus, which could be more easily guided by the cylinder. Also, the apparatus ran on an electric motor, thus assuring a constant speed. Edison, having perfected his incandescent lamp, responded by improving his already ten-year-old device (as well as engaging in a stiff patent fight). In 1888 the public was introduced to Edison's *Improved Phonograph*, which had few differences from the Graphophone.

Meanwhile, another inventor was working on the phonograph, and he was about to change the course of the industry. Emile Berliner applied for a patent in 1887 for his *Gramophone*, which differed significantly from the other "talking machines." The Gramophone was the first device to employ disks rather than cylinders. Between 1889 and 1892 the Gramophone met enormous success first in Germany, Berliner's native

country, and later in Europe, where it was manufactured in a miniature version and intended for the novelty gift trade. In 1895 the Berliner Gramophone Company was established to commercially market the Gramophone in America. Two years later, the company released the *Improved Gramophone*, which had an improved motor and a new soundbox. This was the device shown in Francis Barraud's famous painting, *His Master's Voice*, which became the well-known trademark of the company that influenced music appreciation the most: The Victor Talking Machine Company.

### ***The Victor Talking Machine Company***

During the last decade of the 19<sup>th</sup> century, there were several companies in the phonograph industry that were in constant patent wars. Generally speaking, there were three main groups of companies, each of which developed, manufactured, sold and held the patent rights of the three major devices on the market. Edison's companies (Edison Speaking Phonograph, Edison Phonograph, Edison Phonograph Works, and National Phonograph) controlled the Edison devices, while the Graphophone was controlled by the Volta Graphophone and the American Graphophone (later acquired by Columbia Phonograph Company). Finally, the Gramophone was controlled by the Berliner Gramophone Company, while the National Gramophone Company was given exclusive sales rights of the gramophone in 1896.

Perhaps no man was more affected by the lawsuits on patent infringements than Eldridge Johnson, the engineer who designed the Improved Gramophone for Berliner's company. Johnson had built a large phonograph factory and found himself with a lot of surplus merchandise that had been ordered, but never purchased, by Berliner's company. Berliner's company stockholders would not buy the merchandise until one of the many

patent disputes they had with other companies was settled in court. Thus, Johnson started to sell the gramophones by himself in the fall of 1900. Berliner responded by suing Johnson, who was denied the use of the word “gramophone” in his business. He decided to use the name, *Victor*, and on October 3, 1901, he established the *Victor Talking Machine Company* (hereafter, Victor).

Johnson’s new company was successful from the beginning. After just a year in the market, it boasted more than ten thousand dealers and had a profit close to one million dollars. First, instead of engaging in legal battles, Victor and his main rival The Columbia Phonograph Company agreed to pool their patents, saving themselves from the effort, expense, time and potential sales halt that accompany patent disputes. Secondly, Victor enhanced their instruments: their handling was easier, the record wear was reduced, and the sound was improved.

Furthermore, Victor released a plethora of successful recordings. Its first catalogue, issued in 1902, included not only popular singers (such as Emilio De Gorgoza and Harry McDonough), but also ensembles, like the Haydn Male Quartet and, most importantly, Sousa’s band. Sousa himself sent a letter to Johnson saying, “Dear Mr. Johnson: your Victor Talking Machines are all right,” which “Victor plugged for all it was worth” (Gelatt, 1956, p. 136). Then, Victor issued its Red Seal Records, which were recordings of world renowned opera singers; the Italian tenor Enrico Caruso, the American soprano Marcella Sembrich, the French bass Marcel Journet, and the Russian singer Marie Michailowa are only a few of the many celebrities who recorded for Victor. The Red Seal series was so successful that by 1912, just six year after the first recordings were released, the Red Seal catalog contained around 600 recordings, and Victor published *The Victor Book of the Opera*, a 375-page volume, as an accompaniment to the recordings.

Even though the phonograph industry had important success, both in sales and in recording good music, at this point the phonograph had only been used as a means of entertainment. In fact, since the early beginning of the industry, a significant amount of phonographs were specifically manufactured for commercial use, and they were operated by coin. Victor's rivals marketed such devices long before Victor was established, since, "like Edison, the Graphophone people had finally concluded that the future of the talking-machine industry lay down the avenue of mass entertainment" (Gelatt, 1956, p. 56). As a result, until the end of 1910s, the phonograph was established as "being more or less a plaything or a toy" (Stoddard, 1968, p. 74). There were no educational uses for the device, contrary to what Edison had suggested more than thirty years earlier (Edison, 1878). That changed when the Supervisor of Music for Milwaukee schools, went to a Victor dealer to purchase a phonograph and some recordings.

### **Frances Elliott Clark and Victor Educational Department**

Frances Elliott Clark (1860-1958) was a pioneer in music education and served the field all her life as music teacher, Supervisor of Music, president of the Music Section of the National Teachers Association, and founding member of Music Supervisors National Conference (which became the MENC – Music Educators National Conference, now the National Association for Music Education), to name a few. She wrote many articles for professional journals and spoke at numerous conferences regarding music education. Her vast work is documented in all major music education history books, as well as Eugene Stoddard's study, *Frances Elliott Clark: Her Life and Contribution to Music Education* (Stoddard, 1968).

Clark has been celebrated as “the most influential music appreciation advocate of this [the beginning of the 20<sup>th</sup> century] period” (Labuta & Smith, 1997, p. 26). She was also the first music educator to recognize the potential of the phonograph in music instruction. This recognition happened the moment she heard a recording of a song that was also taught to the students of Milwaukee schools where she was working as the Supervisor of Music. In her own words, “when I heard the glorious tenor of Evan Williams singing ‘All through the Night,’ truly my heart almost stood still, for nearly every fourth grade in Milwaukee schools was singing that song” (Stoddard, 1968, p. 74). Stoddard reports that “at once the thought flashed through Mrs. Clark’s mind of what it might mean if the children could hear the beautiful tone quality, the clear-cut phrasing, and the diction of this great artist” (Stoddard, 1968, p. 74). In the following days, she asked two principals to let her teach some music appreciation classes using the device. The result was very satisfying, as she recalls, “to the delight of all, the children listened, wonderingly at first, then seemingly enchanted with the beauty of music which they had never before heard, and the giggles which had been anticipated were entirely ‘Oh’s’ and ‘Ah’s.’ The program was a revelation” (Stoddard, 1968, p. 75).

She soon demonstrated the use of the phonograph in music teaching on a greater scale. In January of 1910, Clark organized a concert entitled “Introduction of the Victor Talking Machine to the Milwaukee Schools,” in which 500 eighth-grade students participated (Keene, 1982, p. 251). The students would sing a couple of songs and then listen to the same songs played on the Victrola. Clark emphasized the tone quality, phrasing and diction of the recorded artists. Principals, teachers and school authorities

were impressed by the performance (Keene, 1982, reports that some immediately ordered the new device for their schools). Clark gave two more such lecture-recitals in the same year, one in June and one in November.

After the initial introduction of the Victrola to schools, it was obvious to Clark that there were no records suitable for the students of the primary years and only a few instrumental ones suitable for older children. More appropriate recordings were needed in order to fully employ the phonograph in the music appreciation classroom. The possibility of manufacturing such recordings was also conceived by the Victor Company, officials of which attended Clark's concerts. Thus, when Clark met with Louis Geissler, the general manager of the company, in order to ask him to take care of the matter, Geissler told her that he was already planning on opening an educational department and asked her to become its director. In his words:

The idea of using for children the beautiful records we are now able to make has long been an idea of mine ... I have interviewed 16 musicians on the subject ... not one of the 16 seemed to have any idea of how to go about using records for the actual teaching of music. You seem to have gotten it done. As you have made success of it in one city, I think you can do it in all. We wish to open an educational department and want you to become its director. (Keene, 1982, p. 252)

Clark accepted the position and, on April 1, 1911, she moved to Camden, New Jersey, where the Victor Company had its offices. "There she began her campaign for the recording of appropriate music for use in the schools" (Kinscella, 1956, p. 30).

The purpose of Victor's educational department, according to Clark, was "to study the needs of public school music in relation to talking machines and records" and "to place the finest music, the works of the great artists, within reach of every child" (Stoddard, 1968, p. 87). Dunham, on the other hand, suggests that "the founding of an educational department [took place] for the purpose of promoting the use of Victor products in schools" (Dunham, 1961, p. 60). As a result, Victor would financially benefit the most since their clientele would include the public schools and other educational institutions across the country.

When Clark took the position as director of the educational department, she faced a series of obstacles. First, she had to organize the department from scratch, as Kinscella points out: "she was ushered into an office equipped only with an empty desk, atop which lay a pad of fresh white paper and pencil; whatever followed must be her own creativity" (Kinscella, 1956, pp. 29-30). Also, "there were no guide charts, no literature, no catalogues, no books; no single record for younger children, and the immediate needs for such materials were urgent" (Stoddard, 1968, p. 89). Secondly, although by 1911 Victor was "clearly the largest and most powerful manufacturer of records and record playing equipment," according to Dunham, its records had many flaws. Each record side could only play for three or four minutes, thus, "there seemed to be no objection to cutting a lengthy composition to force it into the four-minute playing time." Due to problems of the acoustics in the recording room, the sound was often distorted and, because of the recording limitations, arrangements were often made so that fewer instruments would be used in the recording of large orchestral works. Evidently, the

“sound of the final product compared unfavorably to concert hall performances in several respects” (Dunham, 1961, p. 60). Such limitations, which are also described by Copeland, (1991) needed to be taken into consideration by Clark.

## **Victor’s Educational Department’s Contributions to Music Listening**

### ***Recordings***

The publication of recordings suitable for classroom use was a landmark in the field of music listening. Victor’s Educational Department was the first to issue such recordings and remained the only company doing so for many years. The monumental task of selecting, coordinating and evaluating hundreds of pieces of “only the purest and sweetest” music for children fell to Clark (Stoddard, 1968, p. 95). Such records were produced within the first year Clark accepted the position (Cooke, Hollweck, Keith, & Kinscella, 1960). At the same time, she began to issue special lists of educational records, which indicated all the available recordings that were appropriate for classroom use (Stoddard, 1968).

The first task undertaken by Clark was the publication of recordings for younger children, since such disks were not available at the time. Only a few months after taking the position at Victor, Clark began publishing the “Children’s Songs” series, which contained popular songs (such as “Hey Diddle Diddle,” “Little Bo Peep,” “Twinkle Twinkle,” “Little Jack Horner,” and songs from “Mother Goose,” according to Stoddard, 1968, p. 97). She chose to publish children’s songs first in order to “educate the child along the musical side, without curtailing the amount of technical teaching necessary to

the musical intelligence” (Stoddard, 1968, p. 96). The next step was to make records with songs from the *New Song Book and Music Reader*, an elementary school song book published in 1910. Clark was continuously enriching the Victor catalogue for young children with recordings of various types of music. Dunham reports that these recordings included not only popular songs, but also nursery rhymes, folk songs, and singing games in order to teach students to sing by imitation (Dunham, 1961). Furthermore, there were selections that were not solely intended for listening, but also for some type of performance or action by children, such as music for games and dances.

In the upcoming years, Victor’s educational catalogue included recordings addressing the middle and higher grades as well. First, recordings of important instrumental and vocal music from the Red Seal series appeared frequently in the catalogue. Secondly, in 1915 Victor issued a new list of recordings, which contained music from interesting periods in music. Such music was not previously available, and it included music of the Crusaders, the Troubadours, the Minstrels, early opera, the Franco-Flemish School, early American psalms and hymns, ballads and patriotic airs, Indian songs, spirituals, and songs of Shakespeare. Also, the publication of recordings of standard school songs, part songs and choruses from school editions served as an additional tool for vocal teachers, who used them as models in teaching. The catalog included records that could be used while teaching other subjects as well. Folk music from other countries was represented in Victor’s records, and recordings of folk dances were suggested for use in physical education.

Victor's educational catalogue expanded year after year. The first such catalogue was issued in November 1911, and it was a 22-page "Graded List" of songs. By 1924, as Stoddard points out, the catalogue listed 3000 collections (using 1,723 records) and was grouped into three different ways. First, the recordings were grouped by the grade level for which they were appropriate. Secondly, the recordings were grouped into two subcategories according to the orchestration of the works: songs and orchestral works. Thirdly, the recordings were grouped into the other subjects of the curriculum for which they could be correlated. More than 500 of these records were made strictly for educational purposes under Clark's direction.

### ***Educational Materials Accompanying Recordings***

Among the most notable contributions Victor made to the area of music appreciation was the publication of educational materials that accompanied the recordings in their educational catalogue. With the records, Clark began to include a brief commentary in order to help students better understand what the music meant. Stoddard reports that explanations were also printed and made available to teachers, and that they were classified by grade level. Some series of orchestral records were accompanied by charts of instruments and descriptive books, thus offering a plan for the study for orchestral instruments "by sight, sound, and story" (Stoddard, 1968, p. 101).

### ***Books Published by Victor's Educational Department***

Another contribution to the field of Music Appreciation by Victor was the publication of books. Although there were several pertinent publications in circulation by

the turn of the 20th century, Victor's books differed drastically, as they provided a list of specific recordings for listening to the music mentioned in the texts.

Among the first publications was *What We Hear in Music*, which was written by Anne Shaw Faulkner of the Victor staff, under the direction of Frances Elliott Clark. It was first published in 1913 and has been edited, rewritten and published periodically ever since (for instance, its twelfth edition was continuously published from 1943 until 2005). The book was designed as a four-year course of study in music history and appreciation for high schools. In the foreword, Clark states:

In this course of study it has been the earnest desire of the author and the publishers to contribute a well-organized plan for the study of music in a broadly cultural style, looking toward giving a working knowledge of the literature of music, rather than a theoretical study of the form and grammar of the subject, bringing within the hearing of every student or individual the real music to be studied, no matter where they may be situated." (Faulkner, 1940, p. 5)

The main body of the book is organized in four parts, entitled (a) "The Principles of Music," (b) "The History of Music," (c) "The Orchestra and the Development of Instrumental Music," and (d) "The Opera and Oratorio." Each part consists of 30 lessons and at the end of each, there is a list of compositions referring to the lesson's topic, organized by title, composer, performer and Victor Record Number. Illustrative materials, such as pictures of composers, photographs of instruments and places mentioned in the text and notation are abundant.

One of the most important features of the book, regarding the teaching of music appreciation, is an extensive section with analyses of the recordings. In this section, each piece mentioned in the book is described, much in the way of modern program notes: information concerning the form, key, orchestration, themes, or even the story (in the case of programmatic music) is presented usually within one paragraph (although there are composition descriptions that extend to a couple of pages). This section is also quite large: in the 11<sup>th</sup> edition (published in 1940) it occupies 259 of the book's total 629 pages. A more detailed description of this section will be presented later in the current chapter. Finally, there is a pronunciation guide, an alphabetical index of records and a subject index.

The second book published by Victor, *New Graded List of Records for Home, Kindergarten, and School*, appeared in 1913 and was essentially a list of Victor's records grouped according to the grade level of the children for whom they might be played. The categories are (a) nursery and primary grades, (b) intermediate grades, (c) grammar and junior high grades, and (d) high and normal school classes. Each of these categories is divided into sections; for instance, there are stories, fables, folk tales, singing games and dances listed under the primary grades level, whereas songs, oratorios, opera, music history, string instruments, and classic selections for orchestra, are listed for the high school level. The Graded List was updated frequently to include the latest Victor records. The fact that there are a lot of selections suggested for listening in the elementary grades is the most important contribution of this series to music appreciation, as Dunham (1961) points out.

More books were published by Victor specifically promoting music listening in schools. *The New Correlation* (also published as “*The Victor in The Schools*” *Correlates Music with the Entire Curriculum*), published in 1915 by Harold D. Smith, offers suggestions of recordings that could be employed while teaching subjects other than music. According to the author, “the use of Victor records, at the proper time in a recitation, does much to vitalize the lesson, and lifts a seemingly dry subject from the black-and-white of the printed page into the realm of human interest” (H. D. Smith, 1915, p. 3). Furthermore, *The Victrola in Rural Schools*, published first in 1916 with several reprints until its revised edition in 1924, entitled *Music Manual for Rural Schools with the Victrola*, is a music handbook for teachers in one-room schools. All these books share a distinctive characteristic: the Victor Record Number indicated in the text appeared at the margin in red letters, and an index of all Victor records used in the book.

In the 1920s, Victor published books that were intended to be used as primary school teacher manuals. *Music Appreciation of Little Children* appeared in 1920, and an expanded version appeared three years later, entitled *Music Appreciation with the Victrola for Children*. The same book was published in 1930 with the title *Appreciation for Children*. The entire Victor Educational Department contributed to the writing of these books. This series of books is unique in the sense that it offers a plethora of ideas, suggestions, and information regarding the organization of music appreciation activities, especially for the lower grades. They reflect Clark’s philosophy that children need to be exposed to beautiful music very early in their lives in order to learn to love it. In the author’s words:

Music should be heard in infancy and early childhood as language is heard, and later studied in exactly the same way. First, the child should listen just to listen, then listen to learn, exactly as he first hears language all about him, then listens intently to try to imitate the spoken words and to comprehend the meaning of a wide vocabulary which he may later use. Then, and not until then, does he learn to read the page to add to his store of knowledge. (Victor Talking Machine, 1920, pp. 19-21)

The books offer suggestions as to how to make the most out of recordings to teach rhythm, songs, and instrumental music, and there are suggested lessons with children's stories and poems. Also, the book includes stories, describing several events from the childhood of great composers, such as Mozart, Handel and Mendelssohn. Pictures (some colorful), notated themes and other illustrative material are also present.

Victor extended its series of books to include those that could be used as texts for music appreciation courses taught in high schools and colleges. In addition to *What We Hear in Music*, Victor published Agnes Hollister Winslow's *An Appreciation and History of Music* and Hazel G. Kinscella's *Music and Romance* in 1928 and 1930, respectively. The former was suggested for use in a "synoptical lecture-laboratory course for university, college, and secondary school" (Stoddard, 1968, p. 120), while the latter "may have been planned for the three year sequence of the junior high school with a view toward presenting a wide variety of listening opportunities in each year" (Dunham, 1961, p. 131). With the publication of these textbooks, as Dunham has suggested, it became possible to create a total music appreciation course, extending from elementary school to

college. *Music Appreciation for Children* could be used in elementary grades, *Music and Romance* in middle school, and *What We Hear in Music* during the high school and college years.

Finally, it is notable that other companies followed Victor's example and published music appreciation textbooks, which were accompanied by recordings as well. For example, Ginn and Company published *Music Appreciation in the School Room* (written by Thomas Giddings, Will Earhart, Ralph Baldwin and Elbridge Newton) in 1923 as part of their *Music Education Series*. Dunham reports that the publication was accompanied by recordings of the New York Philharmonic Orchestra under the direction of Henry Hadley. Also, Katz reports that Columbia started issuing their own educational catalog in 1916 and in 1920 published *The Graphonola in the Classroom* (Katz, 1998). A review of Columbia's educational catalogues appears in the *Music Supervisor Journal* (Weaver, 1930a, 1930b).

### ***Victor's Travelling Representatives***

Victor also contributed to the spread of music appreciation in schools by demonstrating the use of their products throughout the country via traveling representatives.

As soon as Clark took over Victor's Educational Department, she began demonstrating the use of Victor's instrument and recordings at conventions, schools, colleges, and professional organizations. She was very active and travelled a great deal. In fact, Cooke points out that, in order to speed up her work, Clark was one of the first

professional women in America to adopt flying as a means of transit (Cooke et al., 1960). The demand for demonstrations of Victor's materials increased and, around 1914, she began hiring representatives to give such demonstrations to the music educators across the country. According to Stoddard (1968), Clark's personal files show that she used to call these representatives her "talented and efficient corps of helpers," "music missionaries," and "apostles of good listening."

The travel representatives were usually music teachers with college degrees, and despite acting as salesmen, they were not involved in the actual sales. Their main task was to show how the records could be used in schools, without regard for the schools' abilities to purchase Victor's products. Stoddard emphasizes the fact that Clark expected them "to be real teachers – to go into the school room of any grade and present just the right program for any class in order to show teachers and administrators how the children would react and how 'our system [Victor's] was better and would bring children to a lasting love of music and beautiful things in life'" (Stoddard, 1968, pp. 91-92). The representatives were updated on the new instruments, records, teaching techniques, and company's new policies through occasional training at Victor's main offices in Camden, New Jersey.

The "Educational Traveling Force," as the representatives called themselves (Stoddard, 1968, p. 92) grew from six to thirty-three people during the 1920s. Their numbers, though declined quickly after the Depression, and the team finally disbanded in 1931.

### ***Organization of Music Appreciation Courses for Academic Credit***

Victor actively fostered teachers' training in music appreciation by organizing summer courses that could be taken for academic credit. Dunham reports that Victor's representatives' duties included, among other things, providing instruction to music educators, ranging from a couple of lectures to complete courses for educational agencies.

There was a high demand for the courses, especially in the 1920s. For instance, one representative recalls that in just one summer the team presented at 18 universities, 29 colleges and normal schools, 49 county institutes, seven schools of music and four agricultural colleges, while they also gave lectures at an additional 160 summer schools (Dunham, 1961). Similarly, Stoddard (1968) refers to an incident where Clark sent a member of her staff to teach such a course to Iowa 4-H Girls Clubs under the Extension Department of Iowa State College. Another member of Clark's staff, Edith Rhetts, presented a series of lectures on teaching music appreciation at Teachers College, Columbia University in the summer of 1919. The lessons "were given to meet the rapidly increasing demand for guidance in presenting music for appreciation with reference to both the selection and use of material" (*Series of Twelve Lectures on the Teaching of Music Appreciation*, 1919, p. 3, cited in Dunham, 1961, p. 164).

### ***Victor and Music Memory Contests***

Victor also contributed to the development and spread of music memory contests by organizing such events and by publishing materials for them. The development of

these contests is linked with mechanical instruments. As previously mentioned, such activities appeared only at schools that had player pianos (Birge, 1909; C. M. Tremaine, 1918). Tremaine, though, was the first to extend the contest outside of his school by organizing a contest that included all the schools of his hometown in 1916. Birge reports that the memory contests spread throughout the country, and by 1926 there were more than 1,400 cities participating in such events, which were held not only for school students but also for the entire community as well. Although local orchestras were often employed for the contests, Peter Dykema of University of Wisconsin, Madison, suggested they “make use of the great treasures which mechanical instruments are placing at our disposal” (Dykema, 1922, p. 418). Music teachers embraced the contests as an important factor in teaching music appreciation; according to Birge, “no single project has received more hearty endorsement than has been given to music memory contest on the part of school music teachers” (Birge, 1928, p. 214). Birge likewise supported the organization of music memory contests, since he believed that they fostered many beneficial effects on children’s perceptions and attitudes towards music listening (Birge, 1922b).

Victor contributed to the development of these contests in various ways. In 1921 the company published a free booklet, “Victrola in Music Memory Contests,” written by Robert Coleman, which contained lists of compositions appropriate for the contests and suggestions for organizing them. The use of this book was highly recommended by teachers who organized memory contests (Seegers, 1925). Also, in Victor’s Graded List, teachers were encouraged to have five-minute listening sessions daily, since “this

develops a particular listening habit, and a familiarity in one year with 30 to 40 master pieces of music literature” (Clark, 1923, p. 70 cited in Sanz, 1993, p. 27). It is notable that not only teachers, but also parents bought recordings of music that was included in music memory contest lists (Holmes, 1921). Katz also reports that phonograph companies often responded to the demand for certain works by either recording them for the first time, or by reissuing records that had been out of stock (Katz, 1998). Clark herself endorsed music memory contests, as they promoted music listening:

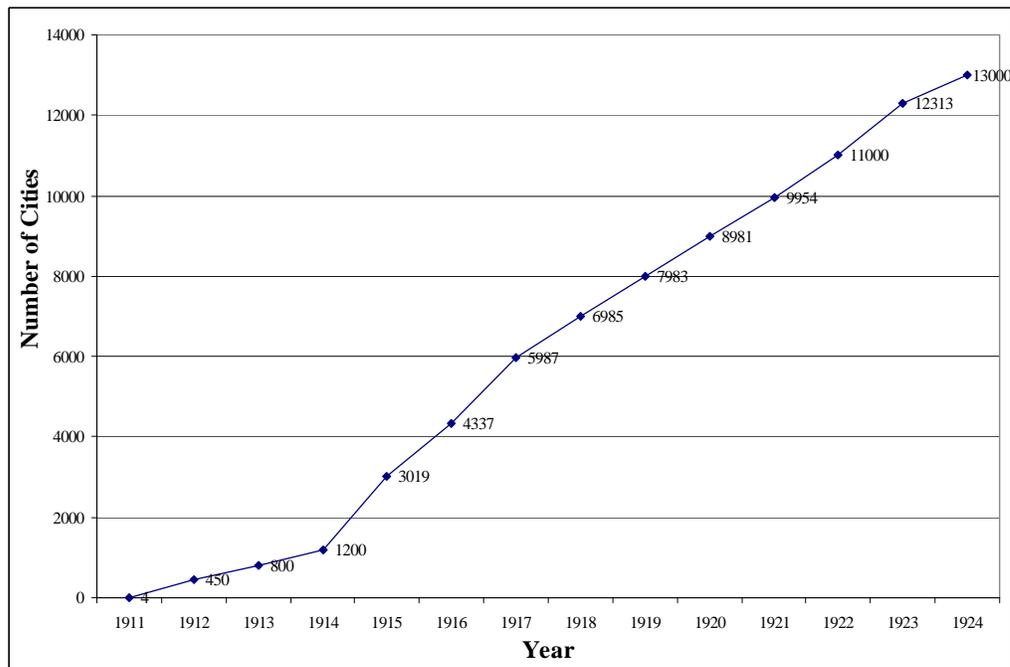
The Music Memory Contest, although of comparatively recent origin, has done more perhaps to popularize the development of listeners than any other single factor. It has become the means of familiarizing thousands of both children and adults with really good music. It has developed a lasting interest on the part of many who had never before really heard. (Clark, 1923, p. 70 cited in Sanz, 1993, p. 27)

### ***The Promotion of Phonographs at Schools***

Victor contributed to the establishment of the music education movement in schools by developing phonographs especially for school use and distributing them widely. Following Clark’s suggestions, Victor announced a new model of Victrola that was designed specifically for school use. Model XXV was portable, mounted on an oak stand and had a horn that could be “removed and securely locked to protect from dust and promiscuous use by irresponsible people” (“Announcement: The Victor Company presents a new instrument exclusively for the schools,” 1913). The next model, XXV-A,

had a storage space for the horn beneath the machine, and it could be “easily carried up and down stairs, out on the playground, or wherever it is needed” (“Do you realize what you can teach with a Victor in the schools?,” 1914). The “inexpensive instrument for small and rural schools,” as it was marketed by Victor, cost \$67.50 in 1914 (Dunham, 1961, p. 68).

Victor’s sales to schools were phenomenal. In 1911, when the Educational Department was formed, there were only four cities whose schools had purchased Victor’s phonographs. That number grew to 13,000 in 1924. Figure 4 shows this steady



rate of increase (Source: Dunham, 1961, p. 141).

*Figure 4.* Number of Cities Whose Schools Have Adopted the Victrola

## **The Use of the Phonograph by Music Educators**

As shown by their articles, papers and discussions at educational conferences, music educators enthusiastically welcomed the phonograph for classroom use. This enthusiasm is shown by Faulkner's belief that "perhaps the most effective and far-reaching 'music educator' at the present time is the phonograph itself" (Fowler, 1967, p. 45).

One of the most obvious reasons that teachers quickly adopted the phonograph is the fact that it overcame the obstacles encountered by the player piano, especially the tone color (since player pianos only produced piano tones). This is clearly explained in a statement by Claude Rosenbery, State Director of Music in Pennsylvania:

A piano with an accomplished pianist as teacher or a player piano with many fine rolls are entirely inadequate, too limited for the broad field of appreciation. The modern phonographs with the modern electric process records reproduce the color and quality of all instruments, including the piano, in the most varied dynamics, either as separate instruments, various small combinations, the full symphony, the band, or vocal combinations (Rosenberry, 1928, p. 106).

The portability of the phonograph also contributed to its widespread use, especially in rural areas where there were not many opportunities for music listening. "A talking machine and a few records," James Humphris writes in the *Musician*, can turn any classroom into a "world-laboratory and Musical History Museum at small cost, no matter

how remote... from the acknowledged centres of music” (Humphris, 1919, p. 39). The results of the phonograph’s use in rural areas are shown in a paper presented by Frank A. Beach, Director of Music at Kansas State Normal College at Emporia, Kansas. He recalls a music supervisor’s comments, in which he remarked that “the use of the talking machine in rural schools is beginning a new epoch. Several county superintendents have purchased these to use with an outlined course and the results were almost magical” (Beach, 1917, p. 134). In that meeting, Beach gave several examples of how phonographs were purchased and used in rural areas. It is notable that when the school could not afford to buy the device, choral clubs would do so, or teachers and parents would collaborate in order to raise the necessary funds. Also, it was not uncommon for phonographs to be carried from school to school in rural areas. Similarly, Strouse reports that in rural area of Emporia, Kansas music teachers with phonographs were constantly on the move, booked eight months in advance, travelling from school to school and giving lecture-recitals not only to students, but also to the whole community (Strouse, 1916). Finally, other studies reported that rural schools were equipped with phonographs (Stover, 2003; White, 1951).

Music educators’ willingness to use phonographs was also shown during demonstrations of music appreciation lessons at educational conferences. For instance, Agnes Fryberger describes the lessons by four supervisors of music, which were presented largely through phonographic material at the Music Supervisor’s National Conference held in 1917 (Fryberger, 1917).

Two years later, Fryberger presided over the discussion addressing the educational use of reproducing instruments in the same conference. Among other things,

the participants stressed the “need of reproducing instruments in every school equipment as a factor in acquiring a general and cultural education” (Fryberger, 1919, p. 68). In this discussion educators expressed the usefulness of the phonograph in teaching music (Rhett, 1919), in teaching subjects other than music (Clark, 1919; Dorey, 1919), in teaching specific grades (Haywood, 1919; Hesser, 1919), and in teaching music appreciation to the community (I. F. Damon, 1919).

Finally, Clark’s and Victor’s Educational Department’s work was praised by many music educators. As soon as Clark had taken over Victor’s Educational Department, Philip Hayden made her efforts known to music teachers:

The Victor Machine Company have been the latest leaders in this movement and under the direction of Mrs. Frances E. Clark they are equipping themselves to furnish material for work along educational lines in the school room. ... [T]his department will undoubtedly be very effective in promoting the use of the Victor Talking Machine in an educational way in our public schools. (Hayden, 1911, p. 19)

Maybelle Glenn, a noted Music Supervisor, stressed the usefulness of Victor’s materials by stating that “any supervisor who does not acquaint himself with all of the material furnished by the educational departments of our phonograph companies is missing an opportunity” (Glenn, 1922, p. 106). She also regularly reviewed Victor’s publications, always expressing her delight regarding their value for teaching music appreciation (Glenn, 1920; Glenn, Lowry, & Canfield, 1928), while other music educators shared her beliefs regarding books by Victor (e.g. Earhart, 1924). Finally,

Osbourne McConathy, stresses Clark's contribution to music appreciation by saying that "when Frances Elliott Clark assumed the directorship of the Educational Department of the Victor Talking Machine Company in 1911, music appreciation came into its own" (Osbourne McConathy, 1928, p. 192).

### **The Development of Educational Techniques by the Phonograph Industry for Teaching Music Appreciation during the First Quarter of the 20<sup>th</sup> Century**

The player piano and the phonograph had a direct impact on the teaching of music appreciation. First, music listening spread in schools and began to be established as an integral part of the classroom music lesson. Secondly, several products (piano rolls, recordings, and pertinent publications) constituted educational materials that could be used in teaching music listening. The phonograph industry, however, helped music teachers in their everyday lessons in an *indirect* way as well by contributing to the development of educational techniques for the teaching of music listening.

When the music appreciation movement began to spread throughout schools, there were no established techniques that teachers employed in order to teach listening. It seems that a common way of training music listening was through the repetition of the important passages of a piece. This method is evidenced in Osbourne McConathy's speech delivered to the third Music Supervisors' National Conference in 1910. McConathy described a usual music appreciation lesson in high schools using a player piano:

The course is essentially a training for the students, pointing out those features in the composition played which illustrate the topic to be developed. ... Great art works which clearly exemplify the different forms

are heard again and again, the instructor calling attention to their structural elements (Osbourne McConathy, 1910, p. 31).

Upon the inauguration of its Educational Department, Victor addressed the need for educational methods to help students focus on the music during listening experiences by providing brief descriptions of the recorded works as well as the musical notation of the compositions' main themes. These two techniques were incorporated in *What We Hear in Music* and *Music Appreciation; Taught by Means of the Phonograph*, published in 1912 and 1915, respectively.

### ***The Use of Brief Descriptions***

As previously mentioned, a large section of *What We Hear in Music* contains analyses of every single composition that was suggested for listening, which were meant to serve as “*guides* [emphasis added] for the study of the records suggested as illustrations for the previous lessons. They are necessarily condensed” (Faulkner, 1940, p. 377). Bearing in mind that the book served as the music appreciation textbook for high school and college students, it can be presumed that students were looking at the descriptions while the music was playing. Also, as mentioned previously, such descriptions were written in pamphlets that were sometimes enclosed with several Victor's recordings.

A closer look at the published musical descriptions reveals that they are very similar to program notes. This is not surprising. In fact, program notes had been used as a means of teaching music appreciation (even unintentionally) to the concert-going audience for more than 200 years before Victor's publications. Percy Scholes (1935), for example, reprints the notes for Handel's *Hallelujah Chorus*, as it was shown on the Annotated Program that was provided for the first concert by the Uranian Academy of

Philadelphia in 1787. There were two columns in the pamphlet: the lyrics appeared on the left, while remarks were printed to the right of the lyrics. The latter described briefly what was happening when the corresponding lyrics were sung. For instance, when the phrase “King of kings, and Lord of lords” appears, the right column states, “[sung] by the Treble and Counter in long notes; whilst the tenor and bass repeat ‘for ever and ever, Hal.’ in quick notes with intervals” (p. 31). Scholes argues that the program notes for Hallelujah Chorus constitutes a listening guide:

Amusingly crude as this may be thought, it is nevertheless a true “Appreciation Lesson” in the sense that it is an effort to focus the attention of the listener upon the music and to increase his enjoyment by assuring his observation of its details (p. 31).

