NOTES AND BYTES

AN EVALUATION OF SOME SOFTWARE USED IN TEACHING MUSIC IN FOUR-YEAR-OLD KINDERGARTEN THROUGH GRADE EIGHT

MASTER'S PROJECT

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CHAPTER I

INTRODUCTION

Purpose for the Study

The purpose of compiling and evaluating this list of music software was to provide the researcher and other educators with an opportunity to experience several software packages. Although ideally each educator should evaluate software individually, sometimes this is not possible because of time or circumstances which preclude this happening. Therefore, this study categorizes and gives suggested grade level and usage for several music software packages. This author's interest in computer education and music gave the impetus for this evaluation of music software.

In the past there have been many concerns expressed regarding the quality of educational software. The two main factors for poor software appear to be programmers who were not familiar with educational practices and educators who were not adept at programming. When either group attempted to market a piece of software, several shortcomings surfaced, from lack of educational content to glitches in the programs which resulted in a shut down of the program (or system).

In recent years, with new programming languages and techniques, as well as input by knowledgeable resource persons, educational software has made great advances both in content and presentation. The traditional drill-and-practice (or drill-and-kill) software is being replaced by interactive multimedia experiences which encourage students to explore, interact, and want to learn more. (For what more could an educator ask?)

Statement of the Problem

The purpose of this study was to compile and evaluate a list of available software in the area of Music Education.

Limitations

Music software, like all software, has changed greatly over the past few years. Usually as soon as a program is released, it is obsolete. This evaluator recognizes that upgrades are always forthcoming, and will work within the parameters of what is available for this particular study at this time. This is in no way meant to be a definitive list of music education software, but is an overview of some of the packages presently available.

Definition of Terms

Application is another word for a computer program designed to perform a certain task, such as word processing, accounting, desktop publishing, or music transcription and playback.

Byte is a contraction for BinarY digiT Eight. It is a group of 8 bits that in computer storage terms usually holds a single character, such as a number or letter, or other symbol.

CAI is an acronym for Computer-Aided Instruction.

CBI is an acronym for Computer-Based Instruction.

CD-ROM is an acronym for Compact Disc--Read-Only Memory, a high-capacity, optical storage device that uses compact disc technology to store large amounts of information, up to 600 megabytes (the equivalent of approximately 300,000 pages of text), on a single 4.72 inch disc.

Compatibility is the extent to which a given piece of hardware or software conforms to an accepted standard, regardless of the original manufacturer.

Courseware is another term for educational software.

Disk drive is a peripheral storage device that reads and writes magnetic or optical disks.

EPIE is an acronym for Educational Products Information Exchange.

Floppy disk is a flat, round magnetically coated, plastic disk enclosed in a protective jacket.

Graphics are pictures used in computer programs.

Hard drive (or hard disk drive) is a storage device that uses a set of rotating, magnetically coated disks called platters to store data or programs.

Hardware is all the physical electronic components of a computer system, including peripherals, printed circuit boards, displays (monitors), and printers.

Interactive is the term used for processing that takes place as soon as the data is entered and requires continuous participation by the user to carry out the process.

Mb (or MB) is an abbreviation for megabyte (1,048,576 bytes).

MIDI is an acronym for Musical Instrument Digital Interface. A standard protocol that describes communications between computers, synthesizers, and musical instruments.

Multimedia is the term used to describe technology that displays information using a combination of full-motion video, animation, sound, graphics, and text with a high degree of user interaction.

Peripheral is any hardware device attached to and controlled by a computer.

Protocol is a term used in networking and communications. It is a specification that defines the procedures to follow when transmitting data.

Sequencing is the term used to describe the process of using a computer program for playing, rearranging, or synchronizing sounds contained in MIDI files.

Shareware is a form of software distribution that makes copyrighted programs freely available on a trial basis. After the trial period, it is expected that one would send a registration fee to the creator of the program.

Software is an application program or an operating system that a computer can execute (run).

Software Evaluation is the process used to determine usefulness or appropriateness of computer programs.

Sound Card (sound board) is an add-in expansion board for the PC that allows the user to produce audio output of high-quality recorded voice, music, and sounds through headphones or external speakers.

Transcription is the notation of music in written form.

User friendly is a dated phrase used to describe systems or software that are easy to learn and easy to use.

Word processor is an application program that manages text-based documents. Originally it was designed to replace a typewriter.

CHAPTER II

REVIEW OF LITERATURE

In this section the author presents the review of the literature. It is divided in the following sections: technology as a teaching tool, the role of educator as evaluator, and criteria for evaluating software.

Technology as a Teaching Tool

According to Maddux, Johnson and Willis (1992) the computer has the potential to become education's single most useful teaching and learning tool. All areas of education can benefit from the use of computer technology. Many students find interactive learning interesting, informative, and enjoyable; therefore, using the computer as a tool greatly benefits the learning process. It is helpful to remember that the use of the computer as a tool in no way lessens or negates the role of the educator in the process of learning. The computer is not meant to replace the teacher, but instead is one way to enhance concepts already presented.

Maddux et al. (1992) propose that one major problem in educational computing is finding good software. An experienced programmer may spend 100-300 or more hours developing an hour lesson (Kuzmich, 1984) so it only seems to follow that the educator would need to take time to evaluate software to determine relevance to the curriculum. Norton (1995) urges teachers to look for software that meets the specific educational goals outlined for the particular curriculum of the school involved. This is time consuming, and there is a temptation to rely on the evaluations of others instead of evaluating software for one's own needs in a particular classroom.

There is a suggestion that as music technology advances, perhaps researchers should think in terms of developing a pedagogy of music technology (Berz & Bowman, 1995). The immediacy of feedback has a strong motivational quality and is one of several factors that make computer-based materials so attractive to learners (White & Hubbard, 1988). According to Vockell & Schwartz (1992) some of the most interesting applications of CD-ROM

technology are in the field of music education. White & Hubbard (1988) also note that a synthesizer fulfills much the same tool function for computer-based music that a word processor does for written language or a graphics package does for art. Since all children do not learn in the same way, adding technology to the palette of teaching strategies is necessary to provide for all types of learning (Forest, 1995). The computer itself is not some kind of miracle cure but merely a tool that can and will teach music in many important new ways, if we use it to bring music to our students directly (Dunnigan, 1993). With the wide variety of Computer Aided Instruction (CAI) music programs available for all types of computer hardware, software can be found that ranges from simple tutorials in notation basics to advanced composition and directing (Dunnigan, 1993). In the study by Wilson & Wales (1995), it was revealed that children are able to develop tonal and metrical representations of music through interaction with musical experiences provided by the home and school environment. Forest (1995) reported that research shows an increase in test scores when the arts are integrated into the curriculum.

It is important to remember here that the computer, like any other tool for learning, will not have a universal appeal for all students. As with any teaching method, some students will respond more favorably to the use of the computer than they will to other ways of learning. But the use of technology will benefit many students and so it is important to become knowledgeable in areas involving the use of the computer if the educator is to become effective in using this teaching tool.

The Role of Educator as Evaluator of Software

One of the most important tasks of the educator interested in integrating technology into the classroom is that of becoming knowledgeable in the area of software evaluation. With practice in evaluating, the educator can become more proficient in the decision-making process involving the purchase and use of unfamiliar software packages.

The task of evaluating music software often falls either to the computer teacher or the music teacher. Ray and Davis (1991) believe that the administrator should review the instructional software as well. Ideally, all involved need to have input if relevant, quality software is to be identified for the school's use. In Computer Based Instruction (CBI) three categories are normally considered during the review process: content questions, utilization questions, and administrator questions (Simonson & Thompson, 1990). Following that theory, the above groups of educators would cover the three categories. Only the person using a software package is able to make the final decision as to whether needs are being met or if learning has occurred (Simonson & Thompson, 1990).

The best way to test a piece of software is to use it, and if it seems worthwhile, let the students try it. This in not always possible, since not all companies allow such a lengthy evaluation process. With the copyright infringements that have taken place in the last few years, some companies who formerly allowed evaluation copies of their software to be distributed no longer engage in such practices. It may not be possible then to try a software package without purchasing it. To rely solely on the written evaluations of others can be risky, if not impossible. The situation in which the software is tested rarely matches exactly the situation of the educator, and this is a margin for error that has to be taken into consideration.