Scholes then pointed out that “the Phonograph Companies have, of course, adopted the same model for the leaflets they give with many of the records of the classics and of the more serious modern music” (Scholes, 1935).

Brief descriptions of music works appeared not only in program notes, but also in journals, magazines, newspapers and in books dealing with general public skills in music appreciation (K. F. Damon, 1933). The significance of Victor’s decision to include them in the books that it published lies in the fact that it was the first time that program notes made their way into the public schools.

There were several different types of information presented in Victor’s publications. Damon (1933) analyzed the program notes that appeared in many publications (like Surette’s *The Appreciation of Music* [1907] and Mason’s *Guide to Music* [1909]), including Victor’s books, and he reported that they provide information that can be categorized as follows:

1. Biographical data concerning the composer.

2. A story suggested by the composer or someone else [in the case of programmatic music].
3. An emotional eulogy of the composition – frequently a fanciful invention.
4. An analysis of the form of the composition or explanation of some other technical aspect, sometimes with quotations in musical notation from the themes.
5. Difficulties likely to be encountered by the performer in rendering the composition.
6. Philosophical essays on music (K. F. Damon, 1933, p. 30).

An example of biographical information regarding the composer, as it appears in Faulkner's book is the description of Vitali's *Chaconne*:

Tomaso Antonio Vitali was the son of a 17<sup>th</sup> century Italian composer who was one of the most prolific writers of his day. Tomaso Antonio was born about the middle of the 17<sup>th</sup> century in Bologna. He was noted as a violinist and succeeded his father as court director at Modena. Tomaso was not only a great virtuoso but also a teacher of the violin whose influence extended far into the 18<sup>th</sup> century. His best known work is this Chaconne for violin solo which, although re-edited by modern masters, still retains the strength and purity of Vitali's day (Faulkner, 1940, p. 618).

An example of a story suggested by the composer regards Sibelius' *Lemminkäinen's Homeward Journey*:

On the score of this second tone poem, Sibelius has written:

"Lemminkäinen is the warrior-hero, the Achilles of Finnish mythology. His intrepidity and beauty make him the beloved of women. Fatigued by a

succession of wars and combats, he decides to return to his home. Having transformed his sorrows and solitudes into war-steeds he sets out on his way. After a journey rich in adventures he at last arrives in his homeland, where he finds once more the scenes that are full for him of memories of his childhood.”

Sibelius’ music reflects the hero’s attitude and emotion rather than the actual events of his journey. But the composer has worked up to a magnificent climax in his description at the end of the hero’s arrival at his home (Faulkner, 1940, p. 578).

An emotional “eulogy” of a composition is shown by the description of Debussy’s

*Rhapsody for Clarinet and Orchestra:*

One of the most interesting works of Debussy is this Rhapsody for Clarinet, which gives the beautiful wood-wind instrument an opportunity of showing not only the possibilities of its tone, but also the fluency with which it blends with the other instruments of the orchestra (Faulkner, 1940, p. 451).

The description of the second movement of Rachmaninoff’s *Symphony in E Minor, No 2 (Opus 27)* provides an example of analysis of the composition’s form:

The second movement, *allegro molto*, is in reality the scherzo. The theme is begun in the horns and carried on by the violins, after which the theme is given an elaborate development. A contrasting section, *moderato*, is then introduced, the theme being played by the violins. The first theme is then repeated, dying away in a long diminuendo. A loud crashing chord introduces the *trio*, the first theme of which is stated by the second violins:

A new theme is heard in the brass accompanied by the cymbals and tambourine. Then the first section of the scherzo is repeated. The coda ending brings back a bit of the introduction to the first movement (Faulkner, 1940, p. 547).

The description of Kreisler's *Caprice Viennois* offers some difficulties that could be encountered by the performer:

In this capricious and whimsical solo for the violin, Kreisler has described in tone the gaiety and brilliance of past days in Vienna. The soloist who would play this must be possessed of great technique, for the composition abounds in those possessed effects which only the great violin virtuoso can produce. Note the dreamy and plaintive second theme, produced by double stopping; the interesting and unusual *glissando* effects and the gaiety that is suggested by the *pizzicati* passages (Faulkner, 1940, p. 500).

Finally, an example of a "philosophical" essay on music is presented in a paragraph describing Ravel's *Suite Le Tombeau de Couperin*:

The title was undoubtedly given the work to impress the modern world with the fact that although the great clavecin writer Rameau wrote in a bygone day, his music still lived and that an ultra modern composer could also return to his formal style and still write modern music (Faulkner, 1940, p. 549).

### ***The Use of Notated Themes***

The second technique that was proposed for assisting students to focus on the music during the listening experience is teaching the main themes of the piece. The origins of this strategy can be traced to the practices of teaching musical form, as shown

in books of music appreciation intended for the general public, which had been in circulation for several years before the advent of the phonograph. In *The Appreciation of Music*, published in 1908, the authors Thomas Surette and Daniel Mason used this technique to illustrate the form of a composition. The authors argued that “the first step in making sense of any unfamiliar thing is to get quite clearly in mind its central subject of subjects.” They gave the “fundamental idea of a poem, the main contention of an essay, the characters of a novel, the text of a sermon” as analogies (Surette & Mason, 1908, p. 4). Then, using the well-known “first *chapter* of Beethoven’s Fifth Symphony” (emphasis added), the authors stated that the motives constitute the fundamental “subjects” needed to analyze the form of a piece:

The smallest elements into which we can analyze the subject-matter of music are “‘motives’— that is, bits of tune, groups of from two to a dozen tones, which have an individuality of their own, so that one of them cannot be possibly confused with another” (p.5)

The ability to distinguish the main motives is of utmost importance, according to the authors, since “if he [the listener] can learn to distinguish with certainty whatever ‘motives’ he hears, half the battle is already gained” (p. 6). By developing the habit of recognizing the motives, the listener

will have no further difficulty in recognizing the themes of any music, and, what is even more important, following the various evolutions through which they pass as the composer works out his ideas. The importance of such active participation in the composer’s thought cannot be exaggerated. Without it there cannot be any true appreciation of music; through it alone does the listener emerge from “drowsy reverie, relieved

by nervous thrills” into the clear daylight of genuine artistic enjoyment (p.

6)

Due to the importance of the recognition of the theme, many notated themes appear in the book to help readers identify them while listening to the music. It is not surprising, therefore, that when music educators published books on music listening for classroom use, they would continue the practice of using notated themes in their books to assist teachers in listening lessons.

Another factor that might have contributed to the adoption of notated themes as a means of teaching music listening is the fact that students were *expected* to learn to read music notation, even from the early grades. As was previously mentioned, due to the strong vocal tradition in music education, singing had been the main activity during classroom music lessons since the inclusion of music as a subject of the curriculum. Also, the music textbooks that had been in circulation since the middle of the 19<sup>th</sup> century were mere anthologies of notated songs. In fact, the music textbooks that were used in schools during the first quarter of the 20<sup>th</sup> century, including *The Educational Music Course* (1904-1909), the *Holis Dann Music Course* (1914-1917) and *The Progressive Music Series* (1914-1920), also contained only songs. Since singing was the only means of music instruction, teachers used it in order to teach listening as well. In other words, when the phonograph made the listening of orchestral music available in classrooms, teachers might have isolated the musical themes, and treated them as songs.

Among the first books that included notated themes was *Music Appreciation Taught by Means of the Phonograph: For Use in Schools*, published in 1922 by Kathryn E. Stone, Supervisor of Music in Los Angeles elementary public schools. The book was intended to be used by teachers in elementary schools, and it included lessons for first through eighth grade as well as pictures of instruments, biographies of composers and

elements of music history. In the section entitled "Suggestions to Teachers," Stone proposed that, once students can read music, they should learn to sing and copy the notations of the themes:

When children can read, programs including names of selections, source, composer, artist, or organization, should be written on the board, and should be explained briefly by the teacher. Also, the principal themes, expressed in notation or by numbers (placed upon the board), may be sung and recognized both through the voice and through the record. Pupils should copy programs, with themes, in music notebooks to be kept for future reference. For this purpose, staff notation of the theme will be found in the discussion of the record (Stone, 1922, p. 14).

Generally, Stone proposed that teachers should teach the themes, play the recordings and then let the students hum along with the record. An example of such an activity is presented in Figure 5, which shows a lesson plan for eighth grade.

**Largo, from "Xerxes," *Handel***

**Xerxes, in the opera bearing the same name, sings to a beautiful tree, in praise of its beauty, grace, and usefulness.**  
*(Play the record.)*

**Encourage pupils to note the smooth, flowing melody and its emotional effect (gratitude and praise).**  
**Hum the principal theme.**



Figure 5. Use of Notated Theme in an Eighth Grade Lesson (Stone, 1922, p. 97)

Notated themes had appeared in music textbook series before the systematic use of phonograph recordings in classrooms. For example, Sanz (1993) reported that themes were found in the *Progressive Music Series*, published between 1914 and 1920 by the Silver Burdett Company. The teacher's manual for this series outlined the importance of learning themes: "children begin by learning a certain number of themes from the great instrumental works and later these works are performed for the children by means of the piano, or by some mechanical player" (cited in Sanz, 1993, p. 53). A closer look at such textbooks, however, reveals that the themes were treated as songs, just like the rest of the books' contents. On the other hand, in the case of later publications, like Stoner's *Music Appreciation Taught by Means of the Phonograph*, the themes are systematically used in order to teach music appreciation. Thus, children are not just expected to sing the melodies, but also to listen to the original work and identify the themes while the record is playing.

## **SUMMARY**

When music was established as a subject in the school curriculum in the middle of the 19<sup>th</sup> century, classroom lessons were based on vocal instruction as a result of the long singing tradition sparked by the singing school movement and teachers' education (which emphasized music reading and singing). There were limited opportunities for music listening, such as attending concerts or listening to teachers and local musicians perform. Such occasions usually could have only taken place in large urban areas. The advent of

the player piano and the phonograph enabled music listening to be included in every classroom throughout the nation.

Both devices contributed to the development of music appreciation in schools in various ways. First, they triggered the overall society's interest towards music listening, which was reflected in the quick sales of mechanical pianos, rolls, phonographs and recordings, by the numerous articles published in newspapers and magazines addressing issues pertinent to the devices, their abilities and weaknesses, and from the popularity of music memory contests held in various communities. The desire for music listening and the capabilities of the new technology soon made their impact on education. Music could now be played in any classroom in the country, regardless of a teacher's ability to perform at the piano or the availability of local musicians. Thus, "as a means of bringing music to a broader audience, mechanical instruments have a history that is inseparable from developments in music education" (Fowler, 1967, p. 45).

Furthermore, both the player piano and the phonograph industries developed educational material for school use. Concerning the mechanical piano companies, Aeolian issued selections of rolls especially for classroom instruction under the New Musical Educational Courses and World's Music series. Similarly, Victor's Educational Department produced an extensive collection of recordings for educational use. Also, Aeolian produced their Annotated Rolls series, which included information about the music on the roll, which could be viewed while it was playing, and Victor published charts of instruments and pamphlets with brief descriptions of the music, which accompanied some of their educational recordings. Both industries published educational

books to help teachers make the most effective use of their products. One such book was *The Appreciation of Music by Means of the "Pianola" & 'Duo-Art,'* published in 1925 by Percy Scholes. In addition, Victor published numerous books and music textbooks that featured lesson plans, suggestions regarding the development of music appreciation courses in school programs, and instructions concerning the organization of music memory contests. Also, the first techniques that teachers employed in order to assist students in focusing on the music during the listening experience were proposed by textbooks that were meant to be used along with recorded music. Teachers could use the textbooks' short descriptions and/or the notated themes that accompanied each musical work.

Thus, the arrival of sound reproducing machines devices contributed the most to the establishment of music appreciation as an important part of music education during the first quarter of the 20<sup>th</sup> century. Teachers and students began to employ these devices, and the educational materials that accompanied them, in everyday activities and lessons. The willingness to use the latest technology in classroom instruction was reinforced and when a new device started transmitting music through waves, the radio, music educators began to use it immediately.

## **CHAPTER III**

# **EDUCATIONAL BROADCASTING: THE CONTRIBUTION OF RADIO AND TELEVISION TO TEACHING MUSIC APPRECIATION**

### **INTRODUCTION**

The advent of the radio, followed by that of the television, signaled a new era in education, especially music education: the era of educational broadcasting. The latter constitutes educational radio, educational television, and other educational telecommunication forms ranging from satellite and microwave systems to closed-circuit cable systems (Saettler, 1990). Hawkrige and Robinson (1982) argue that educational broadcasting exhibits four dominant characteristics: (1) the programs are arranged in series to assist cumulative learning; (2) they are explicitly planned in consultation with external educational advisors; (3) they are commonly accompanied by other kinds of learning materials, such as textbooks and study guides; and (4) there is some attempt made to evaluate the use of the broadcasts by teachers and students.

Radio and television educational programs designed for music appreciation classes mainly consisted of broadcasted youth concerts and exhibit the same characteristics noted by Hawkrige and Robinson. This is the main reason they are examined together in the current chapter.

## **THE ADVENT OF THE RADIO**

### **The Development of the Radio**

Unlike the invention of the phonograph, which was brought about by a single individual working primarily on previous experiments, the invention of the radio cannot be attributed to any single man or nation, according to Chester, Garrison, and Willis (1971). These authors suggest that the idea of wireless broadcasting was addressed by the research of scientists in many nations, who usually worked independently but produced similar solutions to the same technical problems. Work by scientists who studied electromagnetism (e.g. Michel Faraday, Charles Wheatstone, William Cooke, Samuel Morse and James Maxwell) and Heinrich Hertz's discovery and measurement of radio waves, which were also detected by Edouard Branly's apparatus (Coddington, 1959), laid the foundation necessary for the development of the radio. The first documented successful signal broadcasting took place in 1895, when Nikola Tesla was able to pick up a signal broadcast from New York to West Point. In the following year, Aleksandr Popov transmitted radio signals between buildings at the University of St. Petersburg, and Guglielmo Marconi sent a radio signal nine miles across the Bristol Channel (Douglas, 1987). Marconi also sent a recognizable signal from England to Newfoundland in 1901, thus achieving the first transatlantic wireless communication (and earning the Nobel Prize for Physics eight years later). Other scientists worked on Marconi's system, such as Ferdinand Braun (who shared the Nobel Prize with Marconi), Reginald Fessenden, John Fleming, and Lee De Forest (PBS, 2007). De Forest is credited as the first to grasp the

idea of radio as a public broadcast medium, since he is reported to have said as early as 1909, “I look forward to the day when by the means of radio, opera may be brought into every home. Some day the news, and even advertising, will be sent out to the public on the wireless telephone” (Chester et al., 1971, p. 24). De Forest’s vision would materialize during the 1920s, when radio stations spread throughout the country.

During the first two decades of the 20<sup>th</sup> century, several companies undertook research in the radio industry in order to develop and improve radio transmitters and receivers. Such companies included the American Marconi Corporation, General Electric, Westinghouse, and the Western Electric Company, a subsidiary of the American Telephone and Telegraphy Company (AT&T). The research on radio and the production of radio receivers and transmitters were slowed down by a two-year ban on the radio industry, which was imposed by the government during World War I (Barnouw, 1966). In 1919, the Radio Corporation of America (RCA) was formed and took a commanding position in the American radio field by buying patents and forming cross-license agreements with the rest of the companies previously mentioned. All of these companies manufactured radio receivers and, in order to ensure the sales of their products, they promoted public radio broadcasting.

The radio industry flourished quickly. Barnouw (1966) reports that by the end of 1924 the public investment in radio equipment reached more than \$300 million, and by 1928 there were more than 12 million receivers in the US. Coddington (1959) reports that the number of licensed stations operating in the United States rose from four in 1921 to 733 in 1927. Most of the stations were owned by manufacturing companies, universities,

stores, and churches. There was, however, a large number of transmitters owned by amateur individuals. The latter would buy parts from AT&T stores and assemble them into transmitters. As Barnouw aptly phrases it, “the broadcasting idea became a grand obsession” (1966, p. 26), since a lot of amateur-made radio transmitters were broadcasting from garages and attics. Moreover, Barnouw reports that small businesses, like local newspapers, department stores, and hotels, were operating their own radio stations as well. Douglas characteristically adds that, in the “exuberant” year of 1922, “it appeared that everyone in the land wanted to have a radio broadcasting station” (Douglas, 1987, p. 142). Scholars have estimated that there were as many as 1,400 such broadcasting stations in 1924 (Chester et al., 1971).

### **The First Stations and Broadcastings**

The first organized radio programs were aired in the beginning of the 1920s. One such example is David Westinghouse’s KDKA station in Pittsburgh, Pennsylvania, which broadcast the results of the presidential elections of November 2, 1920 during its initial airing. KDKA then began a regular daily schedule that aired until late evening (Coddling, 1959). Boosted by his station’s success, Westinghouse opened more stations. In the following year he formed WJZ in New York City and transmitted the World Series between the New York Giants and the New York Yankees. In the same year he opened KYW in Chicago, which transmitted all performances of the Chicago Civic Opera, six times a week, afternoon and evening.

During the 1920s, national radio networks also formed. The basic principle upon which the network functioned was to connect two or more stations by land lines, so that both stations broadcasted the same program simultaneously. With sufficient networks,

coast-to-coast broadcasting was made possible. This principle, which was “an essential aspect of the science, business, and art of radio” (Chester et al., 1971, p. 28) was put into action by the first two networks that formed in the 1920s: the National Broadcasting Company (NBC), which formed in 1926, and the Columbia Broadcasting Systems (CBS), which followed the next year. Other stations were established later. The Mutual Broadcasting System came into being in 1934, and the American Broadcasting Company (ABC) followed in 1945. The importance of these national networks from music education’s perspective emerged with the production of educational programs, which could be broadcast *everywhere*, since the networks would “speak at once to east and west, city and country, rich and poor” (Barnouw, 1966, p. 189).

### **The Radio as a Means of Education**

Educators had begun organizing educational radio programs since the inauguration of the first stations. Bianchi reports that the editors of *Radio Broadcast* heralded the radio as the “people’s university” in 1922, just a couple of years after the first official station broadcasts (Bianchi, 2005, p. 28). In fact, during that year many of the stations were owned by educational institutions. As Douglas (1987) points out:

Several clear trends emerged in the pattern of ownership of these stations.

One trend that became something of an epidemic was the trend toward ownership of radio stations by educational institutions—colleges, universities, chiropractic schools, Bible institutes, sometimes even high schools or radio training schools (p. 142).

In addition, Carpini (1995) reports that there were 70 stations run by colleges and universities in 1922, and that number almost doubled in the next few years. Atkinson (1942a) describes the universities’ attempts to educate via the radio and reports that their

programs included lectures, discussions, and extension courses. Local stations not affiliated with educational institutions also offered educational programs. Thus, the “School of the Air” movement became a trend in the 1920s; from 1921 through 1936, 202 broadcast licenses were issued to 168 educational institutions. The educational radio programs that were broadcast for the public throughout the country during the 1930s are presented in another study by Atkinson (1942b).

Bianchi (2005) describes the first experimental educational radio programs that were broadcast during the 1920s. Among the first such programs was the Little Red Schoolhouse of the Air, which Ben Darrow began airing in Chicago in the spring of 1924. Darrow was a schoolmaster, and he let the teachers and children of the school create the programs, which included lessons on art, music appreciation, geography, science, and farming. The program was broadcast through Sear’s radio station, WLS (acronym for World’s Largest Store). Another such program was initiated in Chicago in 1927 by Judith Waller, who, like Darrow, organized 20-minute lessons that were produced by teachers of several Chicago schools. She also convinced the Chicago Public Schools Board of Education to support the program, and a committee responsible for planning and preparing the broadcasts was formed. Soon, more school authorities realized the great possibilities of radio broadcasting. Research reveals that in 1936 alone, 220 school systems were interested in broadcasting as a method of teaching, whereas, during the previous year, only 25 state departments of education were using the radio (Cavert, 1938).

As the “Schools of the Air” gained favor, the national networks showed particular interest in broadcasting educational programs. NBC and CBS competed in the area of educational and cultural programming in order to demonstrate their commitment to responsible broadcasting, which attracted advertisers (Bianchi, 2005). By 1930 both

stations had formed educational departments that were responsible for the design, preparation and broadcasting of educational programs. The directors of the departments were often members of university faculties. Bianchi argues that the competition between the two networks resulted in “high-quality educational and cultural programming that set a standard unmatched by the offerings of radio or television in 2005” (Bianchi, 2005, p. 38).

### **MUSIC EDUCATION RADIO PROGRAMS**

Teachers used broadcasting to teach music appreciation even before the advent of the radio. Catherine E. Strouse of the Kansas State Normal School at Emporia, reportedly arranged with the telephone company to use telephone lines to broadcast music (played by a phonograph) to between 50 and 100 phones in Emporia and its surrounding counties. A lecture-recital would precede the music (Strouse, 1916). The advent of radio made this process much easier.

Radio educational programs that addressed music education were developed very early in the history of educational broadcasting. Single lessons in music appreciation were broadcast as part of the initial “Schools of the Air” during the 1920s. In 1926, though, a specialized radio series in music appreciation created by Alice Keith took place in Cleveland, Ohio. At the same time, national networks began their own programs in music listening, such as NBC’s *Music Appreciation Hour* and CBS’s *American School of the Air*. Similar series were offered by local stations, both commercial and educational (run by universities, state departments of education, or affiliated with local school districts).

### **The First Radio Programs in Music Appreciation**

Alice Keith developed music programs to be broadcast for primary and intermediate grades. She also arranged for special broadcasts of the Cleveland Symphony Orchestra. The broadcasts were aired over WTAM twice each week, while each Sunday the *Cleveland Plain Dealer* carried an illustrated article on the coming radio concerts (Darrow, 1932). Keith also introduced the first textbook to be used with radio programs, *Listening in on the Masters*. Describing her book, she says that it “contains analytical notes and musical illustrations for use of teachers in preparation for programs broadcast to the public schools” (Keith, 1931, p. 60).

Keith directed the programs from 1926 to 1928, when she became the director of RCA’s educational department. Bianchi reports that, a year after Keith left for RCA, the Cleveland School Board developed “what was then the most advanced radio education project in the country” (p. 56), which covered all grades and offered lessons in many subjects.

### **The NBC Music Appreciation Hour (1928-1942)**

The NBC Music Appreciation Hour with symphony conductor Walter Damrosch (1862-1950) is, perhaps, the best known of all educational music programs broadcast over the radio. The life and work of Damrosch, as well as his educational programs are very well documented: George Martin’s *The Damrosch Dynasty: America’s First Family of Music* gives a detailed history of the Damrosch family, which “contributed more than any other to the development of serious music in the United States” (Martin, 1983, p. xi); Damrosch’s career and his radio broadcasts are described in other dissertations (Goodell, 1973; Himmelein, 1972; Perryman, 1972), and his programs are also described in numerous articles in educational journals.

Damrosch's broadcasts are extremely important in the history of educational uses of technology in teaching music listening. The success of his broadcasts established the radio as an indispensable tool at the music teacher's disposal. It enabled the development and use of educational materials on a national scale, and it laid the foundation for similar programs that would be aired over the television. The current section will briefly outline Damrosch's work and contribution to music listening under this perspective.

### ***The Development of the Series***

"Walter Damrosch," Henderson argues, "did not become a radio lecturer in the twinkling of an eye" (Henderson, 1932, p. 5). Well before the beginning of the series in 1928, Damrosch was an established conductor, composer, and music educator. He directed numerous orchestras, like the Oratorio Society in New York (1885-98) and the New York Symphony Society (1885-1928). Henderson describes Damrosch's successful concerts, which he gave in many cities, as well as where he presented German operas through his Damrosch Opera Company, established in 1894 (Henderson, 1932). In addition, Howe (2003) reports that it was Damrosch who persuaded Andrew Carnegie to build Carnegie Hall, and that he organized a bandmasters' training school in France during World War I. His compositions consist of five operas and numerous choral works. Furthermore, his contribution to music education began in October 1891, when he started the series of *Symphony Concerts for Young People*. Damrosch was also one of the editors of the *Universal School Music Series*, which consisted of four song books and was specifically designed for elementary schools in rural areas (Earhart, 1928).

Damrosch's first encounter with radio broadcasting took place in October of 1923, when he broadcast three lecture-recitals and three concerts from Carnegie Hall. Contrary to his colleagues, he believed that the radio would create a larger audience for

public concerts (Martin, 1983). On January 24, 1926 he again broadcast an hour-long program to both American and European audiences as part of the International Radio Week with great success. Martin reports that Damrosch gave the usual explanatory remarks before each work in German, French and Italian. Not long afterward, he was invited to conduct the New York Symphony over NBC's network, presenting a series of the same nature—that is, a series of lecture-recitals. The program, broadcast every Saturday night, was an immense success. Damrosch claimed to have received “nearly 30,000 letters ... not only from the larger cities, but from the smallest country towns and Western farms and ranches” (“Walter Damrosch Accepts Post as Musical Counsel in Radio Project,” 1927, p. 7). Thus, the program was extended by various sponsors. Fansteel Products Company, the makers of Balkite radio receivers, sponsored the 1926-27 season (thus the series was called the *Balkite Hour*), RCA sponsored the 1927-28 season (the *RCA Hour*), and General Electric sponsored the next season (the *General Electric Hour*).

After his programs' success, Damrosch presented his plans to NBC officials regarding the production of an educational program, similar in format to the Concerts for Young People, given more than twenty years before. NBC accepted and announced the new project on May 21, 1927. “The plan,” according to the announcement, “provides for a series of concerts supplemented by talks, which will reach the majority of the 25 million students in American schools and colleges” (“Walter Damrosch Accepts Post as Musical Counsel in Radio Project,” 1927, p. 7). Damrosch also made suggestions as to the nature of the series. He proposed three series of eight concerts each, one for elementary grades, one for high schools and one for college students. Each school would be sent a questionnaire on the music that was to be performed, with answers and

explanatory notes from Damrosch. Local newspapers could also print the questionnaires, so that parents could participate in the listening experience.

During the following months, Damrosch made several trial broadcasts, and in the fall of 1928 the RCA Hour began to be broadcast via 29 NBC network stations to “hundreds of thousands of school children from Maine to Colorado, and from Minnesota to Louisiana” (Keith, 1929c, p. 90). The response was tremendous, according to Damrosch himself. “In general,” he said, “the response has been whole-hearted, extraordinary and sincere. It certainly seems that Elihu Root was right when he said that with the beginning of radio broadcasting, people began ‘learning through their ears’” (Goldsmith & Lescarbours, 1930, p. 190). From 1929 and beyond, the program was sponsored by NBC (hence its title, the NBC Music Appreciation Hour). The program was continued until 1942, when more time was desired for news broadcasting due to World War II. Damrosch would not accept NBC’s proposal to reduce the duration of his programs, and he resigned that year (Martin, 1983).

### ***Series Organization***

According to the teacher’s manual intended to supplement the program, the purpose of Damrosch’s concerts was to “supplement rather than supplant local instruction in the appreciation of music by presenting through the medium of broadcasting a type of program not otherwise available in the average school” (*Teacher's Guide to NBC Music Appreciation Hour Conducted by Walter Damrosch*, 1940, p. 6).

There were four series in the program (contrary to the three that Damrosch had initially suggested). “Series A,” or “Explorative: Orchestral instruments and the human voice,” addressed children in third and fourth grade. “Series B,” aimed at fifth and sixth graders, was called “Imaginative: Music as an expressive medium.” “Series C”, entitled

“Analytical: Musical Forms,” was appropriate for grades seven to nine; whereas “Series D,” called “Historical: Lives of great composers,” addressed high school students, college students, and adults (Howe, 2003). Each series consisted of 12 half-hour programs, which were broadcast on Fridays during the school day. One week, Series A and B would be aired at 11:00 am and 11:30 am respectively, while the following week these slots would be filled by Series C and D. Howe reports that after 1936, the programs were broadcast between 2:00 and 3:00 p.m. EST so that they could be heard by children in the Western states as well. The music was conducted by Damrosch and performed by the NBC orchestra, which was initially called the “National Orchestra” and later the “NBC Symphony Orchestra” (Teacher's Guide to NBC Music Appreciation Hour Conducted by Walter Damrosch, 1940).

### *Series Contents*

Generally, the musical content of the series did not change drastically. Sanders (1990) argues that the mainstay of the series was symphonic literature, mostly Romantic and German, although some vocal and chamber music was added after several years for a more varied repertoire. This musical homogeneity can be seen from Howe’s (2003) statistical analysis of the music played in a typical season (1936-37): 40.3% of the composers presented were active in the 19<sup>th</sup> century; 48.7% of the music played was composed by German/Austrian composers and 22.8% by French ones; only four American composers were represented. Sanders also reports that some pieces were repeated every year, such as Grieg’s *Peer Gynt Suite*, movements from Haydn, Mozart and Beethoven symphonies, excerpts from Wagner’s operas, Bizet’s *L’Arlesienne Suite*, Mendelssohn’s *A Midsummer Night’s Dream*, and Saint-Saëns’s *Carnival of the Animals*. Finally, it is notable that no contemporary music was represented due to Damrosch’s

dislike towards it: “Children should not be confused by experiments,” he said, “which have not and never will be proven. Only that which has been proven worthy should be used to build the foundation of their knowledge” (Martin, 1983, p. 369)

Howe (2003) also reports that each season the topics covered within the series were kept more or less the same. In Series A, Damrosch discussed the different instrument families of the orchestra, including the piano and the human voice, playing examples to demonstrate them. In Series B, he used examples to demonstrate emotions like happiness and sadness, as well as to cover other topics like nature, motion, fun, fairy tales, animals, and toys. Small forms (dance, march, overture, song) were also introduced. The latter was the emphasized topic in Series C, where musical forms were presented, like round and canon, suite, fugue, simple binary and ternary forms, theme and variations, sonata, overture, symphony, and symphonic poem. Finally, the work of canonic composers like Bach, Handel, Haydn, Mozart, Beethoven, Schubert, Brahms, Wagner, and Debussy was presented in Series D. A review of the series took place in the final program, called the “Students’ Achievement Program.”

A typical lesson, as described by Sanders (1990), would begin with a greeting from Damrosch (e.g., “Good morning, my dear children,” or “Good afternoon, my young friends”). The orchestra would then play an excerpt of a piece that had been presented in the previous broadcast, and students would guess its title. Then, he would generally describe the day’s lesson and start presenting his points in detail. He used many techniques to illustrate each point: state the facts; relate a story, often by playing themes either on the piano or another instrument of the orchestra; and make an analogy (e.g., he compared the role of the double bass to the foundation of a house). Sanders also reports that Damrosch worked without a script, which gave the program a more natural appeal.

He would tell stories and jokes, and the members of the orchestra as well as the audience would respond to them.

### *Educational Materials*

Two kinds of publications accompanied Damrosch's programs: a guide for teachers and workbooks for children. Both were published annually, but for the first two years of broadcasting only the former was available. The publications were priced at the cost of printing and mailing, and there were further discounts for ordering large quantities of materials (McGill, 1940). From 1929 to 1938 the books were published by NBC; whereas, Columbia University Press published the materials for the remaining three seasons.

The teacher's guides were designed to aid teachers in preparing their classes for the Music Appreciation Hour broadcasts (McGill, 1940). During the 14-year span of the series, the contents of the guides varied, but the main sections did not change. First, they provided teachers with useful information about the programs. Usually, a list of the lessons that were to be aired during the season, along with the dates, times, and radio stations that carried the programs, appeared on the first page. Lists of the NBC Board of Directors and the Advisory Board sponsoring the series were also included. The guides also explained the organization of the concerts in the four series and gave information on how to order student worksheets.

Secondly, the guides gave suggestions to teachers regarding methods of utilizing the broadcasts in the classroom. For example, for the 1939-40 season, there was a general and a specific list of suggestions for each series, prepared by Dr. Will Earthart, Director of Music in Pittsburgh public schools and Chairman of the Advisory Board of the series.

Under the general suggestions for Series A (children of 3rd and 4th grades), Earhart wrote:

To develop appreciation through classroom procedure the children should have learned:

1. To sing with lovely tone.
2. To have a good “ear” for tone.
3. To listen to, remember, and reproduce music upon very few hearings.
4. To respond to rhythms and enjoy (which means “appreciate”) them as varied *modes of motion*.
5. To observe rudimentary factors of musical design and find interest and charm in the manner in which tones behave.

*(Teacher's Guide to NBC Music Appreciation Hour Conducted by Walter*

*Damrosch, 1940, p. 8)*

Children listening to Series B would need to achieve the same goals, but also to remember and to reproduce music in written notation upon very few hearings. For Series C, students were expected to be able to “produce lovely musical effects with their voices” and to apply these effects while playing in the school orchestra (p. 9). Adults hearing Series D needed to be able to analyze the musical form as “nicely controlled imaginative thinking, leading to certain crystallized form” (p. 12); distinguish “expressive” from programmatic music; and identify the musical texture. Finally, Earhart gave specific guidelines concerning how to better prepare each age group for the recordings. Recommended activities included buying phonograph records of the pieces that were to be broadcast in advance; exposing the students to these pieces, beginning with the

shortest pieces; organizing discussions about the title, composer, and form of each piece; and teaching students to sing the main themes.