The burden of determining quality is ultimately on the teacher. If a program is technically sound and smoothly performs what it sets out to do, then it could be recommended. The most important task for a school faculty is to know where to get reliable software reviews and how to interpret them (Troutman, White, & Wooley, 1988). As Dudley-Marling and Owston (1988) warn, software evaluations need to be viewed with caution because the efficacy of a piece of educational software must be judged according to the responses of the students, not just the prediction of adults. Using computers to teach the fine arts can make a real impact on children's learning (Rosegrant, 1988), but if a teacher creates or uses learning materials that lack depth and creativity, the learning may proceed accordingly (Troutman, White & Wooley, 1988).

According to Steinhaus (1987), no matter how exciting and productive many teachers find music to be, there is always a search for supplementary ideas which will open up creative pathways leading in new directions for the instructor as well as the student. Some available music software can do just that. Schall, Leake, & Whitaker (1986) propose that the fundamental word of advice regarding educators and their quest for quality software is caution. They urge educators not to fall prey to attractive packaging and sketchy descriptions of programs found in catalogs. In the list of characteristics of effective software, Schall et al. cover areas such as use, directions, computer response, screen formatting, system compatibility, levels of difficulty, student input, terminology, motivation, instructional focus and style, graphics, and animation.

Teachers can use formal evaluations of educational software to guide their initial screening of software, but final judgments should depend upon their own observations, observations made by their students, and their students as they use the software (Dudley-Marling and Owston, 1988). Teachers can profit from software evaluations in two ways. First, they can find and read evaluations by other educators. Second, they can conduct their own software evaluations (Maddux, Johnson & Willis, 1992).

Criteria for Evaluating Software

The first step in evaluating a piece of software is to identify the criteria which will be used in the process of evaluating. The criteria will vary with the needs and resources of each individual school, but many of the areas to be evaluated are similar.

Simonson and Thompson (1990) prefer to base evaluation of software on the following six criteria: content, mode of instruction, management, technical presentation, documentation, and ease of use. These categories are found to some extent in many of the available software evaluation forms. Beckelman (1984) lists criteria such as audience, technical quality, ease of use, instructional quality, documentation, and vendor support.

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Vockell and Schwartz (1992) report that a major difficulty in selecting instructional software is the overwhelming abundance of advertised material. They also observe that it is impossible to make a final consideration of appropriate software without consideration of the situation in which it will be used. Since the advertisers are not in the classroom involved, it is difficult to make an informed choice without the opportunity to use the software in question.

Whatever software evaluation form is used, it is important to keep in mind the particular situation for which the software is being considered. What works well for one group may not be ideal for another. Since it may be improbable, if not impossible, for each evaluator to generate an individual software evaluation form, it is then important to find a form which best meets the needs of the particular school.

Two overarching questions must direct an approach to software evaluation: (1) How can the teacher exploit the computer's most powerful, and often unique capabilities: and (2) What kind of software is best suited to the teacher's instructional goals? (White & Hubbard, 1992). Keeping these two questions in mind, and either finding or creating a meaningful software evaluation form, educators will be able to make informed decisions regarding the software to be used in their classrooms.

CHAPTER III

PROCEDURE

Evaluation Process

The software evaluations took place on a Micro-Excell Computer (IBM-Compatible), DX4-100 MHz, with a 2 Mb video card and 24 Mb of RAM. Slower or faster operating systems will affect the speed of running software packages, but for evaluation purposes, this was overlooked. The format of the application (e.g., CD-ROM or diskette) was included in the Brief Description section.

Programs chosen for evaluation were those available to this author in the given school situation. Each program was evaluated using the same process. Since all pieces of software were readily available, the evaluations could take place in the same time period. For faster use, each program was loaded into the hard drive of the computer. Necessary choices were made regarding sound card and MIDI settings, and then each program was tested keeping the criteria for the evaluation in mind. Many programs were run several times, using various ranges of possibilities of use for each.

Review of Professional Textbooks

Multiple software evaluation forms were reviewed, but the format used seemed to allow for clarity and brevity in evaluating. The typical software evaluation form is often much more detailed, including the name of the evaluator, the date, a more detailed description, and ends with a recommendation for or against purchase. The longer evaluation would still be recommended for an individual school's needs, as it would be a particular school that would be evaluating the software for its use. Ideally, each school should create an evaluation format which would be most useful for the individual situation. Since this is not always possible, there are many available evaluation forms from which to choose.