The teacher's guide contained descriptive notes and notations of the themes for all the pieces that were going to be broadcast (for the last two seasons, these were displayed only in the student workbook), as well as other educational materials. The descriptive notes, which were similar to program notes, consisted of a short paragraph that presented information about the music suitable for each age group. For example, for *The Elephant* theme from Saint-Saëns's *The Carnival of the Animals*, the teacher's manual for Series A reads:

The French composer Saint-Saëns wrote a whole suite about animals. There are 14 pieces in the suite, and each piece describes or suggests some animal, bird, or fish. One describes the elephant. This beast's great size and its heavy, clumsy movements are suggested by the cumbersome bass viols, which have an awkward time playing a graceful waltz tune—as if an elephant were trying to dance (*Student's Worksheet to NBC Music Appreciation Hour Conducted by Walter Damrosch. Third Concert, Series A, November 10, 1939, 1940, p. 3*).

The notation of the first eight measures of the piece (the theme of the excerpt) accompanied the description. Other educational materials included questionnaires that could be used as evaluation tests, photographs of instruments, and a diagram showing the typical seating plan of a symphony orchestra.

Finally, the teacher's manual offered a comprehensive list of other educational materials to which teachers could refer for more information on the pieces. Such materials included bibliographies of music textbooks and teachers' manuals, biographies of composers, music appreciation publications that were used by the general public, scores of the pieces, pictures of composers, and opera synopses. The manual also provided a list of scores and recordings of the music used in the programs available through Victor, Columbia, Brunswick, and Ginn.

The student workbooks began to be published with the third season (1930-31), and they were available for each series. Sanders (1990) reports that, until 1939, the workbooks did not change much as far as the organization and the contents were concerned. First, the book included an introduction by the editor. Editors included Ernest LaPrade (assistant conductor of the New York Symphony), Charles H. Farnsworth (professor emeritus of music education at Teachers College, Columbia University), and Lawrence Abbott (music critic and long time friend of Damrosch). A large picture of Damrosch, accompanied by a short biography, followed the introduction. The majority of the book was made up of the titles, descriptive notes, and notated themes of the assigned pieces, as well as questions about the pieces. Other illustrative materials included drawings of the instruments and composers, which were replaced by photographs in 1932 (Sanders, 1990). In some cases, the pictures of the composers were placed in the back of the book to be cut and pasted during the appropriate lesson (Perryman, 1972). Some booklets included the texts for the vocal literature used in some lessons. For the last three seasons, each lesson consisted of just four pages, the last of which contained a test for the lesson. An example of the student workbook from the 1940-41 season is presented in Figure 6.

2. Siegfried's Rhine Journey, from "Dusk of the Gods" (Excerpt) ..... Wagner

"The Dusk of the Gods" is the last of four operas by the great German composer Richard Wagner which together form "The Ring of the Nibelung." This story, based on an old Teutonic myth, tells of gods, giants, and dwarfs whose greed for a magic ring led to their eventual downfall.

During the course of the tale Wotan, chief of the gods, finds it necessary to punish his favorite daughter, the Valkyrie maiden Brünnhilde, by putting her into an enchanted sleep on a rock surrounded by magic fire. There she is found by a brave and fearless hero, Siegfried, who claims her as his bride.

(For the complete story see Operas Every Child Should Know—Bacon.)

In the opening act of "The Dusk of the Gods" Siegfried decides to take leave of Brünnhilde and go forth into the world to perform new deeds of valor. Bidding his bride farewell, he sets out on his journey up the Rhine, and as he departs he plays a joyous call on his horn. It is this call (see Fig. 29), played by the solo horn of the orchestra, that we are to hear today.



Fig. 29—Siegfried's Horn Call

3. Andante Cantabile from Symphony No. 5, in E Minor (Excerpt) ..... Tchaikovsky

The second movement of Tchaikovsky's Fifth Symphony is marked *andante cantabile*, which means "fairly slow, and in a melodious, singing style." The movement opens with a few solemn chords played by the strings, after which a solo horn plays the romantic, song-like theme.



Fig. 30—Principal Theme

4. "Academic Festival" Overture (Excerpt) ..... Brahms

This overture, composed by Brahms in acknowledgment of the degree of Doctor of Philosophy conferred on him by the University of Breslau, is based on several German student songs. One of these—"We Have Built a Stately House"—is introduced by three trumpets and a horn. Its high, sustained tones give the trumpets a splendid opportunity to display their clear, penetrating quality of their upper range.

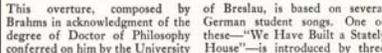


Fig. 31—"We Have Built a Stately House"

5. Guard Mount from "Carmen" Suite No. 2 ..... Bizet

In the first act of Bizet's opera, "Carmen," soldiers are on guard in a public square in the picturesque Spanish city of Seville. When the time comes for the guard to be relieved, a band of dragoons approaches from afar to the tune of a fascinating little march for fifes and trumpets, and the ceremony of the changing of the guard takes place. First we hear a distant bugle call (played by the trumpet), which announces the approach of the new guard; then, still rather far away, the march tune which grows gradually louder as the soldiers draw near. Presently they arrive at the guard house and relieve the soldiers already on duty there.



BIZET

away, the music grows fainter and fainter until finally it dies away in the distance.

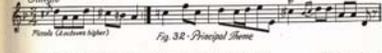


Fig. 32—Principal Theme

6. Coronation March from "The Prophet" ..... Meyerbeer

Meyerbeer's opera "The Prophet" tells the story of an innkeeper, John of Leyden, who leads a revolt of the Dutch peasants and is crowned "king" in the great cathedral of Münster. The occasion is, of course, one of great pomp and ceremony, and we shall hear how Meyerbeer uses the trumpets and other brass instruments to produce a brilliant and imposing effect.

(For the complete story see Operas Every Child Should Know—Bacon.)



Fig. 33—Principal Theme

Figure 6. Excerpt from Student's Worksheet (Series A, February 9, 1940)

As can be seen at Figure 6, the descriptions of the music differ from the ones presented in the previous chapter, like Anne Faulkner's *What we Hear in Music*. First, they are more condensed and contain only basic information about the piece being described. The reason for such brevity is that the workbooks were designed to be used as references by students (as opposed to their teachers), since Damrosch talked about the compositions during the broadcast. Secondly, in the above example, the language is appropriately simplified since it addresses students in the third and fourth grades (Series A).

### *Influence of the Music Appreciation Hour*

The contribution of Damrosch's programs to the area of music listening was extremely important. First and foremost, they were very successful, and the trend towards attentive music listening spread among millions of teachers, children, and parents. Saettler reports that NBC received more than 50,000 letters regarding the program during

the first year, and polls indicated an audience of more than three million (Saettler, 1990). Also, NBC estimated that the audience for the broadcast was six million for the 1933-34 season (Read, 1976). Five years later, according to Perryman (1972), NBC announced that seven million students from 70,000 schools listened to the broadcasts along with three or four million adults. Bianchi (2005) though, argues that these estimates were very high. He refers to other studies showing that the number of listeners was much lower (e.g. Goodell, 1973). However, without a doubt, Damrosch spread awareness of and respect for classical music throughout the country.

Secondly, the educational materials published for use with the Music Appreciation Hour were widely used. Approximately 17,000 copies of the manuals and 105,000 copies of the student workbooks were sold for the 1933-34 season, according to NBC (Perryman, 1972). Howe (2003) reports that 2,000 of the publications were mailed abroad. It seems that this was the first time that music appreciation educational materials were spread on such a scale. As a result it became feasible that teachers and students would be more familiar with such materials and would be eager to use them in the future. Also, Martin points out that the contents of these publications influenced the future of music textbooks to such a degree that one could see elements of Damrosch's teachings in textbooks half a century later (Martin, 1983).

Furthermore, the publishers of the educational material that accompanied the programs refined the techniques that were used to teach music listening. The two major such methods were the use of descriptions of music and the use of notated themes. As stated before, the descriptions of music appears to be more specific and condensed in comparison with the ones found in previous publications (like Faulkner's *What we Hear in Music*, presented in the previous chapter). The notated themes were used to teach a specific element of the music performance (as opposed to the practice of being used as a

mere song). A possible reason explaining the condensed versions of the music descriptions could be the fact that it was not necessary to keep a lot of information in the student's workbook, since Damrosch would give such information during the broadcast. Thus, only essential information was included.

The Music Appreciation Hour awakened many music educators to the potential of the radio and the importance of teaching music appreciation. "Once each week," Darrow claims, Damrosch "became an assistant to every teacher of music in America who cared to welcome his help. And many did." (Darrow, 1932, p. 35). As a matter of fact, there are several articles in professional journals and papers presented at conferences in which teachers, supervisors and professors emphasized the benefits of Damrosch's radio programs towards teaching music appreciation (e.g. Keith, 1929a, 1929b, 1929c, 1931; Ostrander, 1938; Sanborn, 1936; Searle, 1936). Other authors proposed guidelines regarding the effective use of radio in the classroom (Garbett, 1936; *How to Use Radio in the Classroom*, 1939; LaPrade, 1936; Maddy, 1936), while Margaret Harrison (1937) devoted 12 pages (p. 96 – 107) of her book, entitled *Radio in the Classroom: Objectives, Principles, and Practices*, to offer suggestions as to how to effectively use Damrosch's programs in the classroom.

Finally, the example of NBC and the network's success in broadcasting youth concerts with Walter Damrosch was imitated by other stations as well. CBS, one of the rival networks, launched its educational programs two years after the Music Appreciation Hour's initial broadcast.

### **Columbia Broadcasting System's American School of the Air**

CBS inaugurated an educational department in 1930. During the same year it began broadcasting the *American School of the Air*. Bryson (1943) reports that the

American School of the Air consisted of five series of 30-minute programs, each of which featured a different subject and aired on a designated day of the week (Monday's series was "Science at Work"; Tuesday's was "Gateways to Music"; Wednesday's was "New Horizons"; Thursdays was "Tales from Far and Near"; and Friday's was "This Living World"). Although the programs were intended for school audiences, "adult listeners have failed to complain that they are too simplified to be informative" (Bryson, 1943, p. 19). In fact, in addition to eight million school students, an estimated 3.5 million adults listened to the series during the 1941-42 season (Sunderman, 1971). William C. Bagley from Columbia University's Teachers College reported that during the first years of the broadcasts, CBS received more than 35,000 letters from teachers, students and adults, which "give reason to infer that the programs of the American School of the Air met in a fairly meritorious way the conditions that educational broadcasting must meet if it is to be a useful adjunct to school instruction" (Bagley, 1930, p. 257). In 1940, the programs began to be broadcast in Canada and 20 South American countries; the series was then renamed *Air of the Americas* (Sanders, 1990). It was broadcast until 1947, when many radio programs sustained by the network companies were canceled in order to be replaced by more profitable ones as networks began to invest in the television industry (Barnouw, 1966).

The programs were designed with cooperation from committees of educators and other professional groups. CBS's educational department "along with national and local boards of teachers and citizens, work together throughout each year to maintain the programs and to make the work of the American School of the Air responsive to the best educational thinking of our time" (Bryson, 1943, p. 19). In that way, the subjects were selected "in hope of supplementing the work that only the teacher can do", Bryson adds (p.19). Also, Bagley reports that "the announcements and narratives were carefully

scrutinized by a specialist in English who had had wide experience in teaching children” (Bagley, 1930, p. 256).

### ***CBS's Gateways to Music***

*Gateways to Music* was CBS's series devoted to music education. The programs were carried over a network of 40 CBS stations and presented every Tuesday at 2:30 pm EST ("Radio Resume," 1930). The series' programs were prepared by CBS's educational department with support from the Music Educators National Conference. The latter formed a committee in 1942 with Osbourne McConathy as the Chairman, who consulted with CBS on the organization of the programs. The music was performed by the Columbia Concert Orchestra, featuring distinguished conductors and soloists (Bryson, 1943). Sanders (1990) reports that within its 17-year history, there were several series of programs under the general title *Gateways to Music*.

Three music series were developed for the 1930-31 school year: (a) "Radio Picture Book Series", intended for the primary grades and broadcast on alternate Tuesdays, (b) "Radio Journeys to Music Land", offered on the other Tuesdays for the intermediate grades, and (c) "Folk and Art Music of the World", geared toward the upper grades, high school students and adults, which was broadcast weekly. According to Sanders (1990), programs for the primary grades featured songs, games, rhythmic movement, playing rhythm instruments, and listening. Singing was also included in the programs for the intermediate grades, although there was an increased emphasis on listening (for instance, there was a different program for each of the four orchestral families). Finally, programs for the upper levels were based almost entirely on music appreciation. Alice Keith (1931), the broadcasting director of the American School of the

Air, emphasized the necessity of the students' active participation during the broadcast of these programs:

Creative work and pupil participation is of vital importance in the acquisition of knowledge—hence the three series of musical programs of the American School of the Air are presented with the idea in mind that during the course of each broadcast, pupils will either sing or respond rhythmically to music, according to their age (p. 60).

During the following years different music series were broadcast. During the 1937-38 season, "Old World Backgrounds," intended for high school students, presented music from the medieval period. During the next season, high school students listened to "Music of America"; whereas, "Music and the Friendly Arts" was designed for students in the intermediate grades. Evidently, the integration of music with other subjects was emphasized in these programs. That trend continued in the series presented in the following years, which were designed for a wider age span, ranging from upper elementary to high school, according to Sanders (1990). "Folk Music of America" and its successor, "Wellsprings," primarily offered songs from North America; whereas, "Music of the Americas," broadcast during the 1941-42 season, used songs drawn from both North and South America. The next year's series was entitled "Music on a Holiday—Music for Victory," which reflected music educators' contributions towards the war effort ("Music Education in Wartime," 1942; *Wartime Music Education on the Air*, 1942). Finally, the series that aired during the remaining years of the American School of the Air was the "Gateways to Music: From Folk Songs to Symphony," and it covered several topics from a music appreciation perspective.

### ***Educational Materials by CBS***

CBS published two kinds of books to be used with the Gateways to Music series: (a) a teacher's manual and (b) student textbooks. The Teacher's Manual, as Bryson reports, was available free of charge to any teacher who requested it (Bryson, 1943). It outlined briefly each scheduled broadcast, giving pertinent information such as broadcast times, lists of consultants who helped in the preparation of the programs, and the radio stations that broadcast the programs. Sanders also reports that some manuals offered more information, such as suggestions as to how to use the programs effectively, what equipment was necessary to buy, whether there were available textbooks to accompany the programs, how students could participate in the broadcasts, and which activities were appropriate for each age group. (Sanders, 1990). Since its formation in 1942, MENC's School of the Air Committee prepared the music section of the manual.

Student textbooks were published because "it is the belief of the Advisory Faculty of the American School of Air that creative work and pupil participation is of vital importance in the acquisition of knowledge" (Keith, 1931, p. 60). Students' participation, Keith explained, consisted of their singing or responding rhythmically to music according to their age. CBS published three different textbooks, each of which addressed a different grade level. *My Radio Book* contained large line drawings and reading material suited to students from five to nine years old. Children could read and color the 26 pages of their workbook and "make their own cover." According to Keith, "the theory is that by actually coloring the pictures they [the students] will retain the information in their memory" (p. 60). The *Radio Work Book* was designed for intermediate grades, and, in addition to the pictures and stories that were also included in the *My Radio Book* series, it contained full-page illustrations of orchestral musicians playing their instruments. The third book, entitled *Music Journeys to Many Lands*, was designed for higher grades and

adults. According to Keith, it was “copiously illustrated with pictures of composers, manuscripts, folk dancers, maps and similar material, as well as the actual words and music of folk songs to be sung during the period of broadcast” (p. 60). The three publications coordinated with the three series that were broadcast during the first season of “Gateways to Music.” Atkinson (1942d) reports that similar publications were made available for the next four years of the program.

### **The Standard School Broadcast**

When the *Music Appreciation Hour* and the *American School of the Air* were inaugurated, they were broadcast primarily in the eastern and middle parts of the continental United States and Canada since the stations’ signals could not pass the Rocky Mountains. The Western states would listen to the *Standard School Broadcast*, which was *Music Appreciation Hour’s* and *American School of the Air’s* equivalent music education radio series aired in the west. Although the series did not feature a famous personality like Damrosch, it began in the same year, 1926, and outlasted the Music Appreciation Hour by 27 years, since “it had something more powerful and enduring—corporate backing” (Sanders, 1990, p. 110).

### ***Development of the Series***

The series began as a weekly concert given by the San Francisco Symphony Orchestra and was carried by a group of stations on the west coast. Standard Oil of California (hereafter, Standard), which became Chevron in 1984, sponsored the broadcast by purchasing the airtime in an attempt to improve the company’s public image. The broadcasts took place in the evening. The series was called *The Standard Symphony Hour*, and it was so successful that more orchestras were added to the schedule so that by

1949 the series had featured “15 orchestras, directed by 78 conductors, among them many of the greatest, and hundreds of outstanding soloists” (Michaelis, 1949). The series was broadcast until 1955.

Even after the first few concerts, Adrian Michaelis, the Program Manager of the broadcasts, received many letters from listeners, many of whom were asking questions about the terms they had heard on the broadcasts: “‘What does a conductor do?’ ‘What is an oboe?’ ‘What do you mean by scherzo?’ ‘What is the difference between an English horn and a French horn?’” (Michaelis, 1975, p. 178). In order to answer such questions, Standard organized another radio program, to be broadcast during the daytime, which would explain the music that would be aired later that evening. This daytime program became known as the *Standard School Broadcast*.

What started as a service to the audiences of the Standard Symphony Hour quickly became an educational tool for school students. All 72 schools in the West Coast that were equipped with radios listened to the Standard School Broadcast’s initial broadcast on October 18<sup>th</sup>, 1928, according to Atkinson (1942d). She reports that, by 1942, the Standard School Broadcast’s audience was estimated at half a million students and 20,000 educators from 4,600 schools. Likewise, Michaelis reports that, by the second season, 500 schools had purchased radio sets “largely because of the broadcast” (p. 179), and that the number of schools that listened to the series exceeded 14,000 (Michaelis, 1975). Also, the area that the series reached increased; by 1939, six states received the programs, including Alaska and Hawaii, while Arizona, Nevada and Utah were added later. Eventually, by the end of the series 17 states picked up the program’s signal. Finally, the group of stations that initially broadcast the program were organized into the NBC Pacific Coast Red Network (Atkinson, 1942d). Except for a short period when

Mutual Broadcasting System took over the broadcasts (1940-43), NBC carried the series until it ended in 1970 after 44 years of broadcasting.

### *Series Contents*

The *Standard School Broadcast* aired every Thursday at 11:00 am and explained the music that was about to be aired during that evening's *Standard Symphony Hour*. Since its second season, the series was split into two 20-minute programs—one for elementary school students and another for high school students and adults. Listeners would sing a designated song during the five minutes between the two broadcasts. The series was geared toward music appreciation, according to Sanders (1990). Concepts like form, melody, counterpoint, dynamics, timbre, genre, and styles were featured in the lessons, but as the series progressed, more programmatic music was presented.

The music selections also changed during the 44-year span of broadcasting. Until World War II, European repertoire, especially Romantic, dominated the series. During the war, though, the program's music "took a decidedly nationalistic turn, which included emphasis on folk music as well as works of American and Pan-American composers" (Sanders, 1990, p. 121). This trend would continue after the war, and, beginning with the 1949-50 season, each year had a theme. Titles included "A Music Map of America," "Music and the American Family, 1750-1950," "Musical Portraits of Famous Americans," and "The World's Music in America." Similarly, from 1963 to 1967, the themes adopted included "I Am an American" and "We Are Americans," and in each program there were narrations or dramatizations of incidents in the lives of famous Americans (Sanders gives Alexander Hamilton and Booker T. Washington as examples), featuring appropriate background music. Finally, Afro-American music and jazz were also presented as part of Standard's decision to present more American music.

The *Standard School Broadcast*'s presentation of a series of lessons was unique in comparison to Damrosch's and CBS's programs; instead of listening to the conductor give straightforward presentations of information, *Standard School Broadcast*'s listeners enjoyed the conversations of imaginary characters. Michaelis recalls that, in 1933, he had conceived "Rondomel, the Spirit of Music (called "Mel" for short), 'a little musical elf or sprite ... that could live in any era, any time ... like a supernatural character'" (Sanders, 1990, p. 120). New characters were added in the following seasons, like *Philomel*, the Wandering Troubadour who represented European music; *Mavis*, the Opera Songstress; *Celia*, the Music Student, personifying listeners' enthusiasm and discoveries; *Jack-of-All-Tunes*, who represented American folk music; *Carola*, the Pan-American Songbird; and *Joseph*, the Afro-American Bard. These characters were used from 1933 to 1944.

### ***Educational Materials***

Standard produced two kinds of educational materials to be used with the Standard School Broadcast: teacher's manuals and recordings of their programs. The former were published throughout the 44-year span of the series broadcastings and were free of charge; whereas, the latter were not issued until 1943. Further materials were issued after the series ended.

The contents of the teacher's manuals, published from 1926 to 1931, were limited compared to the ones published for NBC's Music Appreciation Hour. Sanders (1990) reports that the conductors followed a script during broadcasts. Until 1931, these scripts made up the entirety of the teachers' manuals in most cases. Sometimes, several musical examples were printed as well. During this period, lessons were mailed to teachers as flyers, pamphlets or individual, letter-sized pages. Each of the manuals initially contained only a single lesson, and it was sent to teachers a month in advance of the scheduled

broadcast. Gradually, several lessons would be combined in each publication. It was not until the 1933-34 season, however, that the teacher's manuals contained the lessons for the entire season. Perry (1929) reports that 7,000 manuals were mailed on a regular basis by the end of the second season and that the recipients even included teachers who could not listen to the programs (either because their schools were not equipped with radios or because they were unable to pick up the transmissions).

More information began to be included in the teacher's manuals beginning in 1931. Suggestions on classroom preparation, diagrams featuring the seating arrangement of a symphony orchestra, and drawings of instruments were among the first additions to be included in the manuals. Sanders (1990) reports that, in the following years, more helpful information appeared in the manuals: suggestions as to how to use the radio in the classroom; brief lists of composers' biographies; illustrative materials such as charts, photographs, and art reproductions; suggestions for integration with other subjects; as well as photographs of students' projects related to the *Standard School Broadcast*, such as poems, reports, letters, drawings, and crafts (including musical instruments). Color made its debut in the 1943-44 season's manual, which had a full-color cover; color pictures and illustrations appeared the following year. Additional educational materials were also included with the manuals. In the 1949-50 season, a large 2.5' x 3.5' map of North America was published; entitled "Music Map of America", it gave information regarding the music that was performed in cities, and the music of the several Native American tribes in United States, Canada and Mexico. Large color portraits of famous Americans were featured in the 1951-52 manual. Wall charts were included with the manuals during the 1950s when the contents of the programs became more oriented towards the social sciences. During the 1960-61 season, when the topic was "Music—Passport to the World," the manual's size was reduced to resemble a passport. Finally,

during the last years of the series, the manuals' contents were gradually reduced and ended up with only background information (Sanders, 1990).

Standard began issuing recordings of the programs in 1943. That year the series transferred from Mutual network to NBC, and it was discovered that some areas could no longer receive the programs. NBC employed a number of local independent stations to meet this need but could not relay the live performances from San Francisco. Sanders (1990) reports it was then that Standard began to make recordings of the performances, which were initially sent to these stations. The latter were allowed to donate the recordings to schools; Standard would also supply schools with the recordings free of charge if they could not receive the programs.

Finally, it is notable that even after the Standard School Broadcast had ended, Standard and Chevron continued to issue educational materials in music education based on their experiences with the programs. Sanders (1990) reports that the *Music Maker Series*, published in 1973, was "a six LP package devoted to the Keyboard, Strings, Brass, Reeds, Percussion, and the Guitar" (Sales 1976, cited in Sanders, 1990, p. 116) and it included Broadcast's program recordings. More recordings were published three years later with the title *Musical Visions of America*, which traced the history of American music. The series comprised four multi-media kits for classroom use that included color filmstrips, cassettes and teachers' manuals. Also, in 1982, they released *Jazzmakers*, which were four 15-minute videotapes that featured "renowned jazz performers and accompanists who entertain and explore basic musical concepts with their audiences of Bay Area fifth and sixth graders" (Hall, 1982, cited in Sanders, 1990, pp. 116-117).

## **Radio Programs in Music Appreciation Carried by Commercial Stations and Universities**

Numerous individual commercial radio stations and stations run by universities followed the example of the large networks and offered educational programs. Educational materials, especially teacher's manuals, were published as well. A discussion of all these programs exceeds the scope of the current study; rather, some examples will be given to illustrate the significance of radio programs' contributions to the spread of music appreciation and the development of educational materials to support music appreciation.

Atkinson (1942d) reports that the *Prairie Farmer WLS School Time*, broadcast by Chicago's WLS station, addressed many subjects of the curriculum, including music. Teacher's manuals began to be published in 1939, a year after the series' initial broadcast. There were several music education series under *Prairie Farmer WLS School Time*. The "Little Lessons for Little Folks" addressed young children, and included singing, musical games and rhythms; the "Music in America" and the "Stories of Great Music" were designed for grades four to eight, and were based on music appreciation principles; the "Let's Sing" series taught music singing, and "while ... [it] was designed especially for rural schools, it has proven equally popular in urban areas" (Atkinson, 1942d, p. 54); "Around the World with Music," according to Atkinson, "takes the pupils to foreign lands and shows them the national characteristics of those countries though music played by the WLS concert orchestra" (p. 54). Each lesson lasted 15 minutes, and by the 1940-41 season it was estimated that the program had reached 870,000 students in 24,000 classrooms in nine Midwestern states.

Similarly, the education departments of many universities organized numerous educational radio programs, among which were several in music. For example, the *Ohio*

*School of the Air*, “the first of its kind in the country” (Holy, 1949, p. 148), was established in 1928. Music programs began the following year with “The Little Red Schoolhouse Course in Music,” a course of 15 half-hour lessons that were divided into primary and intermediate lessons. Sanders (1990) reports that, although the programs were heavily based on singing, many music appreciation elements appeared in the intermediate-level lessons. Two other series that followed, “Music of the Masters” (aired in 1934-36 for grades 7 and 8) and the “History of Music” (broadcast in 1935-36 season for high school students) were strictly designed for teaching music appreciation. Educational materials were published through a periodical issued by Ohio State University.

Another music education radio series was the *Journeys in Musicland* series, broadcast by the University of Wisconsin’s WHA station from 1931 to 1955. The programs were prepared by Professor Edward Gordon, and program schedules were sent to participating schools of Wisconsin. The series included singing, music theory “and a considerable amount of music appreciation. The aim at all times will be to stimulate the interest of the children in good music and to cultivate the ability to participate in some form of music activity” (Barresi, 1987, p. 267). Barresi also reports that Gordon arranged to publish books containing the songs that were used in his programs to be purchased by each child enrolled. A separate book of piano accompaniments was also available. Gordon also organized Radio Music Festivals, where large groups of children would sing the songs that they had learned from his programs (by 1956, according to Barresi, 15 festivals had been held for about 27,300 children throughout the state). Upon Gordon’s retirement in 1955, the series continued with the name “Let’s Sing,” and by 1962 its audience reached 75,000 children from all over the state (Wittich & Schuller, 1962).

## **THE CONTRIBUTION OF TELEVISION TO MUSIC APPRECIATION**

The advent of television and its spread to American homes during the 1950s offered new opportunities for educational broadcasting. Television extended the radio's contribution to music education by broadcasting youth concerts during which the conductor would use the orchestra to explain various aspects of music to the audience.

The man who contributed to teaching music listening via televised educational broadcasting in the most effective manner was Leonard Bernstein (1918-1990) with his appearance on the *Omnibus* series and especially with the organization and presentation of the *Young People's Concerts with Leonard Bernstein*. Bernstein made immense contributions to the art of music, serving the field as a conductor, composer, lyricist, pianist, lecturer, writer, public speaker and educator during his 47-year professional career (1943-1990), and was one "of the most eclectic, productive, talented, and multi-faceted musicians that the country has ever produced" (Rozen, 1998, p. 1).

The current section will present a brief summary of the development and spread of television to identify the capabilities of educational broadcasting. Then, a brief description of Bernstein's programs will follow, outlining his influence on teaching music appreciation.

### **The Advent of the Television and the First Educational Stations**

As with the case of radio, the development of television resulted from the labor of many individuals, working either together or alone over many years. Since the 1880s, the inventors associated with the history of television had been developing many individual devices that were eventually assembled to create the television. During the 1930s the laboratories of RCA, CBS and Du Mont worked unceasingly on the refinement of

television for commercial uses. The public had a glimpse of the new device for the first time during the summer of 1935, when Philo Farnsworth demonstrated his invention. Farnsworth was the first to apply for a patent on a complete electronic television system eight years earlier, which he called the “Image Dissector” (Abramson, 1987). In 1941, the Federal Communications Commission (FCC) released the NTSC (National Television System Committee) standard for black and white television, thus enabling the launch of television broadcasting by commercial stations and networks, which took place on July 1, 1941 (Fisher & Fisher, 1996). The FCC approved the first color television standard in 1950, and by 1954 the first color sets rolled off RCA’s production lines.

Soon, the number of stations and homes that owned television sets boomed. Chester, et al (1971) have shown that there were only a few TV stations upon the inauguration of commercial television in 1941, and that they broadcast their three-hour daily programs to a mere 4,700 sets in the entire New York area. The authors also report that the manufacturing of radios and televisions was banned during World War II but resumed shortly after the war. In 1948, there were one million television sets in the United States; by 1952, there were 17 million; two years later, 32 million sets were in use; and by 1970, there were 84 million devices while 95 percent of households in the United States owned at least one of them. Similarly, the number of stations also rose: in 1941, there were 108 stations on the air in the 63 cities in which two-thirds of the country’s population resided; 175 new stations were authorized to air in 1952; in 1954, a total of 377 stations were broadcasting, and that number rose to 850 in 1970.

As in the case of radio, television was used as an educational medium early in its history. The first educational television stations were established and run by universities. According to Saettler (1990), the first such station was WOI-TV of Iowa State University (then College), which began broadcasting on February 21, 1950. Three years later two

additional stations began airing: KUHT, jointly licensed by the University of Houston and the Houston Board of Education, and KTHE, licensed to the University of California. The FCC made a special provision for educational, non-profit television stations in 1952, and by mid-1955 there were 16 stations broadcasting educational programs. That number rose to 71 in 1962. Nine years later, 162 educational stations affiliated with universities and community educational groups had been established in more than 170 communities from coast to coast, while 20 million people were tuning in to their programs every month, not counting audiences in schools (Chester et al., 1971).

### **The Omnibus Television Series**

The first televised music appreciation lesson was Leonard Bernstein's appearance in *Omnibus*. This weekly 90-minute show was broadcast under the sponsorship of the Ford Foundation (Peyser, 1987, p. 234). During its eight seasons (1952-1961), the series aired on all three commercial networks (four seasons on CBS, one on ABC and the last three on NBC). It maintained an audience of 4 million to 5.7 million homes every year and won more than 65 awards, including seven Emmys (Jones & Walworth, 1999). The program's producers decided to host a lecture-recital on Beethoven's Fifth Symphony, and they asked Bernstein to present it with the Symphony of the Air, as the NBC Symphony was then called. Bernstein agreed, and the show aired on November 14, 1954.

Bernstein's first appearance on the show was unique. Not only did he explain the "struggle and battlefield on which the thing [the first movement] was written, the millions of changes, the millions of ideas, the crossings out, the additions" (Peyser, 1987, p. 234), but he also used visual aids. Specifically, he arranged to put on the floor an enlarged print of the first page of the score, which covered the whole stage. A musician holding the corresponding instrument stood on each line. Since the movement begins with strings and

clarinet only, he dismissed the other musicians, leaving only the people who were playing the opening theme standing there. “This,” Bernstein recalled later, “made such an impression on people because it had this visual connotation of what I was saying, which they were also receiving in an auditory way, and it was unforgettable” (Peysner, 1987, p. 234).

The show was a great success. Paynado (1995) reported that the producers received many letters commenting on the program, both from people who had musical background and training and from those who had neither. Bernstein was asked to present more works on the show (he appeared seven times in all), dealing with numerous topics, as the titles of the programs suggest: “What makes jazz jazz”, “Why an orchestra needs a conductor”, “What makes Bach Bach”, “Why modern music sounds so strange”, “What this distinctive form called musical comedy is”, and “What makes an opera grand” (Peysner, 1987, p. 235). Bernstein’s television scripts were published in his book entitled *The Joy of Music* (Bernstein, 1959).

Bernstein developed a unique methodology of hosting lecture-recitals on television. “He presupposed on the part of his hearers some knowledge to start with, curiosity to learn more, and sufficient attention span to follow his explanation to the end,” (Briggs, 1961, pp. 173-175), while he had a “novel, straightforward, and effective manner of presenting the inner workings of music” (Rozen, 1991, p. 44). Briggs gives a summary of Bernstein’s style as a lecturer on the *Omnibus* series:

Bernstein's Omnibus lectures abounded in clever touches, like rewriting Beethoven's Fifth Symphony, or having musicians stand on an enormously oversized page of the score to show the composition of Beethoven's orchestra; or, in his opera lecture, having a scene from *La Boheme* alternately spoken by actors and performed by singers. Basically, however, they were soundly based

musical lectures, as learned as they were witty, with a solid foundation for knowledge. The special gift which Bernstein demonstrated, and which charmed his listeners, was that of turning a familiar idea topsy-turvy, so to speak, to examine it from a fresh point of view (p. 179).

Bernstein's work with the Omnibus series contributed to the establishment of television programs as a means of teaching music. Still, the series addressed audiences of all ages. That was about to change when a new series, specifically aimed at teaching music listening to children, began broadcasting in 1958.

### **The Young People's Concerts with Leonard Bernstein**

The new series, *Young People's Concerts with Leonard Bernstein*, became one of the most successful educational programs in television history, winning every award given in educational television (Rozen, 1998).

#### ***Development of the Series***

The series began soon after Bernstein was appointed music director of The New York Philharmonic Orchestra in 1957 (he was already known by then to the citizens of New York City, since for the previous twelve years he had been the director of the New York City Symphony Orchestra). Upon his inauguration with the New York Philharmonic Orchestra, he instituted the "Thursday Preview" concert, a weekly open dress rehearsal that could be attended by anyone except music critics. During the rehearsals, he started talking to the audience about various aspects of the performance (i.e. what the orchestra was playing, what he expected from the sections, and why he was using a specific conducting style) in a similar fashion to his appearances on the *Omnibus* series (Robinson, 1982). As a result, the concerts on Thursdays "became the chicest thing

in town,” and “a sophisticated and knowledgeable group of people” were attending the subscription concerts the following day (Gruen, 1968, p. 27). After the success of these musical Thursdays, he decided to present a series of youth concerts that would be broadcast via television. Peyser (1987) reported that he only needed 15 minutes to convince William Paley, the chairman of CBS, to do so.

The *Young People’s Concerts* began on January 18, 1958 and lasted twelve years under Bernstein’s sole directorship. There were four programs in each season, and by 1969, when he resigned as music director of the Philharmonic, Bernstein had conceived, written, narrated and conducted 47 programs. After his resignation, he maintained his post as Director of the series until 1972, when Michael Tilson Thomas assumed the position (Shanet, 1975), appearing in a total of 53 programs.

When the series began, concerts were performed twice each Saturday—one at noon (serving as a public run-through, like the Thursday concerts) and the other later that evening (which was the subscription concert). The latter was taped for later broadcasting. Between 1961 and 1964, the program broadcast at primetime—7:30 pm on Saturday nights—as a response to FCC Chairman Newton N. Minow’s speech about the blandness of network programming, which he called “a vast wasteland” (Chapin, 1992, p. 59). From 1964, when the FCC moved on to other campaigns, thus taking the pressure off CBS, the broadcasts were moved to Sunday afternoons until the end of the series.

### ***Contents of the Series***

The 53 programs of the Young People’s Concerts series covered numerous topics, ranging from general (e.g., “What does Music Mean?”) to very specific (e.g. “*Second Hurricane* by Copland”). Two researchers that investigated Bernstein’s programs

(Peynado, 1995; Rozen, 1998) propose different categories into which the lessons can be organized.

Peynado (1995) argues that the programs cover 25 topics that can be placed into four general categories: (a) General Music Appreciation; (b) Music Terminology; (c) Types of Music; and (d) Important People in Music. The first category consists of programs that deal with the comprehension of several topics in music, such as “What does Music Mean?”, “Humor in Music,” “The Sound of an Orchestra,” and “Quiz Concert: How Musical Are You?”. The category labeled Music Terminology includes programs that address specific musical terms, like “What is Orchestration?”, “What Makes Music Symphonic?”, “What is Melody?”, “What is Sonata Form?”, “What is a Mode?”, “What is Classical Music?”, “What is a Concerto?”, “What is Impressionism?”, and “Musical Atoms: A Study of Intervals.” The third category, entitled Types of Music, includes lessons like “What is American Music?”, “Folk Music in the Concert Hall,” “The Latin American Spirit,” “Jazz in the Concert Hall,” “A Toast to Vienna in  $\frac{3}{4}$  Time,” and “Two Ballet Birds.” The last category, Important People in Music, presents some important works of famous composers. Programs in this category include “Who is Gustav Mahler?”, “Happy Birthday, Igor Stravinsky,” “A Tribute to Sibelius,” “A Birthday Tribute to Shostakovich,” “Berlioz Takes a Trip,” and “*Fidelio*: A Celebration of Life.”

Rozen (1998) proposes four similar categories. The first category he proposes is the “Music Appreciation Group,” which consists of 24 programs addressing issues like orchestration, melody, mode, and form. Rozen’s second category, entitled the “Composers Group,” includes ten programs addressing the work of famous composers (Mahler, Copland [two lessons], Stravinsky, Hindemith, Sibelius, Shostakovich, Ives, Beethoven, and Bach). Similarly, there are nine lessons in Rozen’s “Compositions” category, each of which deals with a specific composition (e.g., Copland’s *Second*

*Hurricane*, Richard Strauss' *Don Quixote*, Beethoven's *Fidelio*, Respighi's *Pines of Rome*, and Holst's *The Planets*). The remaining 11 lessons form Rozen's final category, the "Non-Pedagogical Programs"; these include the nine numbered lessons entitled "Young Performers," "A Tribute to Teachers," and "Alumni Reunion." Rozen clarifies that some of the lessons may be cross-referenced among the various groupings.

### ***Structure of the Lessons***

Rozen (1998), who has analyzed Bernstein's programs, suggests that the conductor presented all of his lessons using a common structure with a few variations. All the lessons begin with a verbal welcome by Bernstein, immediately followed by the performance of a musical excerpt. Then, an initial question or statement follows. Initial questions are straightforward, reflecting what Bernstein will attempt to explain (e.g., "What is it about this [Latin American] music that makes it so exciting?"). Statements could be either simple introductions (e.g., "Today we will talk about an exciting and fun part of music: orchestration"), or more extended ones (e.g., while referring to the mysterious title of the program "The Road to Paris," Bernstein said, "What can that be about? A Bob Hope movie? The history of the French Revolution? No, it's about music, specifically music composers, one from America, one from Switzerland, and one from Spain. Each had a strong musical language of their own." Then he gave information about the musical significance of Paris).

After Bernstein identifies the topic of the current lesson, he begins the answer segment, the longest event within the programs. Rozen identifies ten teaching techniques that Bernstein used during this section: (1) economical use of language, (2) use of visual aids, (3) musical demonstrations, (4) use of analogy and imagery, (5) use of humor, (6) involvement of students, (7) use of questions, (8) non-musical demonstrations, (9)

relationship to students, and (10) endearment to students. Among these, the use of visual aids is of particular interest for the purpose of the current study. For example, a common practice by the producers of the program was to include the name and picture of the composer whose music was playing. Also, Bernstein showed the actual pictures upon which Mussorgsky based each movement of his *Pictures at an Exhibition*. Likewise, a picture of Don Quixote was shown during the discussion of Richard Strauss' homonymous work. Written information on the terminology used was also common (e.g., while playing a piece in a sonata form, he had students of the Mannes School of Music stand behind the orchestra and hold up an appropriate sign as each part of the form sounded, like Theme I - Tonic, Theme II - Dominant, Closing Theme, Development, etc). He would also use enlarged pages of the music score or have the musicians display their instruments to the audience.

Following the answer segment, Bernstein would present a summary of the lesson's content. Usually, the lesson would be concluded with a performance of a work that was used during the lesson, performed in its entirety.

### ***Contribution of Bernstein's Programs to Music Appreciation***

Bernstein's television programs contributed to the field of music appreciation in many ways. First, with the success of his programs, he brought his educational broadcasts to millions of people, young and old. In fact, public interest in Bernstein's programs was enormous; Shanet (1975) reports that the waiting list for the subscription concerts was so long that some parents enrolled their children at birth. Bernstein's audience received lessons of a quality that was unparalleled by any music appreciation program that had been broadcast until then. His concerts were "infinitely more sophisticated and infinitely less condescending than Walter Damrosch's used to be" (Schonberg, 1967, p. 353).

Secondly, his programs constitute important educational materials for teaching music listening. Rozen (1998) reports that, in 1965, the Bell Telephone System, one of the sponsors of the Young People's Concerts, made available three of Bernstein's previous broadcasts for school use, free of charge. These were used by teachers, and the New York Philharmonic received many letters from teachers commenting on the programs' impact on their classes and students. All concerts were recorded, and they are now available for purchase in DVD format ("Leonard Bernstein's Young People's Concerts with the New York Philharmonic," 2004). Burton (1995) also reports that videocassettes of the concerts were translated into 12 languages and shown in as many as 40 different countries. A number of program scripts are published as well in the *Young People's Concerts* (Bernstein, 2005), while all of Omnibus's musical programs are published in *The Joy of Music* (Bernstein, 1959), as stated previously.

Furthermore, teachers analyzed and adopted many of Bernstein's teaching techniques, thus expanding their methods for teaching music appreciation. Bartram (2004), for example, provides a list of these techniques: First, in a music listening lesson, teachers should begin and end with music, since in that way "Bernstein gave members of the audience the opportunity to assess their own learning and to understand the importance of listening in the learning process" (p. 20). Secondly, teachers should state the objective of the lesson in the form of a question. In this way, Bernstein made the learner focus and constructed a problem that required solving. Then, during the lesson, the questions should be answered in stages, as "like a magician, he [Bernstein] would show viewers only what they were ready to see, carefully revealing truths in stages" (p. 20). A suggested theme in teaching is "progression from the known to the unknown—from the simple to the complex, which leaves viewers breathless with anticipation of discovery" (p.21), just like Bernstein did. His frequent uses of analogies and metaphors

are also recommended, since they provide examples that can be used to compare a complex topic with known references. Finally, Bartram provides several examples of ways Bernstein used audience participation and suggests that teachers do so as well.

## **SUMMARY AND CONCLUSIONS**

Radio and television educational broadcasting contributed to the teaching of music appreciation by airing youth concerts, which influenced teaching in many ways. First and foremost, educational broadcasting programs reached the entire country through the spread of radio receivers and television sets to almost all American homes and by the formation of the national networks that carried their signals to virtually all areas of the nation. The technological developments and improvements in these devices also contributed to their spread (for instance, radios offered sound of a higher quality than the existing phonographs). Social circumstances also helped the spread of the new devices. It is notable, for example, that during the Depression, people would give away their furniture but not their radios; the radio industry climbed during the 1930s, since “people had little money to spend, but plenty of time to listen and a desperate need for entertainment to take their minds off their troubles” (Matelski, 1995, p. 8). Similarly, television sales boosted after World War II.

Secondly, the devices spread classical music throughout the nation, influencing the public’s taste for it, since they could learn to understand it. “Most authorities” Atkinson argues, “if asked to name the most outstanding single contribution radio has made to modern education, undoubtedly would agree that is the increased demand for and appreciation of good music” (1942c, p. 78).

Additionally, famous personalities like Damrosch and Bernstein were made known via broadcasting, and they influenced teachers, parents, and students throughout the nation in many ways. Teachers, for example, analyzed and adopted Bernstein's techniques, as mentioned previously (Bartram, 2004). Children became familiar with Damrosch's style and his programs to a great extent, as Henderson observes (1932):

Damrosch was very happy in his discourses to children. To them the famous Damrosch smile was fatherly. They gave the conductor their complete confidence and to that he reacted with an all-embracing affection. It is beyond question that his success with the children was largely the product of his genuine love for them. He now has a radio audience of about six million school boys and girls, to whom he has become a very present and vital personality. In some mysterious way, which probably even he himself could not analyze, he makes his talks just as magnetic as he used to make those he gave in Carnegie Hall in full sight of his hearers (p. 6).

Parents also tuned into educational radio and television programs and benefited from them as much as their children (Sanders, 1990).

Furthermore, educational broadcasting triggered the involvement of music educators in teaching music appreciation in many ways. Committees consisting of notable music educators would advise the program producers on the organization, development and curriculum of the lessons. In addition, discussions regarding the effective use of the broadcasts were held at conferences and appeared in articles in professional journals.

Finally, numerous educational materials have been developed as a result of these educational broadcasts. Such materials include audio and video recordings of the radio

and television shows, respectively, while many program scripts were published for educational use. Printed materials were also abundant: teacher's guides, student workbooks, diagrams, charts, pictures of instruments, and musical maps were the new tools assisting both teachers and students in their educational pursuit of teaching and understanding music appreciation. Additionally, music textbooks promoted and incorporated radio educational programs. For example, in the *New Music Horizons* series, published by Silver Burdett and Company between 1944 and 1949, the authors encouraged the use of the radio since it "opens the door of every schoolroom in America, urban and rural, to superlative teaching, excellent music, and an enrichment program involving the use of instruments and voices other than the teacher in the individual classroom" (O. McConathy et al., 1948, p. 78). The authors also announced plans for cooperation with radio stations to produce programs that were to be used along with the textbook series.

Eventually, educational broadcasting further reinforced the establishment of music listening as an integral part of music teaching in public schools. As a result, when new technological advances emerged, like Long Player recordings (LPs), videotapes, computers, and the Internet, music educators employed them to assist in the teaching of music listening.

## **CHAPTER IV**

### **THE DEVELOPMENT OF EDUCATIONAL MUSIC LISTENING TOOLS AS A RESULT OF TECHNOLOGICAL ADVANCES SINCE 1950**

#### **INTRODUCTION**

During the second half of the 20<sup>th</sup> century, ongoing technological advances enabled the production of devices and educational materials that were used in public schools. Devices that made their way into classrooms from the 1950s to the 1970s included reel-to-reel film projectors, filmstrip projectors, slide projectors, televisions, radios, phonographs and overhead projectors. Numerous educational institutions and commercial companies utilized such devices and released a plethora of educational materials for classroom use, such as series of films, filmstrips, slides, and educational television programs. In fact, the use of audiovisual materials by public school teachers was so popular that it became a trend during the 1960s (Dale, 1969). Furthermore, the advent of personal computers during the 1970s led to the Computer-Assisted Instruction movement and to the development of educational software, which had a great impact on public schools.

Classroom music listening particularly benefited from the new technological developments in many ways. The current chapter will investigate the contributions of the new technological advances on the teaching of music listening. First, the improvements in the phonograph industry and the compilations of recorded listening series for educational use will be presented. Next, the numerous educational audiovisual materials for music listening will be examined. Finally, the history of listening aids that were developed by music educators to help students focus on the music during the listening experience will be traced.

## **THE ADVENT OF LPS AND THE RECORDED LISTENING SERIES**

### **Improvements on Records**

One major drawback concerning the performance of the phonograph was the limitations of records that were in use until the 1940s. The “seventy-eight” (hereafter, 78) was the most common format used by the larger companies in the phonograph industry: Victor RCA and Columbia. This type of record was named after the speed of its spinning, that is, 78 revolutions per minute. These records were difficult to handle, and their sound was of limited quality. Magoun (2000) reports that the 10-inch shellac disks (a material used since the 1890s) were “brittle, heavy, and bulky,” broke frequently during shipping, and needed to be stored in special cases that consumed even more space. For almost half a century, the sound quality of the records was also poor, due to the recording techniques and the materials that were used to produce the records. Specifically, as previously mentioned, until the development of the microphone, performers had to position themselves in front of a single metallic cone. Due to the limited size of the cone’s diameter, arrangements were often made for large orchestral works so that fewer instruments could be used in the recording. Even when Victor switched from acoustic to electronic recording with the use of microphones in 1925 (Read, 1976), records still sounded bad due to their materials: shellac and mineral powders. In Magoun’s words, “to the engineers dedicated to the processing of sound, the shellac record was an insult. Noise generated by the needle abrading the blend of mineral powders and shellac meant that records still offered no better frequency-range reproduction than in 1925” (p. 404). Read (1976) also reports that another factor contributing to the poor sound quality was the design of the disks. The large width of the groove, for example, resulted in distorted sound since high frequencies could not be reproduced. Finally, the disks could only play about three minutes of music on each side (Gelatt, 1977).

The two companies began experiments to improve the records and ended up with different solutions. Read (1976) reports that both Victor's and Columbia's engineers had experimented with new recording formats during the 1930s, but it was not until after World War II that new products made their way to the market. In the spring of 1948 Columbia announced its long-playing (LP) record, which could accommodate 20 minutes of music on each side thanks to its larger diameter (12 inches instead of 10) and the slower spinning rate ( $33\frac{1}{3}$  rpm). LPs were also pressed in vinyl instead of shellac, which could no longer be imported from India, due to the war. Vinyl disks were flexible, durable, and offered better sound quality, but they were easy to scratch. The following year, RCA Victor responded with their new seven-inch disks that played at a rate of 45 rpm. The new disks came in a variety of formats, including the EP (Extended Play), which could hold 15 to 20 minutes of music. Both new formats achieved better sound due to the narrower grooves (compared to the 78s), or "microgrooves," as they were sometimes called. 45s replaced 78s, but the LP would prevail over the EP. Improvements in microphone technology and the advent of stereophonic records, which were initially issued in 1958, constituted further developments to records.

### **Recorded Listening Series for Teaching Music Appreciation**

The abilities of the new record formats, especially their capacity for longer duration and improved sound quality, had a great impact on the teaching of music appreciation. Major companies issued compilations of listening series for school use. From 1947 to the 1960s, four recorded listening series were published: the *RCA Victor Basic Record Library* (1947), *Adventures in Music* (1960), the *Bowmar Orchestral Library* (1963-67), and *Learning to Listen to Music* (1969). These music libraries provided a supplemental resource to music textbooks (Sanz, 1993), and they were

accompanied by different types of educational materials, such as teacher manuals, student workbooks, large posters of musical themes, and overhead transparencies.

### ***RCA Victor Basic Record Library (1947)***

The *RCA Victor Basic Record Library* was intended for use in elementary schools. Mathews (1948) reports that the series consisted of 83 records in 21 albums, some of which were recordings of material previously released by Victor. The albums were grouped into two sets, one for lower and one for upper elementary school grades, and they dealt with rhythm, listening, and singing. Each one was accompanied by detailed notes and teaching suggestions by Lilla Belle Pitts and Gladys Tipton, Professors of Music at Teachers College, Columbia University and the University of Tennessee respectively. Although the series came on 78s (they were issued one year before RCA Victor's production of the first 45s), the records were made of vinyl. This would explain the "considerably higher" price teachers had to pay compared to what they had been accustomed to paying for educational records (they cost an average of \$1.20 per album), but "the unbreakable feature somewhat reduces the effect of the higher price ... old ones [shellac disks] are not unbreakable," Mathews argues (p. 42).

### ***Adventures in Music (1960-1963)***

Thirteen years after its initial release of a recorded listening series for classroom use, RCA announced another series entitled *Adventures in Music* ("Worth Looking Into: Adventures in Music," 1960). The first volume of the series was introduced in February of 1960, and the remaining volumes were published over a period of three years. The compositions in the series were performed by the National Symphony Orchestra (the same orchestra Damrosch conducted in his programs) conducted by Howard Mitchell. The series consisted of 127 compositions, the majority of which were composed during

the 20<sup>th</sup> century, on either 45s or LPs. Gladys Tipton was again in charge of preparing the teacher guides, which were co-authored by Eleanor Tipton, Professor of Music at Illinois Northern University. Sanz (1993) reports that each composition included a listening lesson, which was divided into four sections: (a) Background Information: The Music, The Composer; (2) Highlights of the Music: Mood, Rhythm, Melody, Harmony, Dynamics, Form, Instruments; (3) Related Arts: Music and Poetry, Music and Art; and (4) Related Listening.

### ***Bowmar Orchestral Library (1963-1967)***

Bowmar Educational Records first released the *Bowmar Orchestral Library*, a three-series set of records for use in elementary school, in 1963. Various European and American orchestras performed the 325 compositions on LPs. Lucille Wood, Professor of Music Education at Los Angeles State College, prepared teachers' notes for all of the records in this series. Each set was accompanied by supplemental educational materials.

The first set consisted of 11 albums and a total of 134 compositions of symphonic music, ranging mainly from late-Classical to contemporary. The pieces were grouped into related areas "for comparison, contrast and interest" according to an advertisement that appeared in the *Music Educator's Journal* ("The Bowmar Orchestral Library; a Dynamic Program of Listening Activities," 1962). For instance, one album was called "Dances" and included pieces like Guarnieri's *Danca Brasileira* and Copland's *Hoe Down*, while the "Nature and Make Believe" album included Tchaikovsky's *Lark* and Grieg's *Little Bird*. The rest of the albums were entitled "Animals and Circus," "Pictures and Patterns," "Marches," "Dances" (Part 1 and 2), "Fairy Tales in Music," "Stories in Ballet and Opera," "Legends in Music," "Under Many Flags," and "American Scenes" ("The New Bowmar Orchestral Library," 1967).

The set was accompanied by a teacher's manual and large, three-foot long charts of relevant themes, which teachers could post in the classroom. Also, the company issued a set of 25 color posters (14"x22") entitled "Meet the Instruments" that could be purchased as part of the series ("Meet the Instrument Charts," 1962). The teacher's manual included brief statements about the composers, themes and questions that focused on elements of the music. Activities like dancing and playing instruments were also mentioned. The producers illustrate the potentials of the library in their advertisement:

The children are following a charted theme, one of the 160 themes included with the eleven albums. They are observing that the melody moves on a chord line, and they will compare it with theme 1 which moves on a scale line. They may also discover the different instruments which introduce the two themes. Other children are creating a simple dance as suggested by the notes on the album cover. These notes contain many imaginative ideas and suggestions for listening and participation. The library provides a unique combination of music, visual aids and ideas which the creative teacher will recognize as important in helping children understand and become involved in music. The compositions are grouped into related areas for comparison, contrast and interest. ("The Bowmar Orchestral Library; a Dynamic Program of Listening Activities," 1962, p. 2).

The second set of the library consisted of seven records: "Masters in Music," "Concert Matinee," "Miniatures in Music," "Music-USA," "Oriental Scenes," "Fantasy in Music," and "Classroom Concert." These albums were likewise accompanied by a teacher's manual and theme charts, which could be purchased either as three-foot-long signs or as overhead transparencies.

The third set was intended for middle and high school music classes, as well as for college general music classes. The titles of the albums were: “Music of the Dance: Stravinsky”; “Music of the Sea and Sky”; “Symphonic Movements” 1 and 2; “Symphonic Styles”; “Twentieth Century America”; “U.S. History in Music”; “Overtures”; “*Scheherazade* by Rimsky-Korsakov”; “Music of the Drama: Wagner”; “*Petrouchka* by Stravinsky”; “Rogues in Music”; “Musical Pictures: Mussorgsky”; “Ensembles Large and Small”; “Concertos”; “Musical Impressions: Respighi”; and “Fashions in Music.”

In addition to the teacher’s manuals and theme charts, the third set offered two new features. According to an advertisement, the “Record Groove Spreads” was “an exciting new technique which enables the teacher to locate significant sections of the music” (“Bowmar Orchestral Library,” 1967, p. 26). Student workbooks, entitled *Pilot Lessons*, were “a revolutionary aid that makes listening a personal, exciting experience for pupils ... equally effective for group use with classes or for individual study” (“This is a Pilot Lesson...”, 1968, p. 10). The pilot lessons were essentially one-page tests with numbered multiple-choice questions. The questions were ordered in such a way that they could be answered while listening to the music. Thus, “students discover, react to, and understand the music as they listen” (“This is a Pilot Lesson...”, 1968, p. 10).

The *Bowmar Orchestral Library* is the only listening series from the 1960s that is still available for purchase. Each series comes in a 12-CD box set distributed by Warner Brothers.

### ***Learning to Listen to Music (1969)***

In 1969, Silver Burdett, one of the leading music textbook publishing companies since the late 19<sup>th</sup> century, issued *Learning to Listen to Music*, another recorded library “suitable for grades 4 to 9 ... adaptable to all age groups” (“Learning to Listen to Music,” 1969, p. 106). The series was edited by Bennett Reimer, Professor of Music Education at Case Western University in Cleveland, Ohio, who promoted music appreciation and music listening lessons through his career. The series consisted of 41 selections by famous ensembles, choirs, orchestras, and even by a Moog Synthesizer. The compositions (ranging from the 16th to the 20th century) appeared on five LP records, while there were two additional records with narrated lessons. A teacher’s guide offered detailed lesson plans for each composition, and musical elements like rhythm, melody, harmony, form, dynamics, and tone color were addressed.

### **The Educational Use of Improved Records and Listening Libraries as Accompaniments to Music Textbooks**

The recorded library series contributed to the teaching of music listening in two major ways. First, as described above, they constituted comprehensive sources of educational materials for classroom use, which included not only the music in graded records, but also teacher’s notes, student manuals, charts, pictures, and posters that came along with the recordings. Secondly, the major music textbook publishers utilized their potential and began to include music recordings with their textbooks as supplemental material for the teaching of singing and listening.

During the last half of the 20th century, music textbooks emphasized singing and, later, music listening. Prior to the 1940s, the existing 78s were difficult to handle, especially in schools; they were heavy, fragile, and a lot of them were needed since they could only contain three minutes of continuous music listening. As a result, music

textbooks published during this time period did not include recordings for classroom use, nor did they refer to existing records as sources of music listening. Sanz's research, which investigated the history of the approach to teaching listening in schools as reflected in textbook series confirms the lack of supplemental recordings before 1947 (Sanz, 1993). After the introduction of vinyl 45s and LPs and the recorded listening libraries, however, textbooks began to employ records as educational materials to be used along with the texts' lessons in three main ways. First, textbook publishers included lists of available records to be used with the lessons. These records would either be sold individually, mostly by RCA Victor or Columbia, or as part of the available listening libraries. Secondly, textbook publishers collaborated with the recording industry and issued records specially to accompany their textbook series. Some textbook series employed both methods by referring to existing recordings and by issuing new accompanying records if they needed music that was not available on the market already, which was often the case with the types of songs included in these textbooks. Generally, textbook series published during the 1940s and 1950s would only refer to existing recordings for music listening activities. During the 1950s and 1960s, however, textbooks would be accompanied by their own recordings *and* refer to existing ones, and after the 1960s all necessary listening materials would come with the textbook series.

The first series to use records as supplemental educational materials for teaching music listening was the *Singing School*, published between 1939-1956 and edited by Thereas Armitage, Peter W. Dykema, and Gladys Pitcher. The authors regularly referred teachers and students to RCA Victor 78s or 45s to be used with students' workbooks. Similarly, the *New Music Horizons*, published between 1944 and 1949 by Silver Burdett and Company, also referred to specific selections in the RCA Victor and Columbia catalogues for listening experiences.

On the other hand, the *American Singer* series, which was published between 1944 and 1954 by American Book, was the first series that employed both methods. The publishers arranged with Decca Records to issue the songs that were included in their books. Concerning listening activities, though, the series offered a list of phonograph recordings featuring the selections that were used in the text; the selections came from RCA Victor or Columbia records already on the market, or from the RCA Basic Victor Record Library. Similarly, Ginn and Company published the *Our Singing World* series between 1949 and 1957, and they listed recordings by RCA Victor and Columbia to be used with their music listening activities. Ginn and Company also issued recordings with songs to accompany the later “Enlarged Edition.” (Sanz, 1993, reports that these recordings contained a few themes for teaching listening as well). *Music for Living*, published by Silver Burdett Company from 1956 through 1961, and *Music for Young Americans*, published by American Book Company from 1959 through 1966 also featured both new recordings of songs and references to existing records for listening activities. . The *Birchard Music Series*, published between 1962 and 1963 by Summy-Birchard Company, followed a slightly different approach; they issued accompanying recordings of 48 songs from the series arranged for piano. Regarding listening activities, they listed recordings of listening libraries, like RCA Victor’s *Adventures in Music* and the *Bowmar Orchestral Library*.

All music textbook series published after 1964 issued all of their own accompanying recordings. The first series to do so was *Making Music Your Own*, published between 1964 and 1971 by Silver Burdett Company, followed by *The Magic of Music*, published from 1965 to 1969 by Ginn and Company. Music recordings were also provided to be used with the publications by Holt, Rinehart, and Winston, Inc., namely the *Exploring Music* series, published between 1966 and 1975.

Notably, the last edition of Silver Burdett's *Making Music your Own* series also fully utilized the potentials of stereophonic recordings. The songs on the recordings were recorded so that the sound of the voices played on one channel and the accompaniment on the other. The teacher could choose to play just one channel (so that only the accompaniment or the voice is heard) or both channels according to the needs of the lesson. This feature, called "Pick a Track," was a trademark of Silver Burdett and was included in future publications of the company, namely *Silver Burdett Music*, published between 1974 and 1985. The use of the "Pick a Track" technique is explained in the teacher's editions for each grade level:

When played on a stereo phonograph, the Pick-a-Track recordings enable the teacher to highlight either the voices or the song accompaniments. When the voices are highlighted, the children can (1) focus on vocal quality and style, (2) learn parts quickly, and (3) perfect the pronunciation of foreign and English lyrics. When the instrumental accompaniments are highlighted, the children can (1) focus on identifying instrumental tone colors and (2) sing to professional accompaniments in the classroom and assembly or for special performances (Crook, Reimer, & Walker, 1974-1985, Teachers Edition Book 2, p. xiv).

The music textbook series that followed also included recordings of music for their music listening activities. These series included McMillan Publishing Company's *Spectrum of Music* and *Music and You*, published from 1974 to 1978 and in 1988 respectively, Silver Burdett & Ginn, Inc.'s *The World of Music*, published in 1988, and *The Music Book*, published between 1981 and 1984 by Holt, Rinehart and Wilson. *The Music Book* was the first series to include the listening materials in both record and cassette formats.

## **THE DEVELOPMENT OF AUDIOVISUAL MATERIALS FOR TEACHING MUSIC LISTENING FROM THE 1950S TO THE 1970S**

During the period spanning the mid-1950s to the mid-1970s, teachers throughout the country used a plethora of educational materials that were developed using the latest technology of the time. Edgar Dale from Ohio State University was a strong advocate for the use of such materials. According to Dale:

Professional teaching demands professional tools and equipment. Instead of relying on textbooks only, we shall use motion pictures, slides, photographs, exhibits, recordings, radio, posters, charts, graphs and the like. New teaching tools will make our job more interesting—and more rewarding. Certainly it isn't very exciting to be teaching twentieth century children with nineteenth century tools! (Duffield, 1952, p. 64)

Dale classified the materials used in education during that period into three major categories: audio, visual and audiovisual (Dale, 1969). Audio materials consisted of radio programs, language laboratories, tape and disk recordings, and the telephone. Visual materials included illustrated books, pictures, photographs, flash cards, maps, charts, posters, slides, and overhead transparencies. Audiovisual materials included television programs, films, videotapes, sound filmstrips, and printed materials with recorded sound. Dale argued that the use of such materials heightened students' motivation to learn, provided freshness and variety, appealed to students of varied abilities, encouraged active participation, widened the range of student experience, and assured order and continuity of thought (Dale, 1969). The extensive use of such materials during this period resulted in the most significant educational changes that have taken place in any similar period of time in our history.

Many of the aforementioned educational materials addressed music education. In addition to the educational programs broadcast on radio and television, music teachers used the aid of educational films, filmstrips, slides, and transparencies to teach music listening.

### **Educational Films**

During the 1950s the use of 16 mm educational films in teaching music and music appreciation was very popular. In fact, MENC had recognized the educational value of films earlier, when a special committee was formed in July 1948. Its task was to collaborate with the Teaching Film Custodians, the non-profit distributing affiliate of the Motion Picture Association of America, to prepare a series of classroom films “designed to complement the teaching of music in accordance with specific aims” (Braslin, 1949, p. 30). The first motion pictures specifically designed for classroom music instruction were *The Great Waltz* and *Inside Opera with Grace Moore*, and they were presented at the MENC convention in Baltimore in March 1949. Besides, in the *Music Education Source Book*, published by MENC, McConnell stated that “the interest that takes thirty million school children to the movies weekly cannot be ignored by serious music educators” and suggested that teachers should work closely with the local movie-theatre managers to arrange for educational visits (McConnell, 1947, pp. 149-150). McConnell also listed some selections that could help students “appreciate the musical score of a [motion] picture.” Such was the case with the *Saratoga Trunk*, a film score with an example of a leitmotif. Teachers, according to McConnell, should explain the use of the musical themes before the screening so that the students could follow the score more easily. Two Russian films, *Leningrad Concert Hall* and *Russian Folk Dances*, contained excerpts from classical compositions, ballets and folk dances. The scores of three British movies

were also appropriate for music listening lessons: *Listen to Britain* features the Mozart C Minor Piano Concerto; *Lessons in the Air* describes England's radio educational programs for children and shows actual lessons in singing, appreciation, and rhythm; and Vaughn William's splendid music is heard in *Stricken Peninsula*. American movies with appropriate scores for learning included *The River* and *The City*, with music written by Virgil Thompson and Aaron Copland respectively.

Soon, educational films specifically addressing music listening were released. "For adequate teaching of music history and appreciation," Duffield argued, "the 16 mm sound film is virtually indispensable" (Duffield, 1952, p. 14). He listed many films that could be used in the classroom and that were available to rent or buy from numerous agencies. Such films included condensed grand operas (like 25-minute films of *Carmen* and *The Barber of Seville*), symphony concerts (such as the 20-minute production of the *Instruments of the Orchestra*), and 10-minute piano recitals (performed by Jose Iturbi, Jakob Gimpel, and Paderewski), violin recitals (performed by Yehudi Menuhin), and vocal concerts (performed by Eula Beal and Kenneth Spencer).

Furthermore, the annual publication of the *Educational Film Guide*, by H. W. Wilson Company of New York, listed more films specifically addressing music appreciation. Such films included the *Musical Form Series*, which presented six films on the fugue, the rondo, the scherzo, the sonata, song-form and theme and variations (*Educational Film Guide*, 1957). The catalogue of 1953 listed a total of 296 educational films for teaching music, many of which consisted of more than one part. The films were categorized into many groups: General Music, Study and Teaching of Music, Theory and Techniques, Compositions, Performance, Opera, Church Music, Passion, Anthems, Vocal Music, Folk Songs, Community Songs, Student Songs, National Songs, American-Negro Songs and Spirituals, Collected Songs, Instrumental Ensembles, Orchestras and

Orchestral Music, Dance Music, Jazz Music, Piano Music, Organ, String Instruments (Violin, Violoncello, Guitar Music, Banjo), Bands, Wind Instruments, Band Conduction, Clarinet, Percussion Instruments, and Bells (*Educational Film Guide*, 1953). The 1957 catalogue supplemented the one issued in 1953 with more selections.

Also, in 1954 the Chicago-based Coronet Films Company announced its first group of music appreciation films, which consisted of three 14-minute programs filmed in Europe and which explored the lives and music of Mozart, Beethoven, and Schubert ("Coronet Films," 1954). Lester Sands, professor of Education at the University of California argued that there were numerous contemporary audiovisual resources that could be used in music appreciation classes, including *Instruments of the Orchestra*, *Children's Concert*, *The Strings*, *Ave Maria*, *Heavenly Harmonies*, *American Folk Music*, *Billy the Kid*, *Three Songs by Susan Reed*, *Liebestraum and Clair de Lune*, *Reveries of Debussy*, and *The Blacksmith* (Sands, 1959).

As in the case of the Recorded Listening Libraries, series of film programs were compiled and used as supplemental educational resources for school programs in music. In 1949 the *Comprehensive General Music Course* was published as the outcome of a committee organized two years earlier by Louis Wersen, Philadelphia's director of Music Education, in order to drastically revise the Pennsylvania state's music program so that it might survive the "competitive threats" of "the radio, the juke box, the movies, television, and mass production of cheap magazines and comic books" (Duffield, 1949a, p. 23). The series consisted of 55 lesson units, covering "virtually the entire range of musical experience," according to Duffield (p. 23). The lesson units included "Music of Other Nations," "Music and Peace," "Music and Religion," "Music and the Stage," "Music and the Dance," "Music and Design," "Music for Holidays," "Humor in Music," and "Music and World Unity." The series was accompanied by eighty-eight 16 mm

sound films, the use of which “contributes to stimulating lesson topics affording color, interest, and a gratifying shift of the focus of attention” (p. 23). Another series of educational films for teaching music appreciation was *Global Music*, published in 1947. Duffield (1947) reports that the series utilized a 20-unit lesson plan, each of which addressed the folk and art music of one of 20 countries, as well as representative recordings. The series was accompanied by 85 sound films, 35 silent films, 60 song slides, 17 biographical slides and 100 recordings. Although the series was not specifically geared toward music appreciation, many of the lessons were appropriate for music appreciation classes. For example, a lesson on Bizet commenced with a film that indicated how *Carmen* was written and continued with another film entitled *The Idol of Seville*, a condensed version of the opera that “manages in twenty minutes to present the chief musical excerpts from Bizet’s immortal score” (Duffield, 1952, p. 64). The demand for this series was high, and soon more films were added to the lessons (Duffield, 1949b).

Eventually, the list of educational films that could be used in music education expanded at a large extent during the 1950s and the 1960s. The *Film Guide for Music Educators*, published by MENC in 1968, lists a total of 543 films and 48 filmstrips which were designed for music teaching (Shetler, 1968). The author, Donald Shetler, Professor in the department of Music Education at the Eastman School of Music provides a short description for each movie. He also suggests the age group of the audience each movie is appropriate for, as well as the music topic the contents of the movie address. Similarly, Carpenter (1966) listed various ways that teachers could use television and films during music lessons.

## **Filmstrips**

Educational materials in the form of filmstrips were also produced to assist teachers in general music and music listening instruction. A filmstrip is a series of photographic images in fixed sequence on a strip of film, usually 35 mm in width (Wittich & Schuller, 1967). Wittich and Schuller explain that filmstrips are easy to use and that filmstrip projectors are inexpensive, simple to operate and seldom give trouble, making them preferable media for instruction. Also, the frames of a filmstrip can be presented at any desired pace, as opposed to the continuous playback of a film movie. Thus, filmstrips constituted a “ready-made, efficient, and convenient teaching tool” (p. 364). Some filmstrips were accompanied by records and called “sound filmstrips.” According to the Wittich and Schuller, the record usually carried narration and/or appropriate music or sound effects. Although the record was usually played independently from the projector (the teacher would control the flow of frames at the desired pace), devices combining record players and filmstrips were manufactured during the 1960s for educational use. Wittich and Schuller report that educational filmstrips were very popular during the 1960s, and manufacturers turned out great numbers of new ones each year on a wide range of subjects.

There were several educational filmstrips issued by universities and commercial companies that addressed music and music listening instruction. According to the *Wilson Filmstrip Guide*, the *Music Instruments* series, issued by the University of Nebraska between 1948 and 1953, included 11 filmstrips, each of which dealt with a specific instrument of the orchestra: bassoon, cello, clarinet, flute, French horn, snare drum, string bass, trombone, trumpet, tuba, and violin (*Filmstrip Guide*, 1954). The Wisconsin State College issued *Music and Art, our Common Heritage*, a 35-frame filmstrip, in 1955. The *Filmstrip Guide* explained that “photographs and art work

illustrate characteristics common to visual arts and music, such as rhythm, color or timbre, volume, harmony, line, and melody,” while “to increase the students’ appreciation of these concepts, directions are given for making string designs, wire sculpture, and mobiles” (*Filmstrip Guide*, 1958, p. 116). Sands (1959) reported two series that were used for classroom music instruction, the 24-filmstrip series entitled *Young America Sings* and the 6-filmstrip *Music Stories*. The Educational Production Company issued several filmstrips for music lessons in 1959, including *Clair de Lune*, *Danse Macabre*, *The Sorcerer’s Apprentice* and *Eine Kleine Nachtmusik*, but they did not provide recordings (Krummel, 1959). Although it was teachers’ responsibility to find the recordings of the music the lessons referred to, the series came with a booklet that had a commentary to be read as the music was playing. On the other hand, Jam Handy Organization issued filmstrips accompanied by recordings (Grentzer, 1954) in a series called *Music Stories*, which was intended for elementary music appreciation (“Music Series” Records”, 1956). The series included *The Firebird*, *Hansel and Gretel*, *The Nutcracker Suite*, *Peer Gynt*, *Peter and the Wolf*, and *The Sorcerer’s Apprentice*. As Grentzel explained, the films described the story of the corresponding piece, and the narration was printed below each picture so that students could read along. Additionally, Grentzel, in her capacity as the coordinating chairman of the MENC committee on Audio-Visual Aids, explained how the filmstrips could be utilized:

It is suggested that each film strip may be used in its entirety to acquaint the children with the story, followed by having the children hear the music. Or, the film strip may be shown after the children are familiar with the story and then, while listening to the music, the children indicate when it is time to proceed to the next picture. Since the film strips were intended to tell the story, the teacher will have to be thoroughly familiar with both

story and music in order to guide the children in correlating the frames with the musical composition (Grentzer, 1954, p. 38)

The Jam Hardy Organization published more series, examples of which include *Music Classics* (containing *Sleeping Beauty*, *William Tell*, *Midsummer Night's Dream*, *Swan Lake*, *Bartered Bride*, and *Scheherazade*) and *Opera and Ballet Stories* (consisting of *Lohegrin*, *The Magic Flute*, *Aida*, *The Barber of Seville*, *the Mastersingers*, and *Coppelia*). It is notable that the manual for music teaching issued in 1964 by Arizona State Board of Education recommended all of Jam Hardy's series for classroom use. The suggested grade levels the filmstrips were to be used with ranged from first to eighth grades (*Music in Arizona elementary schools : a guide for teaching*, 1964; Ord-Hume, 1970).

### **Slides and Transparencies**

Slides were also popular educational materials during the 1960s. As Wittich and Schuller (1967) report, since the early 20<sup>th</sup> century almost every school owned a set of educational "lantern slides," as they were originally called. During the 1950s, with advances in photographic techniques, the inexpensive and convenient 2 by 2-inch plastic slides replaced the 3¼ by 4-inch glass-mounted slides in schools. Commercially produced slides addressed many subjects, but there were very few regarding music listening (perhaps due to variety of filmstrip series in music education). However, many music teachers suggested that their colleagues could make their own versions of educational slides for teaching music listening. Delinda Roggensack, for example, described the process of making educational slides for music lessons in an article for the *Music Educators Journal* (1953). She referred to a documentary movie produced at Indiana University, entitled *How to Make Handmade Lantern Slides*, and she argued that

the specific type of slide described in the tutorial was suitable for music appreciation lessons. Roggensack also gave instructions regarding the production of educational filmstrips. Similarly, Wolfgang Kuhn (1953) described the process of making slides from scratch, giving a “sample script,” which was a five-slide lesson plan teaching the tone color of the different instruments of the brass family. Nona Olsen (1957), on the other hand, suggested that teachers could make their own educational slides using photographs they had taken. One picture of a sunrise on a mountain, for example, could be shown while listening to Debussy’s *Clair de Lune*, or a picture of a rippling lake with trees could be presented while listening to Debussy’s *Reflections in the Water*. She provided more examples, mentioning both the pictures that could be used and the number of the corresponding recording for easy identification and purchase. “Such a project,” Olsen argued, “should prove helpful in the classroom. Often the lagging interest and misunderstanding of so-called classical music can be corrected. The music you think important can be integrated and learned by the association of colorful pictures”; she concluded that this audio-visual method “makes music a live and lovely art for the student” (p. 26). Finally, teachers could refer to other publications that gave outlines to create their own educational slides. Such a booklet was published in 1958 by The University of Texas (Coltharp & McMurry, 1958), which described the process of producing slides for classroom use from scratch.

The overhead projector was another technological device used for teaching music listening. It was developed during World War II, used thereafter in various military and industrial training situations, and soon made its way into the public school classrooms (Wittich & Schuller, 1967). Erickson and Curl (1972) reported that during the 1960s many teachers preferred the projector to the chalkboard due to the many advantages from an instructional point of view. Teachers could use commercially-made materials, stand

behind the projector and face the class while using it, draw and write while speaking, and have materials printed ahead of time so as not to waste valuable class time writing on the chalkboard. Regarding the teaching of music listening, textbook publishers have developed transparencies that accompanied their books during the 1970s, according to Sanz (1993), which could be used by music teachers.

### **Summary**

During the third quarter of the 20<sup>th</sup> century music teachers used numerous educational materials, apart from radio and television broadcasting, while teaching music listening. In fact, the use of such materials was proposed as early as 1946 (Wechsler, 1946). New technologies, such as films, filmstrips, slides and transparencies, assisted them in teaching music appreciation, which was benefited by the new devices in many ways: a plethora of different educational media were developed, both still-projected and motion-screened; complete collections of visual materials regarding music appreciation were developed and could be used with large classes; many audiovisual materials were inexpensive and thus easily obtainable by schools; several teachers offered suggestions as to technology's effective use in the classroom in articles written in professional journals.

It should be noted that there were several more audiovisual devices used in schools since the 1950s, such as tape recorders, opaque projectors, models and dioramas. In fact many booklets, books, manuals and catalogues were published to make teachers aware of the existing educational materials and how to use them (Bachman, 1956; Baird, 1975; *The Educational Film Library Association Redbook of Audio-Visual Equipment*, 1953; Finn, 1957; Goodwin, 1969; Haas & Parker, 1950; Wyman, 1966). Although they were widely used at schools, few educational materials were made exclusively to address music listening and thus are not presented in the current study.

## **THE DEVELOPMENT OF EDUCATIONAL TOOLS FOR MUSIC LISTENING BY MUSIC EDUCATORS AND MUSIC TEXTBOOK PUBLISHERS FROM THE 1950S TO THE 1970S**

During the second half of the 20<sup>th</sup> century, there were many educational materials that music teachers could use to teach music listening, thanks to the numerous technological advancements: teachers had quick access to many music selections using the recorded listening libraries, while audiovisual resources (like films, filmstrips, slides, and transparencies) could be used to enhance student's music listening experiences.

On the other hand, many music educators did not rely solely on the existing materials, but also developed their own. As a result, numerous educational tools were developed specifically to help students focus on music, and they were based on the contents found in commercially available audiovisual materials. Such aids included *Blueprints for Musical Understanding*, the *Listening Grid*, and *Call Charts*. Furthermore, music textbook publishers incorporated elements of these tools in their publications, while they also developed additional educational tools like *Listening Maps* and *Animated Listening Guides*.

### **Blueprints for Musical Understanding (1964-1966)**

The *Blueprints for Musical Understanding* were developed by Saul Feinberg, professor at Temple University in Philadelphia with a life-long career in high school teaching. According to Feinberg, “a *Blueprint* is a step-by-step picturization of a musical score uniquely designed to further the student's understanding and enjoyment of music” (Feinberg, 1964, p. 3). In essence, a *Blueprint* was an analysis of a piece of music using notated themes and descriptions of music. The musical elements were listed in the order they were heard and were often illustrated with drawings of instruments and musical symbols. Feinberg published four series of *Blueprints* under the title *Blueprints for Musical Understanding*, between 1964 and 1971. In each of the books were five

blueprints covering orchestral works such as Handel’s *Royal Fireworks Suite*, Beethoven’s *Egmont Overture*, Mendelssohn’s *Symphony No. 4*, Rachmaninoff’s *Symphony No. 2*, Mozart’s *The Magic Flute Overture* K. 622, and Rimsky-Korsakov’s *Russian Easter Overture*. After each Blueprint, a section entitled “Background Information” provided information regarding the composer, the piece presented, the era in which the piece was composed, and the genre of the composition. A list of review questions was also included. Finally, each of the three booklets featured a summary of the musical terms used, a list of suggested recordings, and additional information for the teacher. An example of a Blueprint is shown in Figure 7.

**ROYAL FIREWORKS SUITE**  
George Frederick Handel  
(1685-1759)  
Part One: Overture  
BLUEPRINT

**LARGO (slow)**

1.

2. The stately **THEME** is repeated again by the **STRINGS**.

3. **QUESTION-ANSWER EFFECT:**

4. The opening **MELODY** is heard again followed by softer passages in the ? family.

5. More intense sounds pour from the **STRINGS** followed by   
**BRASS** → **STRINGS** **CREScendo**

6. The majestic **THEME** returns for the last time in the **FULL ORCHESTRA**.  
**PAUSE**

7. **BRASS**

**DECREScendo**

**OVERTURE—concluded**  
**ALLEGRO (fast)**

8.

9. The **QUESTION-ANSWER EFFECT** continues.  
A relaxed, light-hearted mood prevails.

10.

11.

12.

13. The **QUESTION-ANSWER EFFECT** returns.  
Rolling passages in the strings produce a happy, carefree feeling for the listener.

14. **High sounding TRUMPETS** over **fast moving STRINGS** bring this dramatic **OVERTURE** to a close.

Figure 7. Example of a Blueprint (Feinberg, 1964, pp. 5-6)

Blueprints were a landmark in the history of music listening educational aids for many reasons. First, they were the *first* educational tools specifically designed to *guide* students through the piece of music being heard. Previous aids either dealt with isolated excerpts of a composition (as in the case of notated themes), or gave very general information regarding the piece (as in the case of brief textual descriptions), which did not direct the listeners through the piece being heard. Blueprints, on the other hand, used both elements to describe the major musical events in a composition and were presented chronologically in the form of numbered lists. Thus, by following the numbered information, students had dictated expectations about what they would hear during the listening experience.

Secondly, Blueprints were the first educational tools to cover the *complete* musical work or movement. In Feinberg's words, "blueprints are basically step-by-step visualizations of complete works (or movements) which enable the student to focus upon the significant expressive qualities of the music being studied" (Feinberg, 1983, p. 28). Previous materials, such as notated themes, only gave information on a short excerpt of the piece without referring to the rest of the composition. Blueprints, on the other hand, constituted complete and autonomous educational tools, since they enabled students to listen to the whole piece in question using only the Blueprint as a reference.

Furthermore, the information describing the musical events in each numbered item was very specific and detailed. This can be seen in the different kinds of notated passages and textual descriptions shown in Figure 7. In the notated passages, Feinberg used complete themes (e.g., item 1 in Figure 7), short -note motives (e.g., item 3), chord stacks (e.g., item 7), and rhythmic patterns (e.g., items 8 and 11). Similarly, the textual descriptions were very precise; they only included information pertinent to a particular musical excerpt. For example, item 2 in Figure 7 explains, "the stately THEME is

repeated again by the STRINGS,” while item 6 states, “the majestic THEME returns for the last time in the FULL ORCHESTRA.” Notably, important terms are shown in bold capital letters, and these terms are defined at the end of each book.

The information given in Feinberg’s Blueprints was illustrated with drawings and musical symbols. Drawings included instruments, like the picture of the tympani shown in item 1 (Figure 7), and arrows indicating the flow of the melody (item 5). Also, a dotted line was used to depict a staccato passage, while a continuous line represented a legato one (item 12). Feinberg did not use pictures associated with the elements of the music, but rather ones relevant to the mood and the context of the music. For example, a drawing of a cathedral’s stained glass window is presented next to the description saying “a hymn-like melody is sung by the brass,” which appeared in the Blueprint for Tchaikovsky’s *Symphony No. 6 in B Minor* (Feinberg, 1966, p. 25). Musical symbols were also abundant. Such symbols include repeat signs (e.g., item 3, shown in Figure 7), dynamics (e.g., the crescendo and decrescendo shown in items 5 and 7, respectively), articulations, and tempo markings. In some cases, Feinberg combined musical symbols with drawings, perhaps to direct the student’s attention to a particular passage. For example, in the Blueprint for Saint-Saens’s *Symphony No.3 in C Minor*, a series of boats carried notated motives (Feinberg, 1966, p. 19), and notated motives were shown to enter a blender’s bowl in the Blueprint for Schubert’s *Symphony in C Major* (Feinberg, 1965, p. 13). These examples are shown in Figure 8 below.

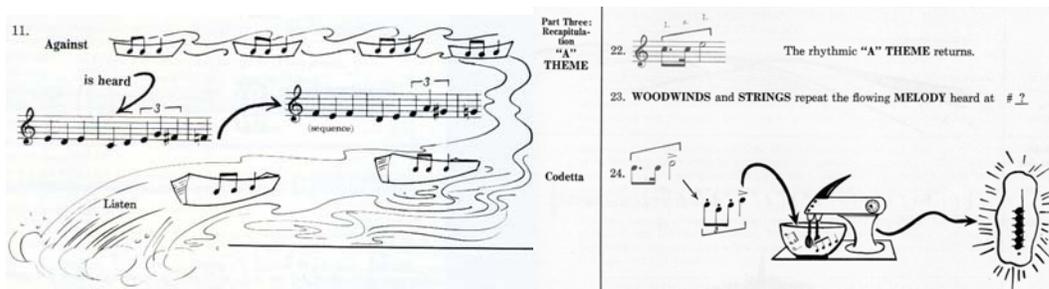


Figure 8. Examples of combinations of music symbols and drawings, as the appear in Feinberg's Blueprints.

In order to engage students in active participation during the listening experience, Feinberg included several activities with his Blueprints. Students, for example, were required to fill in the blanks of statements (e.g., item 4 in Figure 7). In some cases, the first and last letters of the correct words were shown, like “Softer passages appear in the W\_\_\_\_\_s” (the missing word is “woodwinds”), which accompanied the Blueprint for Beethoven’s *Egmont Overture* (Feinberg, 1964, p. 11). Sometimes there were questions regarding the meaning of relevant musical terms, like “Subito Forte (= suddenly \_\_\_\_\_),” which appeared in the Blueprint for Copland’s *Lincoln Portrait* (Feinberg, 1964, p. 29).

Feinberg proposed a variety of activities that could be used with the Blueprints “to stimulate and sustain the interest of the class” (Feinberg, 1964, p. 4). These activities included:

Chant, tap, clap, or count rhythmic patterns from the music.

Use multi-reading approaches to learn the different themes and patterns.

Sing songs related to the unit of study.

Discuss mood, style, and other musical aspects of the composition being studied.

Analyze the structure of the music and the workmanship of the composer.

Have the class evaluate the music.

Listen to the complete composition for personal pleasure and satisfaction

(Feinberg, 1964, p. 4).

Feinberg argued that using Blueprints in such numerous ways achieved important educational goals. First, they involved a creative, problem-solving method of operation, in which the listener functions “as both the thinker (a problem-solver) and a learner (a gainer of knowledge)” (Feinberg, 1974, p. 54). In his article, “*Creative Problem-Solving and the Music Listening Experience*,” he explained that the “problem-solving approach” of his Blueprints was derived from the work of psychologist J. P. Guilford. Feinberg referred to the intellectual abilities outlined in Guilford’s model of the structure of intellect, and he explained that the most important abilities involved in creative thinking were fluency, flexibility, and elaboration. All three abilities were incorporated in the Blueprints’ activities. Feinberg suggested that fluency, or, the ability to find different solutions to a single problem, could be developed by asking listeners to explain how many different ways a particular musical idea was used in a certain piece of music. The more uses a student came up with, the more fluent he was. Flexibility, on the other hand, involves the ability to generate adaptations to a solution in order to solve a particular problem, and it represents the subject’s level of openness and originality. As an example of a way to help listeners develop flexibility, Feinberg suggested that, after listening to a particular composition, students be asked to make up a series of questions that they thought related to what they had heard. The more areas they covered in their questions, the more flexible their thinking. Finally, elaboration, according to Feinberg (1974) is the “creative thinking behavior concerned with generating step-by-step procedures to solve a particular problem”(p. 56). To develop elaborative thinking, listeners might indicate the procedures needed to carry out various ideas through the music. As an example, he suggested that, after listening to a specific excerpt (e.g., the gong at the end of

Tchaikovsky's *Symphony No. 2*), students be asked to describe how they would bring this work to an end.

Secondly, Blueprints enabled students to listen to music attentively and gain a deep musical understanding. In Feinberg's words, Blueprints "enable the student to analyze a particular piece of music and experience it as a complete integrated whole. The culminating effect of such an experience is a satisfying musical *gestalt*" (Feinberg, 1976, p. 41).

Feinberg's educational principles strongly reflect the idea of *aesthetic education*, proposed in Bennett Reimer's book, *A Philosophy of Music Education* (1970). Reimer claimed that music could create feelings essential to human experience that cannot be acquired by any other means. Thus, the purpose of music education is not merely to teach students to perform, but also to teach everyone to actively listen to music and experience it to its fullest. His arguments were prompted by the necessity to defend the importance of music education during the decades of 1960s and 1970s. During this period drastic changes occurred regarding the focus of public education, which shifted to science and technology because of America's involvement in the space race. As a result, there were budget cuts in fine arts programs throughout the country, and many music educators, including Reimer and Feinberg, made efforts to keep music programs alive in public schools. *Blueprints for Musical Understanding* constituted such efforts by Feinberg; whereas Reimer proposed another educational tool, the Call Chart.

### **Call Charts (1967)**

Bennett Reimer was in charge of the development of a two-year curriculum in general music, which was designed and tested in three junior high schools and three senior high schools during the academic year of 1966-67 in school districts of Cleveland,

Ohio. The major objective of the course was to develop the students' "ability to have aesthetic experiences in music ... in a context which encourages feelingful reaction to the perceived aesthetic content [of music]" (Reimer, 1967, p. i). Reimer explained that the term "aesthetic contents" in music referred to the perception of music as "a means for exploring and understanding human feeling" (ibid). Such perception could be achieved by employing music listening techniques "which illustrate the nature of music and which foster keener musical perception and deeper musical reaction" (ibid). Reimer designed Call Charts to help students achieve these goals.

A Call Chart is a chronological list of the major musical events that take place in a piece of music. An example of a Call Chart is given in Figure 9.

CALL CHART		
BRAHMS, SYMPHONY NO. 2 IN D MAJOR, III		
Meas #	Call #	
1	1	3/4; static; accents on third beat; regular pulse; short notes
33	2	2/4; active and fast; accent on last beat 
51	3	Active; simple pattern; accents on both beats of measure
63	4	Staccato; active, regular pulse
83	5	Staccato; accent on last beat
107	6	3/4; static, as at beginning; last beat emphasis; legato
120	7	Simple pattern of  ; pace more active, then slows
126	8	3/8; very fast, downbeat accent; staccato; active; simple pattern
156	9	Staccato; active, accent pattern heard as  again
188	10	9/8; transition
190	11	3/4; ritard; approach to return of original section
194	12	3/4; accent on last beat, then on 1st or 2nd beat; static pace; simple patterns
219	13	As at beginning; notes become longer; static pace; slow tempo; last beat weak accent; tempo slows to ending

Figure 9. Example of a Call Chart (Reimer, 1967, p. 142)

As can be seen from the example above, a Call Chart contains several different elements. The right-hand column consists of a list of brief descriptions of the main musical events that are heard in a particular piece. The events are listed chronologically, in the order they are heard. Each description is numbered, and their numbers are shown in the middle column, labeled "Call Number." The left-hand column contains the measure number to which the corresponding description refers.

The modus operandi of Call Charts required the teacher to have the Call Chart *and* the score of the music (unless they know the piece well enough); whereas, the students only needed to have the Call Charts in front of them. Reimer suggested that the

descriptions of the events should be discussed prior to the listening experience. As the music was playing, the teacher called out (hence the name Call Chart) the number of the event that corresponded with what the students were hearing. Students would then read the description of the passage currently playing, and thus focused their attention on the musical elements of the passage.

Reimer argued that he developed Call Charts to overcome the difficulty of focusing the listener's attention on the music. He explained that "the fluid and intangible nature of sound moving in time makes isolation of elements troublesome and focusing of attention on particulars, in the context of the whole, extremely difficult" (Reimer, 1967, pp. A-8). He believed that this problem could be overcome with the use of Call Charts:

In order to overcome this difficulty and to insure that music's expressiveness could be pointed out in actual musical experience, a device was developed which has proven to be extremely effective, quite simple, and pedagogically valid. This is the "Call Chart", which allows the teacher, with a minimum of intrusion into the aural stimulus of the music [referring to the announcement of the event's number], to focus the attention of large numbers of students on important expressive elements in actual, on-going music (Reimer, 1967, pp. A-8).

Reimer also developed devices for evaluation to be used along with Call Charts, named *Test Charts*, examples of which are shown in Figure 9. There are two types of Test Charts. Using the first type of Test Chart (shown in the left column of Figure 10), students listened to a short excerpt of a piece of music that they had previously analyzed and selected the correct answer of paired items. The items dealt with whatever the teacher wished to teach, like music elements, form, dynamics, contour, and orchestration. The second type was similar to the Call Charts. Students were presented with a numbered list

of paired items. As music played, the teacher called out a number, and students had to choose the correct answer of the paired choices that corresponded with that particular call number. An example of this type of Test Chart appears on the right side of Figure 10.

<p>BEETHOVEN, SYMPHONY NO. 3 IN Eb MAJOR, I (meas. 1-57)</p> <p>slow      <u>fast</u></p> <p>3/4      4/4</p> <p><u>regular pulse</u>      irregular pulse</p> <p><u>strong pulse</u>      weak pulse</p> <p><u>strong accents</u>      weak accents</p> <p><u>no rubato</u>      much rubato</p> <p>static pace      <u>active pace</u></p> <p>all regular accents      <u>some irregular accents</u></p>		<p>MOZART, PIANO VARIATIONS ON "AH, VOUS DIRAI-JE, MAMAN," Variation XII</p>																																																																																											
<p>SCHOENBERG, STRING QUARTET NO. 4, I (up to meas. 66)</p> <p>slow      <u>fast</u></p> <p>mostly long notes      <u>mostly short notes</u></p> <p><u>much staccato</u>      legato</p> <p>regular accents      <u>irregular accents</u></p> <p>simple patterns      <u>complex patterns</u></p> <p>static pace      <u>active pace</u></p> <p>regular pulse      <u>irregular pulse</u></p>		<table border="1"> <thead> <tr> <th>Meas #</th> <th>Call #</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>both parts active</td> <td><u>lower part active</u></td> <td>upper part active</td> </tr> <tr> <td></td> <td></td> <td><u>fast</u></td> <td>slow</td> <td></td> </tr> <tr> <td></td> <td></td> <td><u>regular pulse</u></td> <td>irregular pulse</td> <td></td> </tr> <tr> <td></td> <td></td> <td><u>accents</u></td> <td>no accents</td> <td></td> </tr> <tr> <td></td> <td></td> <td><u>strong pulse</u></td> <td>weak pulse</td> <td></td> </tr> <tr> <td>9</td> <td>2</td> <td>both parts active</td> <td>lower part active</td> <td>upper part active</td> </tr> <tr> <td></td> <td></td> <td>rubato</td> <td><u>no rubato</u></td> <td></td> </tr> <tr> <td></td> <td></td> <td><u>triple</u></td> <td>dupe</td> <td></td> </tr> <tr> <td></td> <td></td> <td>long notes</td> <td><u>short notes</u></td> <td></td> </tr> <tr> <td>17</td> <td>3</td> <td>both parts active</td> <td><u>lower part active</u></td> <td>upper part active</td> </tr> <tr> <td></td> <td></td> <td><u>fast</u></td> <td>slow</td> <td></td> </tr> <tr> <td></td> <td></td> <td><u>regular pulse</u></td> <td>irregular pulse</td> <td></td> </tr> <tr> <td></td> <td></td> <td><u>accents</u></td> <td>no accents</td> <td></td> </tr> <tr> <td></td> <td></td> <td><u>strong pulse</u></td> <td>weak pulse</td> <td></td> </tr> <tr> <td>25</td> <td>4</td> <td><u>active</u></td> <td>static</td> <td></td> </tr> <tr> <td></td> <td></td> <td><u>strong pulse</u></td> <td>weak pulse</td> <td></td> </tr> <tr> <td></td> <td></td> <td><u>strong accents</u></td> <td>weak accents</td> <td></td> </tr> </tbody> </table>		Meas #	Call #				1	1	both parts active	<u>lower part active</u>	upper part active			<u>fast</u>	slow				<u>regular pulse</u>	irregular pulse				<u>accents</u>	no accents				<u>strong pulse</u>	weak pulse		9	2	both parts active	lower part active	upper part active			rubato	<u>no rubato</u>				<u>triple</u>	dupe				long notes	<u>short notes</u>		17	3	both parts active	<u>lower part active</u>	upper part active			<u>fast</u>	slow				<u>regular pulse</u>	irregular pulse				<u>accents</u>	no accents				<u>strong pulse</u>	weak pulse		25	4	<u>active</u>	static				<u>strong pulse</u>	weak pulse				<u>strong accents</u>	weak accents	
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Figure 10. Examples of Test Charts (Reimer, 1967, pp. 144, 146)

The contents of the musical descriptions in the Call Charts varied to emphasize the topic of the lessons. Since Call Charts were introduced as part of the two-year general music program, they were used to teach several aspects of music during the listening experience. Such a topic, entitled "Performer's Interpretation," required Call Charts to contain the most important interpretive directions put in the score by the composers, such as dynamic and tempo markings. For example, the Call Chart describing Chopin's *Etude No. 3. in E*, had descriptions like "*Lento, ma non troppo*: slowly, but not too slow"; "*Legato*: smoothly"; "*p*: quietly"; "*Crescendo*: get louder"; "*Ritenuato*: slow up."

(Reimer, 1967, pp. b-36). Similarly, a Call Chart with the topic of “Rhythm” contained only rhythmic elements. Examples include the descriptions for Bennett’s *Suite of Old American Dances*, Number 5, “Rag,” such as “2/2; *legato* with *staccato*; shifting pulse,” “*Legato* with *staccato*; strong accents, pace quickening; regular pulse,” “*Legato*; regular pulse with syncopation and strong accents,” and “Strong accents; regular pulse in complex patterns” (Reimer, 1967, pp. B-143). The Call Charts designed to teach “Melody and Harmony” gave information about modality, phrase structure, and harmonic analysis. For example, the Call Chart for Mozart’s *Symphony Number 36 in C Major* includes descriptions like “Major; short phrases; mostly step motion; smooth; complete usage; simple structure,” “smooth down and up pattern (repeated); consonant,” and “Small steps with one downward leap; strong cadence” (Reimer, 1967, pp. B-182). Regarding the “Form” of a composition, the Call Chart descriptions identified the section of the piece the listener was hearing, as well as its key. For instance, the events describing the Exposition section in the Call Chart for Mozart’s *Eine Kleine Nachtmusik* indicate “Theme 1 in tonic key (G major),” “Second part of theme 1 – contrasting,” “Transition, modulating to dominant (D major),” “Theme 2 in dominant (D major),” “Theme 3 in dominant (D major),” and “Transition to development; strong cadence” (Reimer, 1967, p. 271).

In some cases, the brief descriptions are presented in more than one column, as in the Call Charts designed to teach tone color. These charts employed three columns for the descriptions: (a) the first column described the instrument(s) that played the melody, (b) the next column described the instruments that accompanied the melody, and (c) the third column provided information regarding the pitch ranges and dynamic levels of the instrument(s) playing. For example, in the first event in the Call Chart describing the “*Confutatis*” from Mozart’s *Requiem Mass*, the description “all basses followed by all

tenors in imitation” appears under the column entitled “Melody.” Next to it, under the column entitled “Accompaniment,” the text states, “*Tutti* orchestra, except horns; strings prominent and in low register.” The last column explains that these instruments sound “loud and thick” (Reimer, 1967, pp. B-107).

Although the Call Charts had many similarities with the Blueprints, there were some important differences among the two tools. First, the number of the Call Chart event was meant to be announced by the teacher—a fact that facilitated the listening experience, since students were constantly directed to read the description of the passage currently playing. On the contrary, students had to navigate through the Blueprints on their own. Secondly, Blueprints required students to know how to read music notation, since they relied heavily on notated passages. Call Charts only used simple textual descriptions (at least initially). Also, Blueprints were published through a relatively small publishing house, making it difficult to estimate to what extent they were used by music teachers. On the other hand, Call Charts were included in various music textbook series. Reimer was one of the authors of the *Silver Burdett Music* series, published by Silver Burdett Learning Company between 1974 and 1985, which was the first series to include Call Charts. Also, numerous Call Charts were featured in *The World of Music* series, which was published in 1988 by Silver Burdett and Ginn, Inc. In addition, the Silver Burdett Company helped expand the use of Call Charts by issuing ditto masters from which teachers could make numerous duplications. The ditto masters were available with the *Silver Burdett Music* series during the 1970s. On the other hand, teachers wishing to use the Blueprints needed to arrange to buy separate lessons for each of their students.

Because Call Charts were used in music textbooks series, they were further developed by the publishing companies. Silver Burdett made two major improvements to the Call Charts over the course of the 1980s. The first one consisted of the call number

announcement being included on the actual recording that accompanied the textbooks, thus eliminating the need for teachers to have a score of the piece. The second development had to do with the contents of the descriptions. Although Reimer originally used very simplified textual descriptions along with few notation symbols, later versions of call charts incorporated notated themes, notations of rhythmic patterns, and drawings of instruments as well.

Music teachers also developed their own versions of tools for music listening that were based on elements found in both Blueprints and Call Charts. Miller (1986), for example, explained the procedure for creating Listening Maps using notated themes and drawings, which were very similar to Blueprints. Similarly, Bletstein (1987) detailed the procedure for making Call Charts. Other authors described the process for designing modified versions of Call Charts that were more appropriate for elementary grades (Sacks et al., 1980), while Kendrick (1983) emphasized the importance of using audiovisual materials, including Call Charts, in early grades.

Although an effective listening aid, Call Charts were not without their limitations. As March points out, students needed to be able to read and to understand the descriptions as well as to recall previously read information fast enough to benefit from Call Charts, otherwise they become easily frustrated (March, 1980). Also, March emphasizes that the Call Chart is a static device, unlike music, which is in constant motion. Thus, by the time students locate the event on the chart, read the material describing it, and take the time necessary to guide their attention to the anticipated sound, the description may no longer pertain to the music heard.

### **The Listening Grid (1971)**

Another influential music listening tool was the *Listening Grid*, developed by Paul Larson, a general music teacher. The listening grid was presented in a paper by Larson, published in the *Music Educators Journal* in 1971 (Larson, 1971). The device was a grid of numbered squares, each one representing a measure. While the music played, students were supposed to move from square to square by pointing. An example of a Listening Grid appears in Figure 11.

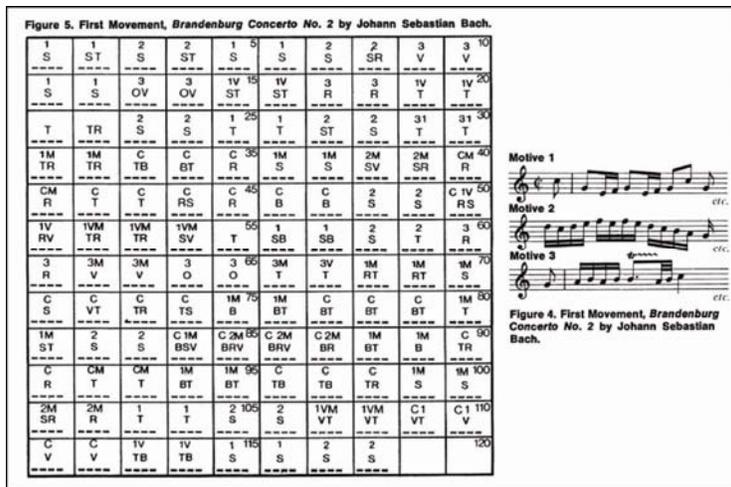


Figure 11. An Example of a complex Listening Grid (Larson, 1971, p. 52). The letters indicate which instrument is playing (S-strings, T-trumpet, O-oboe, R-recorder, V-violin and B-cello and bass), while the indications 1M, 2M and 3M refer to the motives 1, 2, and 3, as displayed in the legend. Also, the letter C indicates counterpoint.

The purpose of the Listening Grid was to focus attention on the specific music events the teacher wanted to emphasize. For instance, students might have been asked to put the letter T in each square in which a trill occurred or the letter B when Brass instruments were heard. Activities could be as simple as coloring each square heard, thus counting the number of the measures in a piece, or they could be much more complex, e.g., marking the instrument that plays the main theme throughout the piece.

The device could be very flexible, as Larson pointed out. For example, teachers could add dashes in each square, each one representing the beat, in order for the students to engage in more specific activities (e.g., marking the precise moment an instrument plays a solo). Such dashes appear in Figure 10. Also, instead of using a grid with squares, teachers could create a listening aid in which numbers are placed in rows and columns. Each number, as with the squares, represented a measure, and students might be asked to circle, cross or underline the measure in which a specific musical event occurs. Another feature was that the same listening grid could be used many times; students could concentrate on just one task at a time, and by multiple repetitions could end up with a complex map describing the various musical events of the piece. The Listening Grid shown in Figure 10 is one such example. The Listening Grid could also be used in conjunction with studying musical themes. Larson described a pertinent activity in which students learned the different themes of a given excerpt and then used the listening grid to mark which one they heard in each measure.

Listening Grids appear to have a number of advantages over Blueprints and Call Charts. First, they were very easy to make, since they essentially consisted of a simple grid of numbered squares. Teachers could make many copies of one generic grid and use it according to the lessons' goals. In that way, grids were quite inexpensive, as opposed to Blueprints, which students had to purchase as individual lessons. Secondly, the Listening Grids could be adapted to address a student's specific needs and to assist him or her in reaching the educational goals of a specific lesson. Students need to be constantly active during the listening experience using listening grids, since they are required to continuously navigate through the measures. Finally, the Listening Grid could be used as an evaluation tool, since it was an accurate representation of the material comprehended by the students, thus eliminating the necessity of test charts.

## The Listening Map

The listening aid that is most widely used today is the *Listening Map*. Usually one page in length, the Listening Map is a representation of a piece of music in which abstract symbols, pictures or shapes are used to describe sounds. Listening Maps first appeared in music textbooks in 1975; in these early maps, the melodies of the different instruments were depicted by lines (Sanz, 1993, p. 170). Written descriptions and explanations were provided as well. Since then, Listening Maps have been developed by different authors, publishers and teachers, resulting in a diverse variety of maps, differing in content, concept and complexity. Given their flexibility, Listening Maps can present any musical element, including melody, form, rhythm, and orchestration.

Melody has been presented in various ways on Listening Maps: Initially, contour was shown in the form of a continuous line. For example, in a Listening Map describing Bach's *Air from Suite No 3 in D major*, a continuous line depicted the long, sustained notes of the violin melody; whereas, the shorter notes played by the accompanying cellos and basses were represented by shorter lines (this particular Listening Map appeared in the third grade student's textbook of the *Exploring Music* series, published in 1975 by Holt, Rinehart and Winston, Inc.). Later, individual notes were depicted by shapes or pictures. Shapes could be of any geometric form (rectangles, triangles, squares) or abstract ones, differing in color and in size. For example, notes appeared as circles in the Listening Map for Tchaikovsky's *March*, from the *Nutcracker Suite* (shown in Figure 11) and in the map for Stravinsky's *Finale*, from the *Firebird Suite* (both Listening Maps appeared in the 2003 edition of the *Making Music* series, published by Silver, Burdett & Ginn, Inc.). When pictures are used to depict individual notes, authors typically use pictures that are relevant to the story the music describes. Examples of such pictorial maps include the Listening Map for Mozart's *Ah, Vous dirai-je, Maman*, (from his 12

Variations in C, commonly known as the song “Twinkle, Twinkle, Little Star”) or the Listening Map for Bach’s *Air in G*, both of which are included in the third and fourth grade textbooks from the *Making Music* series. The notes in Bach’s work are depicted with balloons flying in the sky, while the notes in Mozart’s composition are represented with stars in a night sky. The Listening Map for Bach’s *Air in G* is shown in Figure 12.



Figure 12. The Listening Map for Bach’s *Air in G*, as it appears in 4<sup>th</sup> Grade student’s book from the 2003 edition of the *Making Music* series, published by Silver, Burdett & Ginn, Inc (p. 23).

Another common practice of Listening Map designers is to position the pictures, shapes, and/or lines at different heights, thus depicting the relative pitch of the melody (i.e., high notes are represented with pictures positioned higher than the ones representing

low notes). Longer lines, or shapes, may refer to longer note durations. Finally, lines, pictures and shapes can be used within the same Listening Map. In such cases, each of these elements usually functions in a different way. For example, in the Listening Map of Leroy Anderson's *Syncopated Clock*, lines represent measures while pictures of clock-shaped cartoons represent syncopated notes.

Shapes and pictures are also used to depict the individual *measures* of a piece of music. For example, squares and triangles of several colors are used to show the measures in the Listening Map for Carl Orff's *Tanz*, from *Carmina Burana* (included in the sixth grade textbook of the *Making Music* series). Also, as in the case of the representation of the individual notes, the pictures used are typically pertinent to the story that the music describes. Thus, clocks are used to depict a number of measures for Leroy Anderson's *Syncopated Clock*, and candles are used for Andrew Lloyd Webber's *Pie Jesu* from his *Requiem* (both Listening Maps are included in the fourth and sixth grade textbooks of the *Making Music* series).

Furthermore, Listening Maps can easily illustrate the form of a piece. A common feature among Listening Maps is a line representing the music of a specific section (for instance, the music of the A section and B section will be shown in the first and second line of the Listening Map, respectively). The music of a given section can be shown in its own rectangle or its own color. Section abbreviations (e.g., A or B) and titles (e.g., intro, bridge, or coda) are usually written to the left of their corresponding line(s). A pertinent feature is to use a shape or a picture to represent a measure, a common technique when a section consists of the same number of measures each time it is heard. Shapes can also depict beats instead of measures. Repeat signs are also frequently used to show the repetition of measures. These techniques are clearly derived from the Listening Grid,

where each measure of music was represented by a square and beats were shown as dashes within squares.

Listening Maps also depict orchestration in various ways. Pictures of instruments are commonly used to show the instrument(s) currently playing; in some cases the pictures represent measures or sections, but it is much more common for the pictures to be used in conjunction with the lines or shapes depicting the melody played by the instrument(s). In some cases the same color is used for lines that represent music played by the same instrument(s), thus reinforcing the association of a line or shape with the corresponding instrument. An example which illustrates all the above features is the Listening Map for Coplan's *Fanfare for the Common Man*, which is shown in Figure 13.

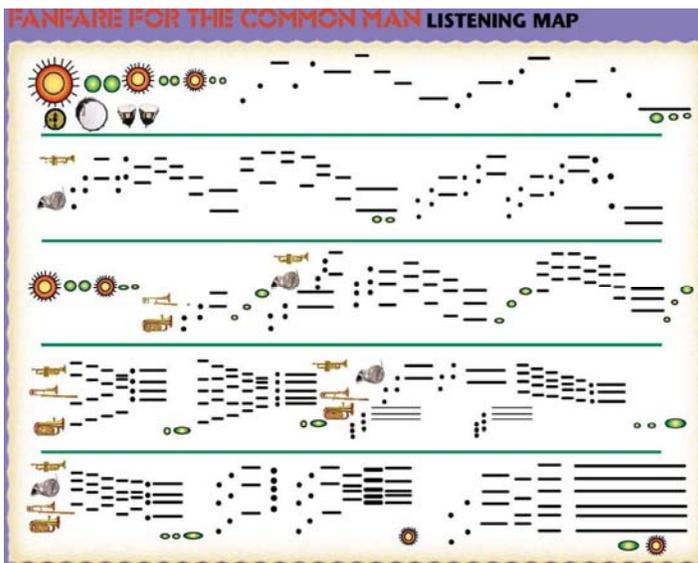


Figure 13. The Listening Map for Aaron Copland's *Fanfare for the Common Man*, as it appears in 7<sup>th</sup> Grade student's book from the 2003 edition of the *Making Music* series, published by Silver, Burdett & Ginn, Inc (p. C-43).

Other musical elements are represented in Listening Maps in similar ways. For instance, large shapes or pictures might depict a loud note or passage; whereas, small shapes or pictures commonly represent softer notes. In fact, dynamics (such as *p*, *f*, or *crescendo* markings) are frequently shown in Listening Maps, as is articulation. For example, when beats are shown in a Listening Map, an accent can be shown with larger shapes or pictures as well. Similarly, dots may be used to represent staccato notes, while a continuous line might depict legato notes.

In summary, the Listening Map is an innovative tool at the teacher's disposal to teach music listening today. As March points out, the Listening Map "provides a visual description which allows students to discuss what might be heard, directs their attention to the sounds as they unfold during the listening experience, and helps their recall for discussion after the music is heard" (March, 1984, p. 19). Listening Maps are used widely today for classroom instruction and are included in every music textbook currently used. Also, music textbook publishers distribute transparencies and large posters of the Listening Maps included in students textbooks as supplementary material for classroom use. Also, in 2005 Silver Burdett and Ginn, Inc. issued a CD-ROM with most of the Listening Maps appearing in the 2003 edition of the *Making Music* textbook series. MacMillan and McGraw Hill, publishers of the *Spotlight in Music* textbook series, also published CD-ROMs containing all the Listening Maps appearing in their books.

Although Listening Maps have been in circulation for more than thirty years now, there are only a few studies addressing their effectiveness in teaching music listening (Cassidy, 2001; Gromko & Russel, 2002; Hoplaros, 2007; March, 1980). In fact, while a powerful aid, the Listening Map, just like the Call Chart, lacks the dynamic element of movement through time since is a static, two-dimensional device. In an attempt to overcome this problem, music educators developed Animated Listening Guides, which

were made possible with the latest technological advancements, specifically the computer.

### **THE ADVENT OF COMPUTERS AND THE DEVELOPMENT OF EDUCATIONAL MATERIAL FOR TEACHING MUSIC LISTENING**

Computers have been used in educational instruction for almost 60 years now. The first occurrence of computer-based instruction took place in 1950 when scholars at MIT used a large mainframe computer to develop a flight simulator for training pilots (Lockard, Abrams, & Many, 1997). Since then, there have been great developments in both computer hardware and software. The following section will provide an overview of the development of computers and their uses in education in order to provide a context for better understanding their contributions to music listening. Finally, the most popular computer-based educational materials for music listening will be presented.

#### **The Development of Computer-Assisted Instruction in Music**

The word “computer” originally meant a *person* who solved equations; it was not until 1945 that the term was carried over to machinery (Ceruzzi, 2005), when the first computers functioning on stored programs were developed, mainly for military use. The public was notified about computers in 1951, when the first commercial computer, UNIVAC I (Universal Automatic Computer I), entered the market. Since then, four generations of computers have evolved, according to Saettler (1990). UNIVAC’s generation (1951-1958) used vacuum tubes to control operations. The second generation of computers (1958-1964) utilized two innovations: transistors instead of vacuum tubes, resulting in increased reliability, lower maintenance, and lower operating costs; and reliable, high-capacity memory units built out of magnetic cores (Ceruzzi, 2005). Ceruzzi

reports that this generation of computers marked the transition from mainframe to minicomputers. The third generation of computers (1964-1975) continued the trend in diminishing size and used integrated circuits, now known as “the chip,” as Ceruzzi clarifies, to perform operations. Since 1975, the microprocessor, or computer on a chip, enabled the manufacturing of personal computers, which brought information technology to the masses. Information technology refers to the technology “which encompasses word processors, office equipment, electronic mail, cable television, videotext, robotics, television games, computer networks, and satellite communications” (Saettler, 1990, p. 454).

The systematic use of computers in education began in the 1960s with the introduction of Computer-Assisted Instruction, or CAI (Saettler, 1990). The first large CAI projects were developed in the early 1960s by universities, such as PLATO (Programmed Logic for Automated Teaching Operations) and TICCIT (Time-Shared Interactive Computer-Controlled Information Television) developed at the University of Illinois and Bingham Young University, respectively (Nicholson, 2007). Such projects used large and expensive mainframe computers though, and were not appropriate for use in elementary or high school public education. When the microcomputer became available, schools were equipped with microcomputers beginning in the early 1980s. At the same time, computer instructional applications began to flourish, addressing many subjects of the curriculum, including music.

Peters (1992) describes the evolution of CAI regarding music instruction as occurring in four generations. The first generation occurred during the 1960s and 1970s, when only mainframe computers existed. The software of that era was developed and used in universities and addressed issues like fundamentals of music, instrument methods, pedagogy, fundamentals of rhythm, and ear-training. The PLATO system was

used for 16 courses taught in the School of Music at the University of Illinois in 1974 (Eddins, 1981). Principles of music were also taught with the GUIDO system (Graded Units for Interactive Dictation Operations), which was developed by the University of Delaware in 1974 (Arenson & Hofstetter, 1983). Hofstetter conducted a series of studies evaluating the GUIDO system's effects on teaching aural skills (Hofstetter, 1981).

The second generation of computer software took advantage of the first commercially successful 8-bit microcomputers on the market in 1978 (such as the Commodore PET, the Atari 400 and 800, the Apple II, and Tandy TRS-80). The software of that period was also enhanced by the hardware inventions in audio production, such as the Digital-to-Analog Conversion and various synthesizers. Since 1978, more than 500 music programs have been developed; examples include the Harmonic Dictator, Apple Music Theory, Musicland Games, Aural Skills Trainer, and Chord Drill.

The third generation of music programs took advantage of the introduction of the MIDI protocol and the 16-bit PC computer by IBM, both of which hit the market in 1981. The MIDI (short for Musical Instrument Digital Interface) was a breakthrough in the field of music technology, since it allowed the exchange of information between MIDI instruments and sequencers. Students and musicians were now able to use MIDI keyboards to input information into computer programs, a potential that was utilized by many educators and commercial software producers. Hundreds of CAI programs were released between 1984 and 1992, while music teachers, schools and students used the Apple IIe, Apple IIgs, IBM PCXT, IBM PC-AT, Atari ST1040, Tandy 1000 series, Commodore Amiga, and many others, with or without MIDI keyboards attached (Peters, 1992). Bartle (1987) compiled a guide of educational programs for music instruction that can be considered a third generation of applications. For each application, Bartle provided a description, his evaluation, and its hardware requirements. The applications

were categorized in the following groups (the number in the parentheses following the group's title represents the number of applications that belong to the group, while a large number of applications may belong to two or more categories): Analysis (3); Chords, Aural Identification (13); Chord Identification and/or Construction (8); Composers (4); Composition (13); Enharmonic Spellings (4); Error Detection (8); Harmonic Dictation (6); Instrumental Drills (13); Intervals, Aural Identification (20); Interval Identification and/or Construction (14); Intonation (3); Key Signature Identification and/or Construction (14); Keyboard (piano) Drill (4); Melodic Dictation (24); Melodic Harmonization (3); Modes, Aural Identification (5); Mode Identification and/or Construction (4); Music Symbols (6); Music Terms (14); Non-harmonic Tones (2); Note Names and Clefs (21); Note Values (14); Part-writing (1); Printing Music (3); Rhythmic Dictation (18); Rhythmic Notation (11); Rhythmic Performance (8); Scales, Aural Identification (9); Scale Identification and/or Construction (11); Transposition (7); and Tune Recognition (5).

### **Educational Materials for Music Listening Using Hypermedia**

The fourth generation of CAI programs for music instruction took advantage of new technologies, especially the CD-ROM and multimedia. The great advantage of the CD-ROM from music education's perspective, according to Peters (1992), is its capacity to hold both audio and data information. Data could consist of text, pictures, and video – hence the term *multimedia*. The term is described by Boody (1992):

Multimedia implies the capability to digitize still pictures, moving pictures, and high-quality sound within a personal computer and to edit these materials to produce high-quality interactive audio-video productions. The finished "programs" can be stored on any conventional

computer storage device and played back on any other properly equipped personal computer (p. 29).

A common form of organization and access to the CD-ROM's media was the use of *hypertext*, which allows the user to access the desired information by clicking on the corresponding link. The result of combining hypertext with more than one type of media (e.g., with pictures, video, and sound) is called *hypermedia* (Duitman, 1993). A significant feature of hypermedia is the ability to let users interact with the flow of information at their own pace, an important ability regarding the production of educational programs. *HyperCard*, an application program that was initially released in 1987 by Apple Computer, Inc. (now, Apple Inc.), was among the first successful hypermedia systems. The software allowed for the design of virtual "cards", which contained text and pictures, and via hypertext (links) the user could be directed to other sources of information, like audio and video. Links shown at the bottom part of the program allowed the user to navigate through cards or search for a specific card or text. During the first half of the 1990s, commercially produced interactive CD-ROMs were very popular.

Voyager Company (in operation from 1984 to 1997) released some of the most widely praised and best selling titles through the Expanded Books Project (a series of books in electronic format) and educational hypermedia CD-ROMs. In 1989, Voyager published the first such educational CD-ROM for teaching music appreciation, entitled *The Beethoven's Ninth Symphony CD Companion* (Winter, 1989) and was written using Apple Computer's HyperCard environment. The CD-ROM was designed by Robert Winter, Professor of Music at UCLA, and featured the application as well as a recording of the music performed by the Vienna Philharmonic.

The design of the program was revolutionary. Once the CD-ROM was inserted in the drive, the main menu appeared and included five distinctive areas through which the user could navigate. The “Pocket Guide” led to a screen that listed all of the sections of each movement. When the user clicked on the desired section, the CD began playing at the specific position. “Beethoven’s World” was a link to information about the composer’s life and background, while the “The Art of Listening” linked to historical information on the Classical and Romantic eras, including text, pictures, instrument descriptions and audio examples. For instance, in the “Beethoven’s World” section, there is a drawing of Beethoven’s hearing aids next to a description of his deafness. Similarly, in the “Art of Listening,” there is a card explaining the principle of contrast as well as links to musical examples. The “Close Reading” section displays a running narration as the symphony is played; every few measures the program displays the score and a statement explaining the musical phrase currently playing. Finally, the “Ninth Game” is a trivia game with questions dealing with many aspects of Beethoven’s Ninth Symphony, suitable for students from grade six through college (Rudolph, 1996). Rudolph argues that the application can be used as a reference tool or as a tutorial regarding Beethoven in general, the Ninth Symphony, and the instruments used in Beethoven’s life.

After the success of *The Beethoven’s Ninth Symphony CD Companion*, Voyager went on to release more titles, again edited by Robert Winters. In 1991 the CD Companion to Mozart’s *String Quartet in C Major “The Dissonant”* was published, followed by companions for Stravinsky’s *The Rite of Spring* and Schubert’s *Quintet in A Major, D.667: The Trout*. The format of all titles was similar to that of the companion to Beethoven’s Ninth Symphony. Additionally, Voyager released *Audio Toolkit*, a program with which teachers could create their own listening guides in a hypermedia environment using existing commercial CDs. Mobley (1996) briefly explained how *Audio Toolkit*

worked in an article for the *Music Educator's Journal*, thus informing the journal's readers (music teachers) of the program's capabilities. Finally, it must be noted that Voyager's four titles described above were designed using Apple's HyperCard environment, and thus, they only functioned on Macintosh operating systems. Microsoft Corporation released PC versions of these titles under the series *Microsoft Multimedia* between 1992 and 1994.

Other companies followed Voyager's example and published similar multimedia CD-ROM application series for music listening. Warner New Media published a series of such interactive instructional programs called *Audio Notes*. Higgins (1991) describes three titles within that series: "Amadeus Mozart: The Magic Flute"; "Ludwig van Beethoven: String Quartet No. 14"; and "Johannes Brahms: A German Requiem." Mozart's opera is presented on three CDs with more than 12,000 different screens presenting information about the performance, like a real-time libretto in German or English, real-time narration of the story line, real-time commentary notes (appropriate for high school or college levels), and a sidebar enabling the user to navigate the entire opera. Text, pictures, and music give additional information, while a glossary provides aural and textual examples of terms. Finally, as in the case of Voyager's products, the program features a final exam on both aural and factual knowledge. The CD-ROM accompanying Beethoven's string quartet provides the user with a real-time structural, harmonic, and graphic analysis of the work, while numerous pieces of information are provided in more than 60 instructional sidebars. Finally, Brahms's Requiem is presented with a real-time display of the text in German or English, while information regarding the genre, choral basics, and the conductor's approach to the performance are illustrated on more than 400 screens. In Warner's next title, "The Orchestra: The Instruments Revealed," students are presented with information regarding the instruments of the

orchestra while listening to the entire performance of Britten's *Young People's Guide to the Orchestra* recorded by the London Symphony Orchestra (Rudolph, 1996). The CD also features an arcade section, in which elementary school students score points by guessing the instruments and instrument families. Other releases by Warner include the "Art of Fugue," "*Symphonie Fantastique*," "The Four Seasons," "The Firebird Suite," and "The Nutcracker."

The University of Delaware published another educational series on CD-ROM entitled *Videodisc Music Series* (Harris, 1989; Placek, 1987). The series consisted of four disks that presented 12 compositions, including: Haydn's *Symphony No. 94* ("Surprise"), second movement; Mozart's *Quintet for Clarinet and Strings*, K.581, first movement; the *Dies Irae* (Gregorian chant); Berlioz's *Symphonie Fantastique*, fifth movement; scenes from Puccini's *La Bohème*; and Debussy's *Prélude à l'après-midi d'un faune*. The videodiscs could be accessed either by a computer CD-ROM drive or by a videodisc player, which was similar to a VHS player. The series' contents were organized into chapters, which could be accessed through menus. Users could navigate through four areas for each composition (although not every area was available for each work): "Performance," "Scrolling Score," "Contour Map," and "Ornaments." The "Performance" chapter included a video of the orchestra or ensemble playing the desired composition. The "Scrolling Score" chapter featured the score of the composition, which moved as the piece was playing. In the "Contour Map" chapter, the melodic contour was depicted by continuous segments of lines. The lines were colored according to the section of the piece currently playing (e.g., first theme, transition, development, or exposition). For example, in Mozart's quintet, the section of the line depicting the first theme was red, while the line depicting the second theme was yellow. The last chapter, "Ornaments," presented performance demonstrations of selected passages with ornaments. In addition

to these four chapters, the user could navigate through 54,000 still frames, each of which resembled a slide with information on the works, such as score analyses, form analyses, biographical and historical data, and pictures of the composers.

Many other multimedia CD-ROM programs for music listening were published by various companies during the 1990s. A comprehensive list of such applications is presented in Figure 14.

Name of Application	Publisher	Year of Release	Age Group
Jazz: A Multimedia History	Compton's NewMedia	1992	High School & College
The Musical World of Professor Piccolo	Opcode Interactive	1993	Elementary & Middle School
Beethoven's 5th: The Multimedia Symphony	Mindscape International	1993	High School & College
Chuck Jones' Peter and the Wolf	Time Warner Interactive	1994	Elementary & Middle School
Musicstar Music School	Voyetra Technologies	1994	Elementary & Middle School
Tchaikovsky's 1812: The Multimedia Festival Overture	Future Vision Multimedia	1994	High School & College
Peter and the Wolf	International Business Machines (IBM)	1995	Preschool & Early Elementary School
Don Giovanni	Amphora Multimedia Publisher	1996	High School & College
The Great Operas	Camino Verde	1996	High School & College
Guide to the Orchestra	Cambrix Publishing	1996	High School & College

Figure 14. Multimedia CD-ROM programs for music listening

## **The Impact of Hypermedia-based Applications on Teaching Music Listening**

Music listening education benefited from the development of Hypermedia-based applications in many ways. First and foremost, each program was an all-in-one package of educational materials for the works it presented. From a music appreciation perspective, such applications offered a plethora of information regarding virtually every aspect of the composition (e.g., the form, main themes, instrumentation, the composer, the era in which the piece was written, even the conductor's choices regarding the performance of the recording). Teachers did not have to search for materials from other resources while preparing for the music lesson any more, thanks to the immense amount of textual, visual and audio information the CD-ROM conveyed. Rudolph (1996) characteristically admitted that every time he used the Voyager's *Beethoven's Ninth Symphony*, he learned something new. The great variety of programs that were developed covered many music lesson needs.

Secondly, many teachers who used CD-ROM multimedia programs to teach music listening shared their experiences through professional educational journals. As a result, they provided their colleagues with additional ideas and strategies concerning the effective use of multimedia in their music classes. Williams (1992), for instance, argued that hypermedia should be made an integral part of all music education classes, "instead of having students develop reports and essays in the old-fashioned, three-ring binder, cut-and-paste format" (p. 30). Gillespie and Placek (1991) suggested that teachers should not only use the applications that were commercially available, but create their own as well, using software tools like HyperCard, Authoware (which worked on both Macintosh and PC systems) and Toolbox (which ran on Microsoft's Windows 3.0 operating system). Higgins (1991) provided a detailed review of several hypermedia applications addressing music listening, as well as information on how teachers could purchase them.

Furthermore, Reese and Davis (1998) and Willman (1992) provided their colleagues with guidelines regarding the effective use of hypermedia and computers for music lessons in general.

The formation of the National Consortium for Computer-Based Musical Instruction (NCCBMI) marked a landmark in the professional growth of CAI projects in music (including hypermedia-based applications). The purposes of the Consortium, which formed in 1975 with the participation of 11 universities, were:

First, to provide a forum for the exchange of ideas among developers and users of computer-based systems for musical instruction; second, to establish and maintain a library of music courseware; third, to reduce redundant effort among courseware and hardware developers; fourth, to provide consultation for new users of computer-based musical instruction (Hofstetter, 1976, p. 30).

Michael Arenson (1984), the president of the NCCBMI in 1984, reported that the consortium contributed to the development of educational applications and educational techniques: it held annual meetings; its members provided consulting services and held workshops for teachers; it published a bimonthly newsletter in which the members of the consortium shared their ideas and were informed of the Consortium's meetings and the new hardware and software on the market; it published an annual educational catalog of the available computer applications for music instructions; its members were frequently presenting papers in the quarterly *Journal of Computer-Based Instruction*, which was published by the Association for the Development of Computer-Based Instructional Systems. Now known as the Association for Technology in Music in Music Instruction (ATMI), the organization also provides an online forum for sharing information, asking questions, and providing solutions to music teachers who wish to use the latest

technological developments in their lessons ("The Association for Technology in Music Instruction (ATMI)," 2008).

Another educational association, the *Technology Institute for Music Educators*, formed in 1995 and focused on the subject of teacher training in music technology. The goals of the Institute were (a) to develop standards and to organize training courses for in-service teachers who wished to use music technology in their lessons, (b) to develop course materials for music technology, including CAI projects, (c) to identify the skills required to obtain proficiency and competency in the use of technology as it applies to music education, and (d) to provide a forum for discussion, research, and development for music educators through a biannual convention (where music educators and software developers are brought together) and a newsletter ("Technology Institute for Music Educators (TI:ME)," 2008).

Furthermore, teachers were invited to contribute to the design of multimedia programs by making suggestions to software publishers. In fact, the publishers of the *Music Educators Journal* asked teachers to send feedback on the existing applications, their comments regarding their needs from technology-based educational products, and their ideas for future releases (Moore, 1992). All responses were to be shared with members of the Music Industry Conference. Although the editors of the journal did not publish the exact teachers' suggestions, the fact that music teachers were asked to comment on the design of educational computer applications might be an indication that such software was considered an important tool for music instruction and actively used in classrooms.

As a result of the wide use of hypermedia-based applications for teaching music listening, numerous studies were conducted in order to investigate the applications' usefulness. Goodson (1992), for example, found that sixth-grade students required less

instructional time in order to achieve equal or higher scores on a 22-item music listening test when using hypermedia programs compared to the students in three control groups. Also, many researchers developed hypermedia-based applications and examined their effects in music appreciation courses taught at the college level (Bauer, 1994; Duitman, 1993; Fortney, 1993; Hughes, 1991; Sigurjonsson, 1991).

Finally, the popularity and variety of educational CD-ROMs established computer applications as an important educational medium for teaching music listening not only for music teachers, but for the software publishers as well. The latter, boosted by the wide acceptance of hypermedia-based products, continued to develop educational materials. As a result, when the latest advancements in information technology emerged (like faster computers, the internet, and compressed video, audio and picture files), new educational programs in music listening utilized it.

### **The Latest Technological Advancements in Computers and the Development of Animated Listening Guides**

Animated Listening Guides are the latest tools at the music teacher's disposal. As their name implies, they are animated versions of Listening Maps that guide the listener in real time. For example, the various elements of listening guides (abstract symbols and icons) might move, be highlighted or otherwise emphasized, while the music is playing, through the use of animation techniques, thus guiding the viewer's attention to the elements that the author feels are important. The first Animated Listening Guide was constructed and used in a study by March as early as 1980 (March, 1980), which was a frame-by-frame animation. Still, they were not included in major music textbook publications until recently, because, as it can be shown by March's study, frame-by-frame animation is extremely costly. The development of new technologies allowing faster, easier and much more cost-effective production of these animations changed that.

During the last decade, computer-based technology has developed dramatically. Webster (2002) reports that personal computers, at the beginning of the new millennium, reached unprecedented levels of computing power (as evidenced by processor speed, memory, data storage capacity, and connectivity) and became much more affordable. The development of encoding formats, like the JPEG (Joint Photographic Experts Group), the MP3 (MPEG-1 Audio Layer 3), and the DIVX (Digital Video Express) allowed for the compression of visual, audio, and video data, respectively. As a result, multimedia files can be easily stored and transferred via portable memory devices or the Internet. Broadband internet connections allow for fast data transfer speeds, while the development of World Wide Web allowed the development of media-rich WebPages. Also, stand-alone and internet-based applications provide numerous opportunities for experiencing music in many ways, such as listening, performance, improvisation, and composition. Finally, the latest technological advancements (especially the ones concerning music technology) have been made available to almost everyone. “There is no denying,” Webster points out, “that children today do not know a world without computers, electronic keyboards, MP3 files and players, compact discs, the Internet, and other digital music devices and formats” (2002, p. 417).

Perhaps most importantly, the latest technological developments in computers have enabled the production and distribution of Animated Listening Maps, the most up-to-date educational tool used specifically to help students focus on the music during a listening experience. Currently, there are three major Animated Listening Map series available: the *Carnegie Hall Listening Adventures*; the *Animated Listening Maps* that accompany the *Making Music* series, published by Silver Burdett and Ginn, Inc; and McMillan/McGraw Hill’s *Electronic Listening Maps*, which accompany the *Spotlight on Music* textbook series.

### ***Carnegie Hall Listening Adventures***

The *Carnegie Hall Listening Adventures* is a collection of three online applications, developed by the Weil Music Institute at Carnegie Hall. The animated maps can be accessed free of charge at the organization's website by any user with a broadband internet connection. Although they were designed for children of elementary school age, "these engaging games allow both kids and adults to experience great music while learning music concepts in a stimulating environment" ("Carnegie Hall Listening Adventures," ). The first application is a game in which users assume the role of a girl who needs to collect all the instruments of the orchestra, thus embarking on an instrument safari of sorts. As children play the game, they are presented with information about the instruments while hearing excerpts from Benjamin Britten's *The Young Person's Guide to the Orchestra*. The second application is a cartoon movie in which Gino, the Carnegie Hall cat, leads users along an adventure through the Carnegie Hall history. The third application is an Animated Listening Guide of Dvorak's *Symphony No. 9 "From the New World,"* which first appeared online in December 2001 (Mirapaul, 2001). Figure 15 shows a snapshot of this application.



Figure 15. A Snapshot of Dvorak's *Symphony No. 9* Animated Listening Guide from Carnegie Hall Listening Adventures ("Carnegie Hall Listening Adventures," )

As can be seen from the snapshot shown in Figure 15, the structure of the application is designed in such a way as to provide users with a plethora of information that guides them through the piece. First, users can select the movement they wish to hear by clicking at the corresponding number, shown under the title. Also, the major sections of the movement (e.g., Introduction, Theme 1, Theme 2) appear at the bottom of the interface; by clicking on any section, the music automatically begins from the requested position. The actual animation (in the form of a cartoon movie) takes place on a screen in the center of the interface while the music is playing. At the same time, brief textual statements appear on the left side of the interface; whereas, pictures of the instruments currently playing appear at the bottom of the main animation screen.

The animation shown in the central screen presents the story of Dvorak's voyage and experiences in the United States, and the main musical elements are emphasized. Specifically, each of the main themes of the piece is illustrated with a cartoon scene. As a

new theme (and consequently, a new scene) begins, the statements appearing on the right side of the screen describe the scene currently playing. For instance, during the introduction of the first movement, users see a sailing ship accompanied by the explanation, “the voyage was very pleasant on the whole ... except for three days when it was quite stormy and all the passengers, with the exception of the Master, kept to their cabins.” It is interesting that the publishers of Dvorak’s animated listening guide employ the technique of using a story to describe absolute music, as the publishers of piano rolls did 80 years earlier.

When an important theme is playing, the publishers use objects to depict the notes in a way similar to Listening Maps. For example, the nine notes of the composition’s first theme are depicted with rectangles that are drawn below the waves (Figure 11). When a specific note is heard, the corresponding shape is highlighted. The same technique is used throughout the guide, and themes are represented in various ways. For example, the notes of the various themes appear as stars (Theme 1, Second Movement), plumes of smoke coming out of a train engine’s chimney (Theme 1, Third Movement), or the roofs of New York’s buildings (Theme 1, Fourth Movement). Furthermore, some themes (usually the second theme of each movement) appear in their notated form; the note currently playing is highlighted. In addition, when themes from previous movements return, the animation with which the corresponding theme was initially introduced likewise returns.

The application is accompanied by a glossary section and an “activities” section, which could be used as evaluation. The activities section contains two games for each movement. The activity “Unscramble the Themes,” available for every movement, requires children to assemble small jigsaw puzzles of pictures that are found in the scenes. Pictures are associated with the themes with which they were introduced during the animation. When students successfully complete a puzzle, the corresponding theme is

played (although now in piano tones). Other activities include multiple-choice questions. Also, the “Melody Mix-Up” activity lets students change the notes in one of Dvorak’s themes and then hear the results.

The Carnegie Hall application for Dvorak’s *Symphony No. 9* is important in the history of music listening educational tools for many reasons. First, it was the first Animated Listening Map to use computer technology and the Internet. As a result, it is immediately available to any user, teacher or student at no cost (assuming access to a computer with a broadband connection). Secondly, it provides students with descriptions of the musical events as they happen in real time. Students do not need to wait for the call number in order to read the description, as with Call Charts. Pictures of the instruments playing the melody are always shown, thus helping students recognize the tone color of the excerpt currently playing. Also, the main themes are associated with specific images; as soon as an image is presented, students expect to hear the corresponding theme.

On the other hand, the Carnegie Hall guide imposes some potential educational concerns. For example, the use of a cartoon storyline might lead students to focus on the cartoon instead of on the music. Some objections have also been expressed regarding the syncing of classical music with cartoon movies, similar to the ones elicited when Disney’s *Fantasia* was released in 1940 (Mirapaul, 2001).

### ***The Animated Listening Maps series***

The *Animated Listening Map* series was published by Silver Burdett and Ginn, Inc. in 2005, and consists of animated versions of a number of listening guides that are presented in the *Making Music* textbook series. The animated series includes 52 animated guides spanning six CD-ROMs that present orchestral works, operas, folk songs, children’s songs, and even children’s tales. McMillan/McGraw Hill issued a number of

animated versions of listening maps, which can be found in *Electronic Listening Maps* series. The latter is a collection of CD-ROMS that contain the static listening maps which appear in *Spotlight on Music* textbook series. The animated listening maps published by both companies are very similar. The examples cited in the current section are drawn from Silver Burdett's *Animated Listening Map* series.

For each composition, students have the option to either watch the animated guide or to just listen to the music. When the animated guide is playing, the users can navigate through the music by clicking on one of the buttons shown at the bottom of the screen. On each button there is a description of the section of the composition that will be heard upon clicking (e.g., Theme 1, Section B, Coda).

The publishers employ several techniques in order to animate the contents in each guide, and they can be grouped in five categories. First, a technique that appears in many guides is highlighting several objects that are associated with the passage currently playing. Thus, in many guides, pictures of the instruments are highlighted when the corresponding instruments are heard in the music. Examples of Animated Listening Maps that incorporate this technique include the guides for Handel's *Arrival of the Queen of Sheba*, Varese's *Ionization*, Leguna's *Malaguena*, and L. Mozart's *Toy Symphony*. Similarly, in some listening guides, objects depicting the notes of the main themes are "colored in" as the corresponding note is heard. The guides for Mozart's *Ah, vous dirai-je, Maman* (the well-known children's tune, "Twinkle, Twinkle, Little Star") and the Slovak folk song *Tancovacka*, employ this second technique. In the guide presenting the aria, *La ci darem la mano*, from Mozart's *Don Giovanni*, pictures of Don Giovanni and Zerlina are highlighted and animated when they sing; the libretto also appears. Finally, in guides presenting works that employ multiple tempos, the tempo marking currently playing is highlighted. Such is the case in the guide for Brahms's *Hungarian Dance No.*

6, in which the tempo markings (*Adagio*, *Andante*, *Moderato*, *Allegro*, and *Presto*) appear in the speedometer of a spaceship; as the music plays, the speedometer shows the corresponding “speed” label.

Another technique frequently used by publishers is to animate the static listening guide that appears in the student’s textbook; as the music plays (via the accompanying CD-ROM), a moving cursor indicates the corresponding position on the guide. Silver, Burdett, and Ginn, Inc. used this technique in the guides for Arbeau’s *Pavane et Gaillarde* and Bizet’s *Farandole*, from *L’ Arlesienne Suite No. 2*. Other compositions presented in this manner include Charles Hunter’s *Cotton Boll Rag* and the traditional Cambodian melody *Phleng Pradall*.

Many of the animated guides are presented as they appear in the textbook, but the objects depicting the melody or the beats in each measure are not shown; these appear as the music is playing. Such guides include Beethoven’s “Ode to Joy” from *Symphony No. 9*, Movement 4, Bernstein’s *Responsory: Alleluia* from his *Mass*, Francois-Joseph Gossec’s *Gavotte*, and Stravinsky’s *Finale* from the *Firebird Suite*. Similarly, in some guides the missing objects enter the screen by moving in from the right side to the left. One such example is the guide for Bach’s *Air in D*, from the *Orchestral Suite No. 3*, in which the individual notes of the melody are depicted by balloons that enter the screen as the melody is heard. Similarly, the notes for Chopin’s *Prelude in E Minor* are depicted by clouds and raindrops, which move across the screen from right to left and are highlighted as the corresponding note is heard.

In some cases, the notation of either the entire composition or of the main themes is shown, and as the music plays, the corresponding note is highlighted. Such is the case with the Listening Map for Bach’s *Jesu, Joy of Man’s Desiring*, in which the notation of the choral part is provided and animated. In the guide for Smetana’s *The Moldau* from

*Ma Vlast*, the main themes are presented the same way, while textual descriptions of the music also appear as the composition is playing. Notation is used for other works as well, like Sousa's *The Washington Post*, Stravinsky's *The Infernal Dance* from *The Firebird Suite*, and Joplin's *The Entertainer*.

Finally, there are a number of listening guides that are mere animations, without directions for following the music. Such guides tell a children's story using narration, songs and orchestral music, like the *Sounds of the Circus* by Buryl Red, *The Little Red Hen*, by Judith Thomas and the traditional children's song, "Grizzly Bear."

Animated Listening Maps have many advantages over the previous tools for assisting students during the listening experience. First, they are *dynamic* listening maps, as opposed to the static nature of the other tools. Thus, students are presented with the description of the music as they hear it, without the need to navigate through stationary guides. Next, animated guides can present all the types of information that were used in previous listening guides (such as brief descriptions, pictures, and notated themes); moreover, this information can be enhanced with animation in various ways to convey information more clearly. For example, descriptions may appear when the corresponding passage is playing and disappear when they are no longer relevant. As a result, students do not get confused as to whether the descriptions they see pertain to the music currently playing, because there is no other description to look at. Similarly, in the case of melodic notation, only the note playing is highlighted, allowing the students to follow the score accurately. Also, when pictures are used to depict notes or measures, they can be animated (e.g., change color, expand, appear, move) when the corresponding note or measure is reached, keeping students always updated concerning the musical events heard. Furthermore, Animated Listening Guides can be used for evaluation purposes by requiring students to engage in various activities as the music is playing. For example, in

the Listening Map for Smetana's *The Moldau* from *Ma Vlast* there are questions that appear during the performance asking students to focus their attention on specific aspects of what they are hearing (such as which instrument is playing or which theme is heard). Teachers may ask students to answer the questions as soon as they appear in the Animated Listening Guide, an activity that not only helps focus students' attention but also helps the teacher evaluate if the goals of the lessons have been met.

### **SUMMARY**

Since the 1950s, advances in technology have contributed to the teaching of music listening in many ways. First and foremost, the improvements in the phonograph industry with the development of the LPs enabled the production of recorded listening series. Music teachers no longer needed to purchase individual records for their lessons since the series, organized for school use, included many compositions suitable for classroom instruction. Also, LPs enabled music textbook companies to conveniently accompany their publications with the necessary recordings. Additionally, a plethora of educational materials using various devices were published, thus enriching the listening experiences of students in classrooms. The advent of computers and the development of educational software enabled students to interact with the music in real time, since they could control the flow of information by navigating to the desired electronic card. All of the technological developments presented here helped to facilitate the inclusion of listening activities in public school music instruction. Consequently, teachers began to develop their own educational tools to make listening experiences more effective. Such materials include Blueprints, Call Charts, and the Listening Grid. Music textbook publishers took these educational aids even further by developing the Listening Maps and their animated versions.

The Animated Listening Map is the latest tool at the teacher's disposal for teaching music listening, and it was made possible by the latest developments in computer hardware and software. Still, animated guides are not readily available on the market today. As was the case with previous aids (such as Call Charts and Listening Maps), teachers may need to create their own Animated Listening Maps. One easy way for teachers to create these guides is to use computer software. Such software has been developed by the author of the current study and will be presented in the next chapter.

## CHAPTER V

### THE DEVELOPMENT OF ANIMATE!, A SOFTWARE AUTHORING TOOL FOR CREATING ANIMATED MUSIC LISTENING GUIDES

#### INTRODUCTION

The current chapter will describe the development of *Animate!*, a software-authoring tool that allows music teachers and students to create their own static and animated listening maps. First, the contributions of technological advances to the teaching of music listening during the past century will be summarized. This overview is necessary because computers are the latest link in a series of many devices that teachers have used for classroom music instruction. Knowing the role that previous technological developments played in approaches to teaching music listening will give insight into the present and future contributions of computers in music listening. Next, the development of the educational tools that were employed by music teachers will be presented in order to trace the numerous educational techniques that were used to teach music listening. These elements form the basis on which the software was designed. A rationale will be provided addressing the need to develop a computer application that teachers and students can easily use in their classroom music listening sessions. Finally, the last section will include an explanation of how *Animate!* was designed and programmed, as well as a step-by-step tutorial leading the reader through the process of making an animated listening guide using this software.

## **Summary of the Contribution of Technological Devices to the Teaching of Music Listening in Public Schools**

Without a doubt, the systematic teaching of music appreciation owes its initiation in large part to the advent of machines that reproduced sound for first time—specifically, the player piano and the phonograph. These devices not only enabled and spread music listening activities throughout public schools, but the player piano and phonograph industries also began to develop the first educational materials to be used in the classroom. Educational radio and, later, television broadcastings were, in essence, organized music appreciation lessons on a national level. The pedagogical techniques employed by important educators like Walter Damrosch and Leonard Bernstein, who hosted the programs, influenced the teaching of music listening to a great extent. After World War II, improvements in audio equipment allowed for the production of extensive recorded listening libraries, which could be used for public school music instruction. At the same time, the development of new devices allowed for the production of educational audiovisual materials, such as films, filmstrips, slides, and transparencies. Many such materials addressed music listening, and they were very popular during the third quarter of the 20<sup>th</sup> century. Over the last 30 years, public education has benefited from the arrival of computers, since which time numerous hypermedia-based applications for music listening have become available for music teachers and students.

One can thus see a pattern linking the introduction of new technological devices to their use as educational tools for teaching music listening. Specifically, as soon as a new device was developed, schools quickly incorporated it for educational purposes. For example, the player piano is reported to have been used in music appreciation classes as early as 1907 (C. V. Smith, 1907), only five years after the introduction of the Pianola, the first commercially successful player piano. Similarly, in 1911, Frances Elliot Clark

began her campaign to bring phonographs into schools, just five years after the initial release of Victor's popular Red Seal Records. In 1926, Alice Keith aired the first music appreciation programs, just four years after the first educational radio broadcasts and only six years after the very first radio broadcasts by commercial stations. Many of the technologies developed during World War II were used for teaching music listening shortly after the war. Such advances included the publication of listening libraries using vinyl records (RCA Victor Record Library, for example, was released just two years after the war), the reel-to-reel film projector (the MENC recognized its value and formed a special committee to prepare a series of educational films three years after the war), and the filmstrip projector (the University of Nebraska issued the Music Instrument filmstrip series in 1948). The first 16-bit PC computer and MIDI protocol were introduced in 1981, and by 1987 there were dozens of applications utilizing the two technologies, many of which were used in music education (Bartle, 1987). Similarly, Apple's HyperCard program was released in 1987, and in just two years, the Voyager Company used it to publish the *Beethoven's Ninth Symphony CD Companion*. Finally, the first International World Wide Web Conference (1994) and the release of Macromedia's Flash and the MP3 encoding protocol (both of which took place in 1996) allowed for the development of Carnegie Hall's Listening Adventures, which went online in 2001.

### **Historical Overview of the Development of Educational Tools for Music Listening**

The introduction of new devices that could be used to teach music listening also sparked the production of educational tools for that purpose. First introduced by the companies that manufactured the audio devices, such techniques went under further development by music educators. As a matter of fact, as soon as Victor's educational department began publishing textbooks to be used with Victor's records, the first

techniques to enhance students' listening experiences began to be systematically developed. The first such techniques included supplemental materials featuring notated themes and short descriptions of the music. The incorporation of notated themes appeared in many publications, including books released by Victor that were meant to be used with phonograph recordings (e.g., *Music Appreciation Taught by Means of the Phonograph; for Use in Schools*, published in 1922). Accompanying musical descriptions appeared in *What we Hear in Music*, published by Victor in 1912. The practice of using such descriptions appears to have had its roots in program notes, which had been in circulation for at least the previous 200 years.

The next wave of educational tools appeared during the 1960s. Saul Feinberg, who created *Blueprints for Musical Understanding*, incorporated both descriptions and notated themes, but he presented them in the order that they were heard in the piece. Unlike the earlier listening tools, however, the descriptions were very specific. Blueprints also featured illustrations as well as test questions that could be answered during the listening session. Bennett Reimer's *Call Charts* went a step beyond Blueprints by including numbers corresponding to the musical descriptions that the instructor would call out during the listening session, thus directing the student's attention to the corresponding description at all times. Paul Larson's *Listening Grid*, although employing a different approach, constituted a convenient and inexpensive tool that served as both a listening guide and an evaluation activity.

The latest educational aids that are intended to help students focus on the music during the listening experience are listening maps, in which pictures and/or shapes depict the musical score in an easy-to-read format. Textual descriptions and music symbols are used to illustrate the musical elements of the piece in question. Animated versions of listening maps constitute the final development in the history of such educational tools.

The development of educational tools for music listening appears to follow a steady pace in improvements. Thus, the generic music descriptions featured in the textbooks of the 1910s became more condensed and more appropriate for children's needs during the 1930s and even more specific in *Blueprints* and *Call Charts*. Similarly, notated themes, which were taught as individual songs during the 1910s, were linked with textual descriptions during the 1930s and appeared in children's manuals published for the purposes of Damrosch's *NBC Music Appreciation Hour*. In *Blueprints*, musical notation appeared in many ways (e.g. as complete themes or as three-note motives) depending on how the composer used them. Finally, notation was replaced by icons and pictures in listening maps - a feature that makes the guides easier to follow, especially if students do not know how to read music.

#### **THE DEVELOPMENT OF *ANIMATE!***

A general conclusion that can be extracted from the historical summary of audio devices and educational tools employed for teaching music listening is that music teachers may soon expect to use new educational techniques that make the most of the latest technology. The development of a computer program that can be utilized in a easy way by both teachers and students for teaching music listening satisfies this expectation.

#### **The Need for the Development of Software for Use in a Classroom Music Listening Environment**

The development of new software that can be used by teachers and students during classroom listening experiences may constitute an educational priority for many reasons. First, the dramatic growth in the availability and integration of computer technology in schools is a major force that shapes the contemporary educational climate, according to Webster (2002). Webster emphasizes the fact that American public schools

have incorporated computers and Internet access at a quick pace, citing the findings of a nation-wide survey that was conducted in 2000 ("Technology Counts: 1999 national survey of teacher's use of digital content," 2000). The survey revealed that schools had an average of one computer for every 5.7 students, as opposed to 1997's ratio of one computer for every 27 students. Almost all of the 1,407 teachers surveyed reported that they used a computer at home or at school for professional activities. In addition, 53% of teachers surveyed used software and 61% used the Internet for classroom instruction. Recently, another nation-wide survey confirmed the increased use of computers in education ("Technology Counts 2007: A Digital Decade," 2008). The current mean number of students per instructional computer in public schools is 3.8, and there are 3.7 students per computer with high speed Internet. The same survey additionally shows that almost all states have policies that include technology in their student and teacher standards, while 23 states have established virtual schools and offer computer-based assessments.

Secondly, there is a limited supply of static and animated listening guides commercially available, and those that are offered may not be appropriate for every teacher's goals or students' individual needs. Music teachers may need to create their own educational materials, which would be specifically designed for the needs of their students. The development of a computer application that enables teachers to create both static listening maps and animated listening guides, therefore, seems necessary.

The application can also be used for research purposes. Listening guides (and their animated versions) can resemble music scores, but employ shapes and pictures instead of notation. Children's *invented* notations, though, are a source of information allowing insights into the development of musical thinking. Several studies have addressed the issue of children's notations (Bamberger, 1991; Davidson & Scripp, 1990,

1992; Davidson, Scripp, & Sloboda, 2001; J. E. Gromko, 1994; Upitis, 1990b). Consequently, a computer application that would allow students to create their own versions of “notated” scores could be used by researchers of such studies. *Animate!* could serve that purpose, since there is no available application specifically designed to teach music listening that can be easily used by students.

Furthermore, since their introduction to public schools, computers have allowed students to show evidence of their cognitive processing. As Turkle points out:

Children use the computer in their process of world and identity construction. They use it for the development of fundamental conceptual categories, as a medium for the practice of mastery, and as a malleable material for helping forge their sense of themselves. The computer is a particularly rich and varied tool for serving so wide a range of purposes. It enters into children’s process of becoming and into the development of their personalities and ways of looking at the world. It finds many points of attachment with the process of growing up. Children in a computer culture are touched by the technology in ways that set them apart from the generations that have come before (Turkle, 2005, p. 155).

Consequently, an application that can be used by students in a music listening environment could not only benefit the students, but also provide teachers with information concerning their students’ general cognition. Such insights can help teachers identify their students’ strengths and weaknesses in music perception and organize more efficient learning environments specifically for their classes.

To sum up, a computer application that can be used by both teachers and students, which allows them to create listening maps and their animated versions, seems useful. Teachers would thus be able to create their own educational materials for classroom use,

and students would be able to create their own versions of notated scores, providing insights into their music perception and cognition. The development of *Animate!* addresses these needs.

### **Commercially Available Applications That Can Be Used to Create Animated Listening Guides**

Prior to designing *Animate!*, it was necessary to review the existing applications that could be used to create animated listening guides. In fact, all the guides that were presented in the previous chapter (Carnegie Hall's Listening Adventures and the Animated Listening Map series) were developed with *Adobe's Flash*.

Flash is powerful software—an authoring environment for creating rich, interactive content for digital, web, and mobile platforms. There is an abundance of media made by Flash that can be seen in web pages, conference presentations, and television commercials. There have also been cartoon series developed solely on Flash. It is no surprise that all animated listening guides were developed with it, since with Flash, one can create a guide of any desired complexity; any media (clipart, shapes, audio files, photos, video clips, etc.) can be imported; the media can interact in any way (e.g., changing color, size, or position on the screen) at any given position in time; and any kind of interactivity (e.g., the click of a mouse or the press of a button) can be employed to navigate or otherwise control the listening guide.

Flash, however, poses several limitations that make it extremely difficult for teachers and students to use to create animated listening guides. First and foremost, in order to properly make animations to be used as listening guides, users need to have extensive programming language skills, since Flash uses *Actionscript* language, which is based on the OOP (Object Oriented Programming) protocol. Such skills can only be acquired through years of training and practice. Teachers and students are not likely to

invest that amount of time just to be able to make guides for their music lessons. Secondly, Flash's interface is rather complex, since it is designed to create powerful media content. Upon launching the application, a plethora of tools pop up, such as timelines, layers, toolbars, and menus, which require a considerable amount of practice to navigate.

Portability issues constitute another concern for music teachers and students, since Flash requires installation. Thus, users can only make their projects using the computer on which Flash has been installed. Also, project files (with the extension .fla) can be quite large, depending on the amount, diversity and complexity of the projects' content. As a result, it is not easy for users to work on different computers or to make quick changes to their project files. Of course, when the project files are extracted as *video* files (with the extension .swf – Shock Wave Flash files), they become quite small and can be easily distributed by email or transferred on a USB flash drive (hence the popularity of Flash-made content on the web). Still, Shock Wave Flash files can not be edited. Flash is also quite expensive—its current retail price on Adobe's web site is \$699 ("Adobe Flash CS3 Professional," 2008). It is unlikely that music teachers or students will invest that amount of money for making listening guides. Finally, although Flash features an extensive library of media content (such as clipart pictures of buttons, shapes, and pictures), it does not contain any royalty-free media relevant to music instruction that might be useful when developing listening guides (such as clipart images of instruments, note symbols, Curwen signs, etc.).

### **Description of *Animate!*'s Interface and Control**

Since music teachers and students are unlikely to use Adobe's Flash, it was necessary to develop a new application. The author of the current study developed such

an application, called *Animate!*, which is a cross-platform computer program (currently operating in Windows and Macintosh systems operating in O/S X 10.4, “Tiger”) that allows users who do not have any special computer skills to create, present and easily distribute both static and animated listening maps. The application was programmed in Adobe’s Flash using the Actionscript program language, while *MDM Zinc v. 2.5* was used to compile the application in executable format. A snapshot of *Animate!*’s interface is shown in Figure 16.

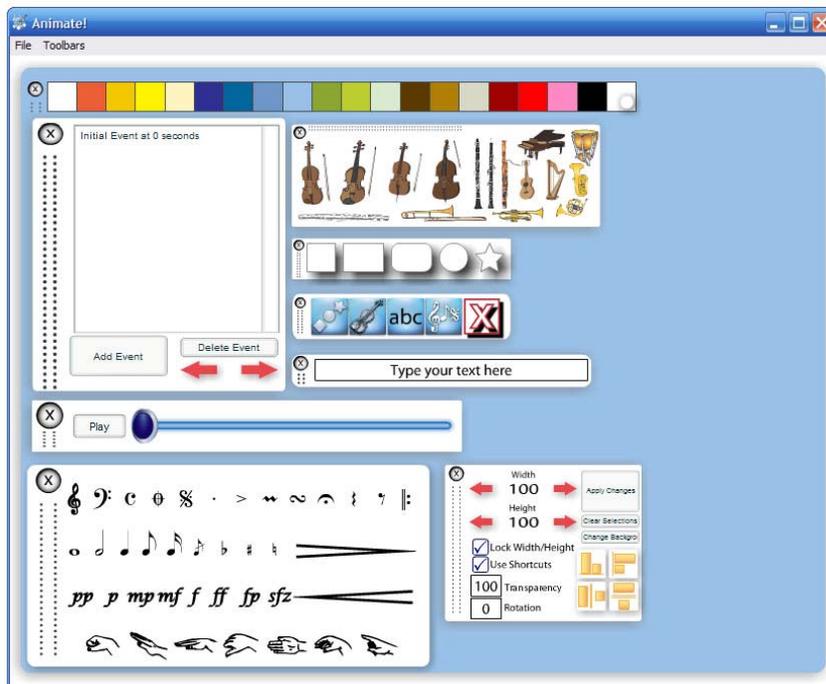


Figure 16. A Snapshot of *Animate!*’s Interface

As can be seen in Figure 15, the layout of *Animate!* is very simple. It consists of two main elements: (a) a large screen, shown in light blue color and (b) nine toolbars, which allow the user to create their listening guides. The toolbars can be positioned anywhere on the screen, or they can be hidden by clicking the close button (indicated

with “x” symbol). To illustrate *Animate!*'s features, the author will explain (a) how to use *Animate!*'s toolbars to develop a static listening map and (b) how to add animations to the listening maps.

### ***The Use of Animate!'s Toolbars for developing a static listening map***

*Animate!* can be used to create static listening maps. As shown in previous chapters, listening maps may contain a variety of elements, which can be categorized into four groups: (a) geometric shapes, which are commonly used to depict notes, (b) icons of instruments, (c) musical symbols, and (d) textual descriptions. Consequently, *Animate!* includes four toolbars that contain several objects belonging to each of the four categories. These are the *Shapes* toolbar, the *Instruments* toolbar, the *Music Symbols* toolbar and the *Text* toolbar.

The Shapes, Instruments and Music Symbols toolbars function in a similar manner, since they allow users to select any displayed object and place it at the desired position on the screen. When an object is selected, it is automatically highlighted. At any given time, only one object of each of these three toolbars may be selected. For example, if the user clicks on a clipart image of a violin and then clicks on a clipart image of a cello, the cello becomes highlighted and the violin becomes de-selected. The three toolbars are shown in Figures 17, 18, and 19.



Figure 17. The Shapes Toolbar, which allows users to select the shape that they want to insert in the project. There are five different types of shapes available: a square, a rectangle, a rectangle with rounded corners, a circle, and a star.

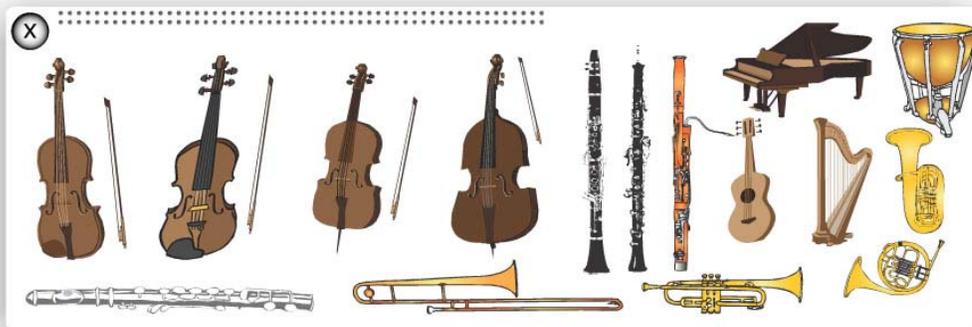


Figure 18. The Instruments Toolbar, which allows users to select one of the 16 clipart images of instruments (violin, viola, cello, bass, clarinet, oboe, bassoon, flute, trumpet, trombone, French horn, tuba, tympani, harp, piano and guitar).

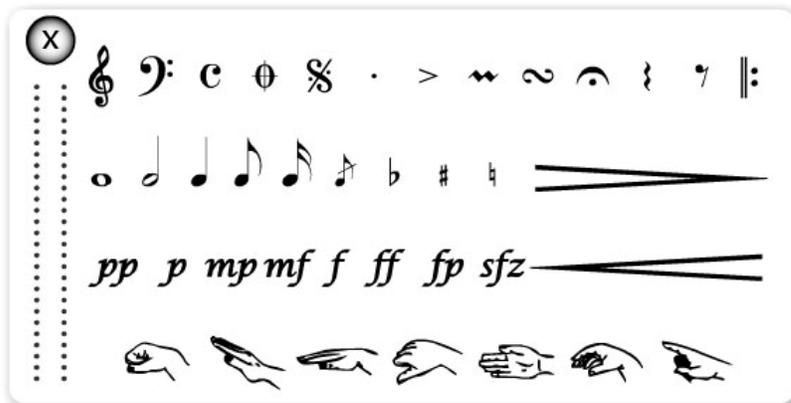


Figure 19. The Music Symbols Toolbar, which allows users to select one of 23 musical symbols and Curwen signs.

As can be seen from the descriptions of the toolbars, a large collection of elements can be chosen and inserted into a listening map. The selection of the current objects was made after the author reviewed many Blueprints and other listening maps in order to identify the elements most commonly used. Thus, there are five available shapes (a square, a rectangle, a rectangle with rounded corners, a circle, and a star). Also, all the instruments of the orchestra, including the piano and the guitar were included in the Instruments toolbar. The Music Symbols include treble and bass clefs, time signatures (“C” for 4/4), repetition marks (dal segno, coda, and repeat signs), articulation markings (*staccato*, accent, trill, mordent, *fermata*, and grace note), rests (quarter and eighth note), note shapes (whole, half, quarter, eighth and sixteenth notes), accidentals (sharp, flat, and natural), and dynamics (*crescendo*, *diminuendo*, *pp*, *p*, *mp*, *mf*, *f*, *ff*, *fp*, and *sfz*). Curwen signs (seven hand signs, indicating Do, Re, Mi, Fa, So, La, Ti) were also included, since they might be useful for music teachers. The Curwen signs and the clipart images were designed by Zacharias Foukarides, an artist and long time friend of the author. Foukarides’s original drawings are shown in Appendix A.

The *Text* toolbar is used to insert a textual description into the listening guide. This toolbar differs slightly from the toolbars shown in Figures 17, 18 and 19 as it does not contain a set of pre-made descriptions. Users can input the desired text by clicking in the center of the text toolbar, which initially displays “Type your text here.” Then the user can simply type whatever they want into the text box. The toolbar is shown in Figure 20.



Figure 20. The Text Toolbar

Once a graphic object or a textual description is selected, it needs to be inserted into the main screen area. There are two ways to do so. The first is to use the *Insert Object* toolbar, which is shown in Figure 21. This toolbar contains four buttons, each of which corresponds with one of the four types of objects described above. A picture on each button indicates with which type it is associated for easy navigation on behalf of the user. Once users press a button on the Insert Object toolbar, the selected object of the corresponding type is inserted at the upper-left corner of the screen. Users may then drag and drop the object into the desired position. For example, to insert circles, users need to select the circle from the Shapes toolbar and then click on the first button of the Insert Object toolbar, which corresponds with the *Shapes* toolbar. By clicking on this button multiple times, more circles are added. In order to switch to another shape, for example a star, users simply need to select the star from the Shapes toolbar and press the first button of the Insert Object toolbar again.

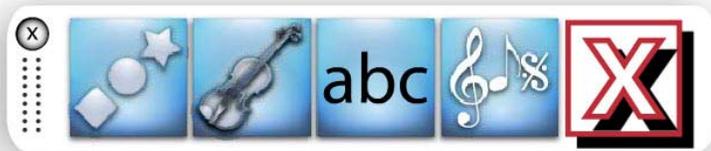


Figure 21. The Insert Object Toolbar.

The second means of inserting an object onto the screen is by using one of five shortcut keys—a technique which applies only when a Shape is to be positioned on the screen. The five shortcut keys correspond to the available shapes on the screen. The shortcuts include the key *Q* for the square, the key *W* for the rectangle, the key *E* for the rounded rectangle, the key *R* for the circle and the key *T* for the star. When a shortcut is used, the corresponding shape is inserted *at the position of the mouse cursor*, not at the

upper-left corner of the screen. The shortcut keys only apply to Shapes as the author felt that these objects would be used more than any other object, since one common use of shapes is to depict the notes of the score, as was described in Chapter 4. By inserting a Shape at the mouse position, users can quickly create complex listening maps, without the need to constantly drag and drop items from the upper-left corner of the screen. The specific keys were selected to serve as shortcuts because of their position on the keyboard; since the majority of users are right-handed, they use the mouse with their right hand, so it seemed more convenient for users to press the keys on the left side of the keyboard with their left hand. Also, the order in which the keys appear on the keyboard (*Q* is the left-most placed, followed by *W*, then *E*, *R* and *T*) matches with the order in which their corresponding shapes appear in the Shapes toolbar.

Once an object is placed onto the screen it can be manipulated in many ways. First, it can be dragged and dropped at the desired position, as stated before. Also, if the object is clicked once, it becomes selected. When a shape or an instrument is selected it becomes highlighted to indicate the selection; whereas, when music symbols or text are selected, a star symbol appears next to them. To deselect an object, users simply need to click them again. Selected objects can be deleted by clicking on the far-right button of the Insert Object toolbar (marked with a red X) or by pressing the Delete button of the keyboard.

Selected objects can be also modified using the *Color Palette* toolbar and the *Properties* toolbar. These toolbars are shown in Figures 22 and 23, respectively.



Figure 22. The Color Palette Toolbar

The Color Palette toolbar allows users to change the color of the selected objects that are present on the screen. There are twenty different colors to choose from. In order to select a color, users simply click on any of the colored squares shown in the Color Palette toolbar. When a color is selected, a small white dot is placed on the corresponding square to indicate the selection. In order to change the color of selected objects, users press the *C* shortcut key. Upon doing so, the color of all selected items will match the one that is currently selected in the Color Palette toolbar. Also, once a color is selected, all objects that are inserted onto the screen will appear in that selected color. For example, if the red color is selected, all Shapes that are placed on the screen will be red. The color changes apply to all Shapes, Instruments, Music Symbols, and all of the textual descriptions.

The Color Palette also features two white squares, only one of which actually selects the color white. The far-left white square is the *default* color of the objects, as they are shown in the Shapes, Instruments, Music Symbols and Text toolbars. Under this color, the shapes appear white with a black perimeter; the instruments appear in their natural colors; and music symbols and text descriptions appear in black (excluding Curwen signs, which are shown in natural skin color). The far-right white square indicates that *white* is the selected color. When that color is applied to the selected objects, all of those objects will appear white. The reason for including the color white in the Color Palette is to enable users to instantly convert their listening map into black and white. A black-and-white listening map can be created by selecting all of the objects and clicking on the far-right white square in the Color Palette toolbar. Such a listening guide may be used in a variety of ways. For example, students may be instructed to color the various objects (an activity derived from Damrosch's student workbooks) or to fill in the objects with extra information (such as the case with the Listening Grid).

The Properties toolbar allows users to change an object’s attributes (like its size, transparency level, and rotation) and to perform some other functions as well. To begin with, all objects come with pre-fixed width, height, transparency and rotation levels. The values of these attributes are shown in percentages, except for the rotation property, which is shown in degrees. If users wish to change the attributes of a selected object, they input the desired value of each attribute into the Properties toolbar. The following shortcuts are also available: *X* to set the width, *H* to set the Height, *A* to set the Transparency and *R* to set the Rotation value. Alternatively, users may click the “Apply Changes” button. If the “Lock Width/Height” box is checked, the size of the objects changes proportionally. In order to disable the shortcuts (if, for example, users want to enter text into the Text toolbar), users need to make sure that the “Use Shortcuts” box is unchecked.

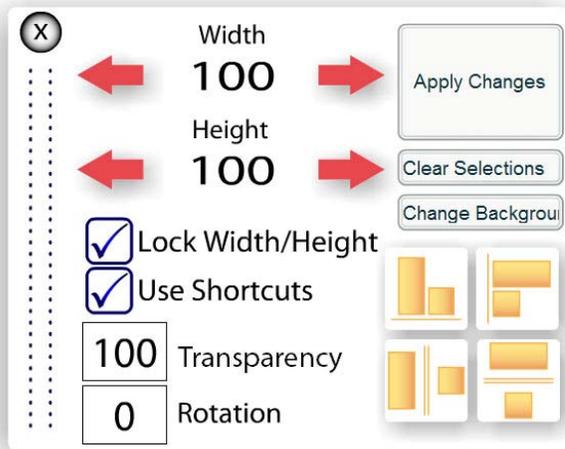


Figure 23. The Properties Toolbar

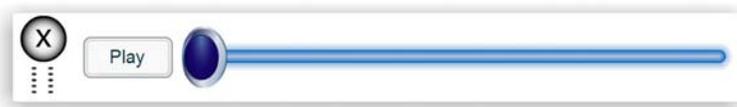
The Properties toolbar also allows users to perform more functions. The “Clear Selections” button causes all selected objects to be deselected, and the “Change Background” button changes the color and transparency level of the background to match

the ones that are currently selected. Also, selected objects can be aligned by using the four buttons appearing at the bottom left corner of the toolbar. The upper two buttons cause the objects to be aligned horizontally and vertically. The lower buttons evenly space the selected objects horizontally or vertically. The *transparency* property was included to change the shade of an object's color. As a result, using different combinations of colors and transparency levels, users can create a plethora of different colors for their listening guides.

### ***The Use of Animate!'s Toolbars for adding animation to a static listening map***

After developing a listening map, users can convert it to an animated listening map. The basic steps users have to follow to add animation to a static listening map include (a) attaching an mp3 file to the project, (b) marking the positions in time that a change needs to occur, and (c) going through each marked position and making the necessary changes to the objects already present in the guide. These steps will be explained in detail below.

The first step in developing an animated version of an existing listening guide is to attach an mp3 file of the music to which the guide refers. To do so, users select the "Load MP3 File" option from the File menu. A Browse File Dialog appears, and users select the desired file. Users can play and pause the recording by using the *Playback Control* Toolbar, which is shown in Figure 24.

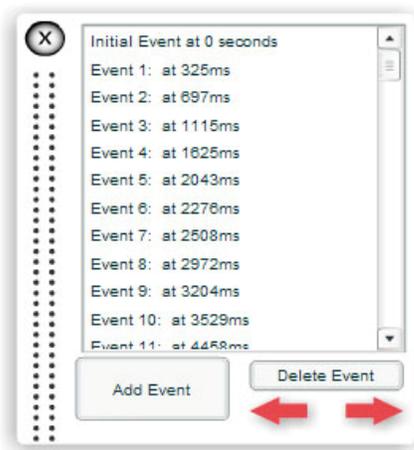


*Figure 24.* The Playback Control Toolbar

This toolbar allows users to play, pause and navigate through their projects. In order to make the control of these functions as simple as possible, only two main elements are shown in the toolbar: a button and a seek indicator. When the user clicks on the “Play” button, the music begins playing. At the same time, the name of the button switches to “Pause,” allowing users to pause the project by clicking on the same button. As the music is playing, the blue, elliptically shaped cursor moves along the line, indicating the position of the file currently playing. When users drag the cursor to any position along the line, the music begins from the corresponding position. If an mp3 file is not attached to the project, the playback control does not function.

The second step in the process for developing an animated listening guide is to record the position in time when an *event* needs to take place. An event is a change of any characteristic of any object occurring at a certain position in time. Thus, at any given time, an object may appear or disappear, change position or color, expand or shrink. Examples of events include (a) a shape, which depicts a note of the score, changing color as soon as the note it represents is heard; (b) dynamic marks appearing in the guide when they are employed in the performance and disappearing when they no longer pertain to the music; and (c) instruments are changing color or expanding when they are playing. The possibilities are literally endless, since any number of events may take place at the same time.

In order to record the time at which an event takes place, users go to the *Event List* Toolbar, which is shown in Figure 25.



*Figure 25.* The Event List Toolbar

The Event List toolbar allows users to add, delete, edit, and navigate through the various events of their projects. Thus, as the recording is playing, users mark the exact position at which an event will take place by clicking on the “Add Event” button. The event is then added to the working list. Event positions are numbered for easy identification, and their time position is shown in the list in milliseconds (from the beginning of the recording). For convenience, users may press the space bar in order to record a new position rather than clicking on the “Add Event” button. Users can delete any event by selecting it from the list and clicking on the “Delete Event” button.

Event positions can be recorded with great precision, since they are recorded in increments of milliseconds. Also, users may edit the position of each event by using the two arrows shown at the lower right corner of the toolbar. In order to do so, they simply select the event from the list and then click the left arrow to place the event 50 milliseconds earlier than its recorded position or click the right arrow to move the event 50 milliseconds after its initial position.

In order to make any changes to the recorded times, users first need to select the recorded position at which the event will take place. This is done by clicking on the desired position in the Event List toolbar. When a position is selected, users may make any necessary changes, such as changing the color or the kind of shape used, adding a text description, or removing a symbol. When users select any other position in the Event List toolbar, the changes are recorded for that position. As a result, any changes that were made at a specific position in time will be shown during playback. Also, users can navigate through the recorded event positions by clicking on the desired event displayed in the list. If they do so, the timing cursor in the Playback Control panel is placed at the corresponding position, and the music begins playing from that point.

### ***Description of Animate!'s Menus***

*Animate!* includes two menus: a File menu and a Toolbars menu. The File menu contains five options that allow users to create, save, load, and print their projects. Specifically, the first option, “New,” creates a new project. When the user selects this option, any data that is present in the application (e.g., events or objects) are discarded. The second option allows users to save their project. Thus, upon selecting the “Save” option, a Browse File Dialog appears, requiring the user to specify a file name for their project, as well as its destination folder. The file type that is associated with *Animate!* has the extension *.alg* (standing for Animated Listening Guide), which contains all data that users insert in their program. Similarly, the “Load” option in the File menu allows users to open a previously saved project. Upon selecting the “Load” option, a Browse File Dialog appears and users choose the desired file. The “Load Mp3 File” option allows users to attach a MP3 file to their project. Finally, users can save their project as a *.jpeg*

picture that they can print, email or otherwise share with other users by selecting the “Print to File” option.

The Toolbars menu, on the other hand, provides links to the nine toolbars that are used to carry out the various tasks in *Animate!*. The different toolbars can be dragged and dropped at any position of the screen, or they can be closed if they are not needed. Using the Toolbars menu, users can open any previously closed toolbar.

### **Examples of Animated Listening Guides created by *Animate!***

For clarification and illustration purposes, the author has created three examples of animated listening guides using *Animate!*. The first example animates the theme from the Theme and Variations movement of Tchaikovsky’s Suite for Orchestra, No 4 in G Major, opus 61 (“Mozartiana”). The second example illustrates the first variation from the same piece. The recordings used for these listening guides were drawn from a CD distributed by Naxos entitled *TCHAIKOVSKY: Suites No. 3 and No. 4, 'Mozartiana'*. Naxos of America, Inc. gave the author permission to use the recording, a copy of which is included in Appendix B. The third example animates the children’s song “Twinkle, Twinkle Little Star.” For this example, the recording was transcribed for piano and produced by the author using a software midi sequencer. A step-by-step guide for creating each of these animated listening guides is shown in Appendices C, D and E.

#### ***Example A: Tchaikovsky’s Theme***

The animated listening guide for the theme from Tchaikovsky’s Suite for Orchestra was designed for upper elementary grades. This guide is intended to be used to teach the major musical elements of the piece, namely the melody, form, instrumentation and dynamics. A snapshot of the guide is shown in Figure 26.

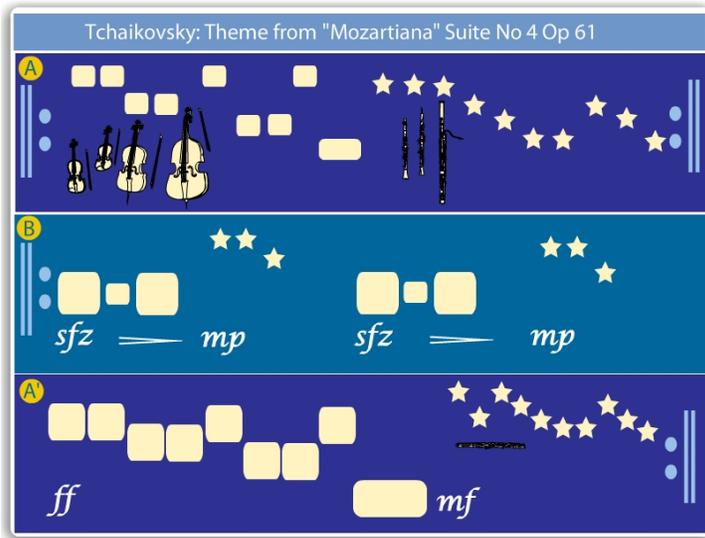


Figure 26. A Snapshot of the Listening Guide for Tchaikovsky's *Theme*.

This snapshot could be used as a static listening guide, as it clearly presents the musical elements in a variety of ways. First, as far as melodic contour is concerned, notes are depicted by shapes, particularly squares, rectangles and stars. The vertical position of the shapes matches the relative pitch of the notes and the width of the shapes indicates the duration (longer notes are represented by rectangles instead of squares). Secondly, regarding timbre, the melody is played by either strings (violins, violas, cellos and basses) or winds (oboes, clarinets and bassoon for the first part, while a flute plays in the last four measures of the piece). Pictures of the performing instruments are shown below the corresponding notes. Squares and rectangles are used to represent notes played by strings, whereas stars are used to represent notes played by the winds. The piece is in small ternary form (ABA'), which is shown by the background color of each section. The notes of the first (A) and third (A') sections are displayed on a dark blue background, while the notes of the second (B) section are shown within a light blue rectangle. The sectional abbreviations (A, B, and A') are also shown at the beginning of each section,

and repeat signs indicate the repeating sections of the piece. Finally, dynamics are shown in two ways: (a) by the size of the shapes – large shapes indicate loud passages, whereas small shapes depict soft notes, and (b) by the presence of dynamic marks.

The animated version of the guide is designed to help students focus on the music as it is performed. The basic principle on which the animation is based is that the color of a shape changes when the corresponding note is played. Therefore, all shapes are initially displayed as white shapes before music begins. As the piece plays, the color of each shape changes to yellow as the note it represents is heard. When the repetition occurs, the yellow shapes change to red. The same principle applies to the colors of the clipart images of instruments, the repeat signs, and the dynamic marks. A snapshot of the animated version of the listening guide is shown in Figure 27.

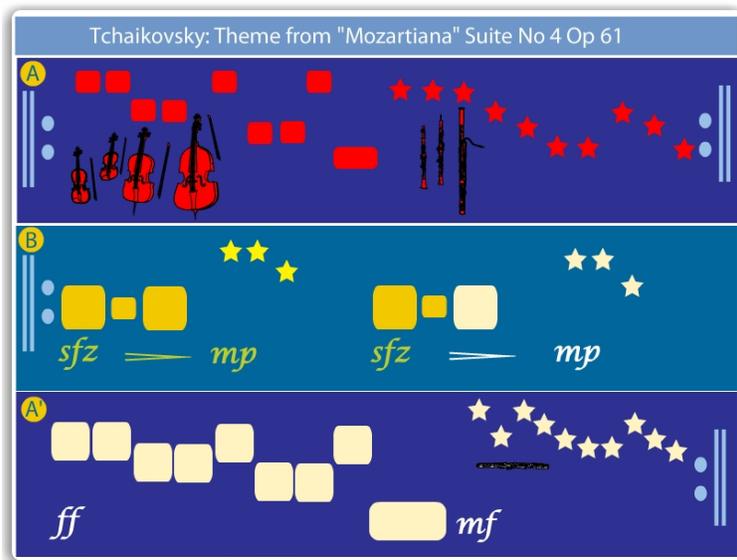


Figure 27. A Snapshot of the Animated Listening Guide for Tchaikovsky's *Theme*. The current position of the music is at the second section.

This animated listening guide can be used by teachers in a variety of ways according to the lesson's objectives and to the students' needs. First, it may help children to follow the music if they watch the animated version a few times; then, children may be given static versions of the guide (like the snapshot in Figure 25) and asked to point to each note as it is heard, without looking at the animated version. Secondly, the static version may help pupils explore the musical score before they listen to the recording. Activities like finding similarities (e.g., the contents of the first and third sections are almost identical) and differences (e.g., the rectangles in the middle section are bigger than the ones found in the first section) might help students form expectations about the music that they are about to listen to. Also, teachers may use the guide to teach any one of the music elements that are presented. For example, to teach the form of the piece, a teacher might ask students to compare the contents of each section (through which they would hopefully notice that the contents of the first and third sections are essentially the same, although the squares in the latter appear bigger).

***Example B: Tchaikovsky's Variation I***

The animated listening guide for the first variation from Tchaikovsky's Suite for Orchestra No. 4, Opus 61, is designed for middle school students. It can be used to teach various elements of the piece, particularly the form, orchestration, and dynamics. As can be seen in Figure 28, the guide is made of two different elements: a music staff and a diagram of the orchestra.

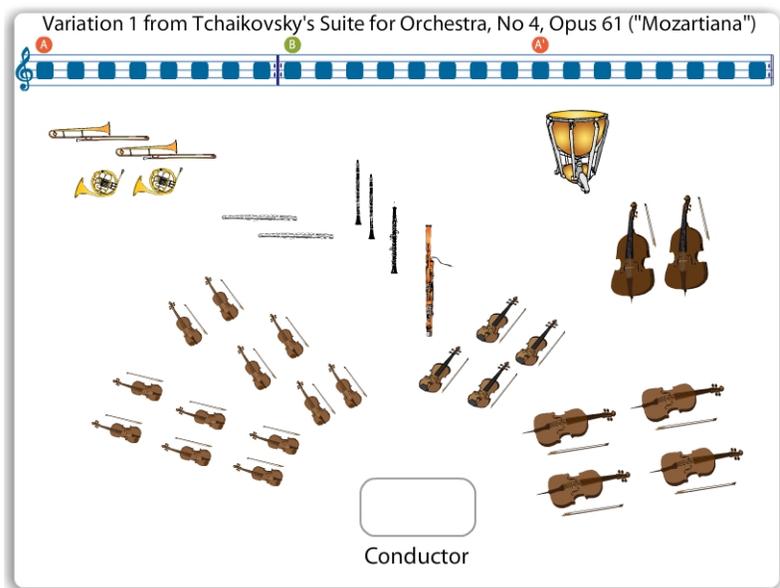


Figure 28. A Snapshot of the Animated Listening Guide for Tchaikovsky's *Variation I*.

The music staff displayed at the top of the guide is used to keep track of the form of the piece. Specifically, the staff contains 24 squares, each of which represents a measure of the piece. As is clearly marked on the guide, the piece is in small ternary form (ABA'), and each section is eight measures long. As the music plays, each square turns red as its corresponding measure is heard. When the repetition takes place, the squares turn yellow, and the repeat signs are highlighted.

The diagram of the orchestra and the conductor's podium are used to display information regarding the orchestration and the dynamics of the music. Specifically, when an instrument family is playing, the corresponding clipart images are shown in full color. At the same time, next to the performing instruments appears a short textual description of the music that these instruments are playing. Examples of such descriptions, which are similar in format to the ones featured in Call Charts, are "the second theme is carried by violins," "clarinet repeats the first theme," and "brass

instruments repeat the accompaniment.” Finally, dynamic markings (i.e., *piano*, *crescendo*, and *forte*) appear in the conductor’s podium to further guide the audience as to the whereabouts of the music. A snapshot of the animated listening guide taken while the music is in the second (B) section is shown in Figure 29.

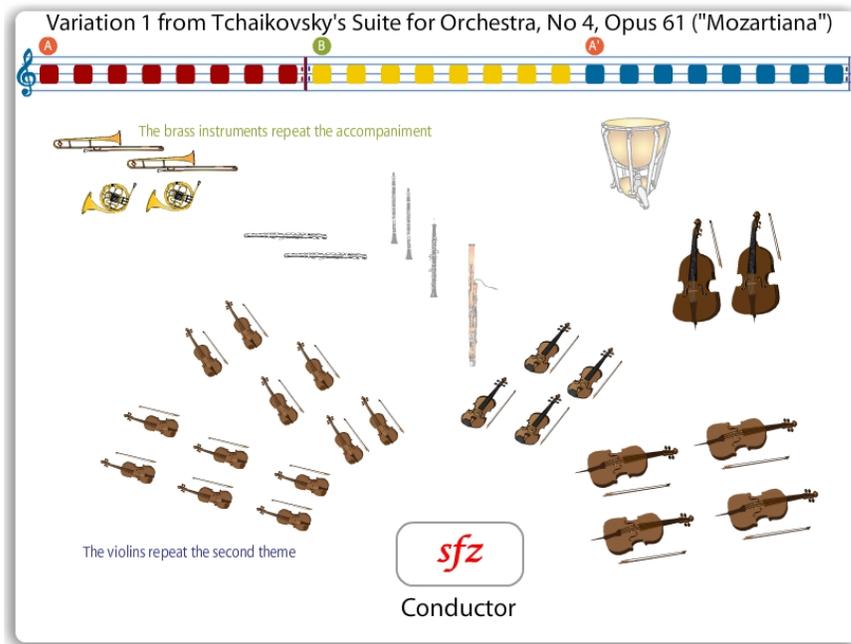


Figure 29. A Snapshot of the Animated Listening Guide for Tchaikovsky’s *Variation I*. The position of the music is at the eighth measure of the second section.

### Example C: *Twinkle, Twinkle, Little Star*

The animated listening guide for the children’s song “Twinkle, Twinkle, Little Star” was designed for lower and upper elementary levels. This guide differs from the ones created for Tchaikovsky’s Theme and Variation I in that it was not developed specifically to teach music listening. Instead, it provides an example of a guide, created using *Animate!*, that could be used to teach singing, notation, and performance. The guide

consists of three main elements: (a) a staff with the notation of the piece appears at the top of the guide, and the color of each note turns red as it is heard; (b) Curwen signs appear in the left part of the guide, indicating the note currently being performed; and (c) the lyrics of the song are displayed on the right side, and the color of the syllable currently being sung turns red. A snapshot of the guide is shown in Figure 30.

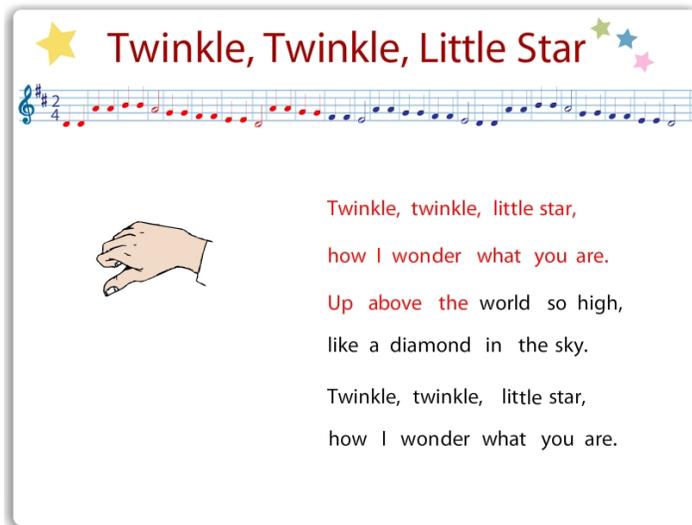


Figure 30. A Snapshot of the Animated Listening Guide for the children’s song “Twinkle, Twinkle, Little Star.”

This guide can be used in several ways for different age groups. For instance, teachers may use it to teach singing using Curwen signs, an appropriate activity for lower elementary school grades. Curwen hand signs are visual cues for teaching pitch and note placement, a practice adopted by the Hungarian musicologist [Zoltán Kodály](#) and commonly used by elementary school music teachers in the US today. A different Curwen sign is associated with each of the seven relative notes of a scale (*do, re, mi, fa, sol, la, and ti*). While singing, teachers and students may make the Curwen hand sign of the note currently being sung using their hands. The vertical position of the hand signs is

relative to the note they represent (that is, the sign for the lower note, *do*, is made at the person's midsection; the sign for the next pitch, *re*, is made above the previous one, etc.) In this animated listening guide, the currently performed syllable turns red, while the corresponding hand sign appears in the left part of the screen. Thus, students of lower grades can watch the guide to familiarize themselves with the Curwen signs, which they may be using for the rest of their elementary school years.

This guide can also be used to help upper elementary grade students perform the piece on their recorders. These students can simply follow along with the notes on the staff, which turn red as they are heard. It should be noted that the song was purposefully transcribed in D major, not only because this pitch range of this key is appropriate for elementary school students' voices, but also because the notes of this scale are easy to be performed on the recorder.

### **Evaluation of *Animate!***

The author conducted an informal field testing to determine the difficulty level of using the program and to evaluate the program's effectiveness as an educational tool. Six graduate students from The University of Texas Butler School of Music with experience in public school classroom and private studio teaching participated in the study.

The author met with each student to introduce the computer program. Following a brief description on the use of each toolbar and an explanation of how each of the three animated listening maps was created, participants were instructed to create a listening map for the first 16 measures of the Andante movement of Haydn's *Symphony No. 94 in G Major* ("Surprise"). While completing the assignment, students made comments and suggestions regarding the use of the application. Each session lasted between 45 minutes and an hour.

All students were able to create a listening map using the application without particular difficulty, and each gave positive comments about the functionality of the program. Specifically, they agreed that the available content (shapes, clipart images of instruments, music symbols, and the ability to use text) were adequate for the purposes of creating music listening maps. They also found it fairly easy to record the Events using the Space key and to make any necessary time adjustments to an Event by using the corresponding arrows in the Events List toolbar. Finally they inserted the various shapes, changed their color using the shortcuts, and effectively used the alignment buttons in the Properties Toolbar. In most of cases, the students were able to complete their guides within 30 minutes.

The individuals also made a list of suggestions which might improve the functionality of the application. All such comments will be taken into consideration when designing the next edition of Animate! To begin with, when the application is launched, all toolbars are positioned in the center of the screen, as shown in Figure 16; users need to move them to the edges of the screen before they begin working with their projects. A button, or a shortcut, that automatically removes all toolbars from the main screen would be desirable. Users could also have the option to save the arrangement of the toolbars on the screen. An additional task that could be improved includes the selection of the objects already inserted on the screen. Currently, objects can be selected by clicking them; hence, when many objects are needed to be selected, users have to click each one individually. A solution for that would be the ability to draw a selection rectangle; all objects within its area would be selected. Moreover, some users suggested there should be a way to “lock” the objects on the screen so that they could not be accidentally moved. Another possible improvement would be the inclusion of an Undo button, which could allow users to undo previous changes.

Other suggestions for the program were (1) the ability to write a short description for each Event in the Events List toolbar (this would allow users to easily navigate through the Events); (2) the capability to import external images; and (3) the capacity to resize the objects by dragging their corners, instead of using the Properties toolbar.

### **Suggestions for Future Research**

In summary, *Animate!* contains all the necessary materials and functions to develop both listening maps and animated listening guides. It is designed for users without specialized computer skills. It was decided that all functions necessary to create a listening guide needed to be made through a graphic environment, with “drag-and-drop” as the main means of using the software.

Although a promising tool, further research is necessary to examine how *Animate!* can be incorporated in music listening environments. First, does the use of the application help students improve their listening skills? The effectiveness of *Animate!* as an educational tool was not examined since such an investigation was out of the scope of the current study. Further research is required to investigate its effects on students’ listening skills. The results of future pertinent studies may prove useful in the design and use of educational software for music listening, like *Animate!*. Also, as stated before, there are only few studies that address the effectiveness of all visual aids in teaching music listening (e.g. Cassidy, 2001; Gromko & Russel, 2002; Hoplaros, 2007; March, 1980). It is the author’s opinion that the use of *Animate!* may provide the basis for further educational research in the field of teaching music listening.

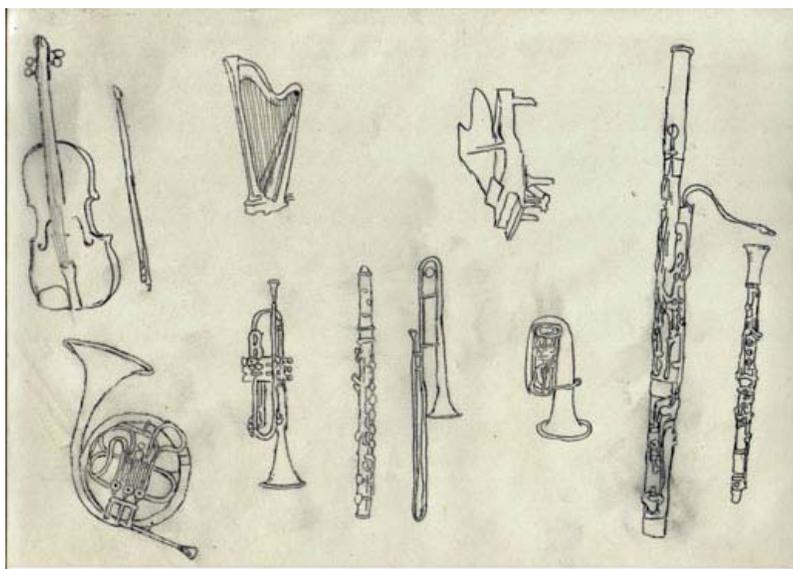
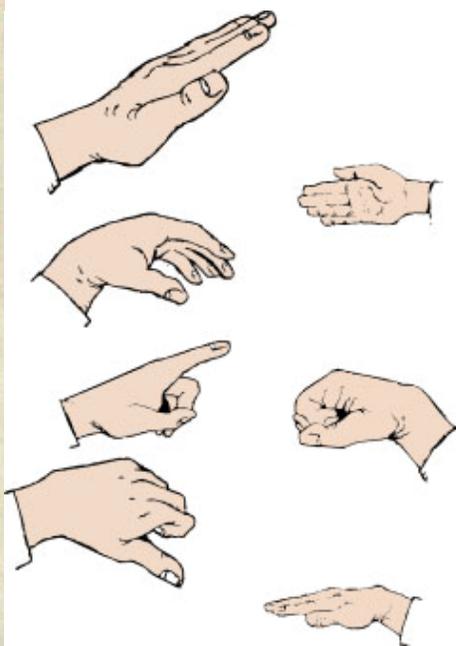
Second, what information can be extracted from student-made animated listening guides and what insights may be elicited concerning student music perception? As mentioned before, many researchers examine how the graphic representations of music

created by children and adults relate with the individuals' understanding of several parameters of music, such as form, rhythm, melodic contour, modality etc (i.e. Gromko, J. E., 1994, 1995; J. E. Gromko & Poormanm, 1998; Hair, 1994; Tan & Kelly, 2004; R. Upitis, 1990a, 1990b). Animated listening guides created with *Animate!* not only may be used in such studies as sources of data, but they may also provide researchers with additional information, which could not be retrieved by the static versions of the graphic representations of music that have been used so far. Specifically, one may easily observe the exact position in time when the individual chooses to make a change in their animations. This piece of information is essential to studies that investigate the salient features, also referred to as *cues*, that contrast sufficiently to attract listeners' attention while listening to a piece of music (i.e. studies regarding the *cue abstraction* mechanism, such as Deliège, I, 1996, 2001; Deliège & Mélen, 1997; Koniari, Predazzer, & Mélen, 2001). *Animate!*, therefore, may be used in such studies as well.

It would be interesting to speculate positive effects of using *Animate!* during classroom music listening activities. Perhaps the use of the software may positively influence students' and teachers' attitudes concerning music listening. Teachers may be more willing to create and include animated listening guides in their music lessons, and students' attention and interest towards music listening may increase. *Animate!* could also be used in music activities other than music listening, such as the teaching of sight-reading, or to be included in special education lessons. The verification and feasibility of such ideas, though, require further systematic research.

## Appendix A

### Drawings by Zacharias Foukarides



## Appendix B

### Permission to use copyrighted recording

**From:** "Randall Foster" <rfoster@naxosusa.com>  
**To:** <georgehoplaros@mail.utexas.edu>  
**Sent:** Friday, March 07, 2008 10:42 AM  
**Subject:** FW: Licence to use music for educational project (dissertation)  
Page 1 of 2  
4/7/2008

Georgios,  
You may use the piece described below for the purpose of your dissertation. Should you take this technology public and into a profitable venture, please kindly keep us in mind for further licensing.  
Regards,  
Randall

**Randall Foster**  
**Naxos of America, Inc.**  
615.465.3819 (direct/ fax)

**From:** Justyn Baker  
**Sent:** Thursday, March 06, 2008 10:29 PM  
**To:** Randall Foster  
**Subject:** FW: Licence to use music for educational project (dissertation)  
Please handle, thanks.  
**From:** Georgios Hoplaros [mailto:georgehoplaros@mail.utexas.edu]  
**Sent:** Wed 3/5/2008 8:07 PM  
**To:** Justyn Baker  
**Subject:** Licence to use music for educational project (dissertation)

Dear Mr. Baker,

My name is Georgios Hoplaros and I am a graduate student, pursuing a PhD degree in Music and Human Learning at The University of Texas at Austin.

I am currently working for my dissertation, and I have developed computer software in order to create educational animated listening guides of a piece of music. Using the software, I can create basic shapes (like rectangles, circles, and lines) to depict a music score; the color, shape, position and size of the shapes can be changed in to follow a piece of music as it plays. In that way, I can create a short video, with shapes animating in synchronization with the sound of a piece of music.

As part of my dissertation, I need to create such a listening guide in order to demonstrate the abilities of my software to my dissertation committee, in which there are five professors at the University of Texas at Austin. I need to create just one two-minute

video, which will be given to the members of my committee for evaluation. This educational video will not be distributed to public in any way.

The Theme and the first Variation of Tchaikovsky' Suite No. 4 'Mozartiana', Op. 61 suit perfectly for the purposes of my demonstration.

The current pieces appear in the CD TCHAIKOVSKY: Suites No. 3 and No. 4, 'Mozartiana', Catalogue No: 8.550728

I would like to kindly ask you to give me permission to use the music of the first 2 minutes of Suite for Orchestra No.4 in G, Op.61 "Mozartiana" 4, Theme and variations (that's track #8 of the CD).

Please, feel free to contact me for any questions you may have.

Thank you for your help and time,

Georgios Hoplaros

PhD Candidate in Music and Human Learning

The University of Texas at Austin

Tel: +1-512-452-1788

Email: [georgehoplaros@mail.utexas.edu](mailto:georgehoplaros@mail.utexas.edu)

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## **Vita**

Georgios Pandelis Hoplaros was born on August 30, 1978 in Nicosia, Cyprus, the son of Pandelis Hoplaros and Chrystalla Kourouklaris Hoplaros. Upon completion of high school and military service in Cyprus, he entered the University of Cyprus in Nicosia, Cyprus, where he received a Bachelor of Arts in Education, with specialization in Primary Education in 2001. Mr. Hoplaros worked as an elementary school teacher for two years, teaching all subjects of the curriculum, while he was responsible for the choir and orchestra of the school. He also taught the violin privately, and appeared in ensemble performances not only in Cyprus, but also in many European countries. In 2003 Mr. Hoplaros was awarded a Fulbright scholarship and entered the graduate program in the School of Music at The University of Texas at Austin, from which he received a Master of Music in Music and Human Learning in 2005. Since then he entered the doctoral program at the same school, and served as an assistant instructor in the university. He has presented research in music perception in state and international conferences and developed educational software for music listening.

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