<center>Original Format</center>

This author created the following evaluation format and found it to be useful in the given situation. Each piece of software was used and evaluated by a computer and music teacher in keeping with these criteria:

Name of Program:

Company:

Suggested Retail Price:

Suggested Content Area:

Grade Level:

Brief Description:

Observations:

Comments:

<center>Explanations of Criteria for Evaluation</center>

Name of Program and Company are necessary for further use, purchase or reference to the product.

Suggested Retail Price is not meant to be definitive, but only to give readers an idea of cost involved. Prices vary from suppliers, and it is impossible to anticipate cost without a daily update.

Software evaluation forms are usually generic and can be used in all content areas. Since this evaluation process was focused on Music Software only, Content Area refers only to areas involved in Music Education.

Grade Level is approximate. Because the curriculum varies from school to school and region to region, grade level was judged according to difficulty level, not curriculum guidelines.

The Brief Description, Observations, and Comments were written after running the programs. Most of the programs were also used by students from various grades. Their success or difficulty with each program was incorporated in the Observations and Comments sections.

Findings were recorded as the testing of each program was completed. All evaluations were then compiled and printed.

CHAPTER IV

RESULTS

The software evaluated was organized into three categories. The first group, Music Education, contained CD-ROMs that dealt with teaching some area or concept specifically found in the field of music. The second group, Reference, was made up of CD-ROMs that were some form of interactive encyclopedia, and had sections relevant to the study of music. The third group, Diskettes, contained floppy disk versions of music software dealing with various topics in music. Each category was then alphabetized as follows:

CD-ROMs - Music Education

Beethoven Lives Upstairs

Chuck Jones' Peter and the Wolf

Composer Quest

History of Music The Collection

Microsoft Musical Instruments

Musical Instruments of the Symphonic Orchestra

The Musical World of Professor Piccolo

CD-ROMs - Reference

Compton's Interactive Encyclopedia (1995)

Encarta Multimedia Encyclopedia (1995)

Grolier Multimedia Encyclopedia (1995)

Infopedia Multimedia Encyclopedia and Reference Library (1995)

Microsoft Bookshelf (1993)

The Software Toolworks Multimedia Encyclopedia (1992)

Webster's Interactive Encyclopedia (1994)

DISKETTES

Cakewalk Apprentice for Windows

Finale 3.0

Melissa's Music Flashcards

MetroGnomes' Music

MIDI Kit with Recording Studio for Windows

MIDI Made for Windows

Midisoft MusicMagic

Midisoft Sound Impression

Midisoft Studio for Windows

Multimedia Music Library

Musicator Win 2.0

Music Sculptor

MusicTime

Music Transcription System II

In the following evaluations, Observations and Comments are the opinions of this researcher after using the programs listed. No judgment was made regarding quality of the software or programming, and no recommendations for purchase were given.

<u>CD-ROMs - Music Education</u>

Name of Program: Beethoven Lives Upstairs

Company: BMG Interactive Entertainment

Suggested Retail Price: $40.00

Suggested Content Area: Composers, Beethoven

Grade Level: Grades 4-8

Brief Description: This interactive CD-ROM is a picture-menu driven application which allows children to enter the world of Christoph above whom Beethoven lives. Christoph's Journal is the focal point for choices of activities for students. Pages of his journal include interactive adventures such as Christoph's Room, Name that Musical Square Game Show, Notes Afloat, the Bell Tower, Town Square, and Instrument Fling. Each of these activities involve various elements of music. Children can create their own journals by adding pages and activities as they wish. There is an excerpt from the video Beethoven Lives Upstairs included on the CD-ROM.

Observations: The guidebook included in the CD-ROM case is helpful when first learning the program. No written directions appear on the screen until each section has been chosen, but the object which starts each activity is not known without the book or trial-and-error clicking.

Comments: The arcade games included in this CD-ROM are music-based, but the directions are hidden in the program or the guidebook. Children may need supervision when first viewing a wordless screen with pictures from which to choose. When not all pictures produce an activity, students learn the correct choices needed to begin each section.

Name of Program: Chuck Jones' Peter and the Wolf

Company: IF/X Interactive

Suggested Retail Price: $50.00

Suggested Content Area: Orchestral instruments, Sergei Prokofiev, Peter and the Wolf

Grade Level: Grades 1-6

Brief Description: This interactive CD-ROM has several choices for students, such as Artist and Composer, Animated Tale, Symphony Orchestra, and the Log Jam Game. Both Prokofiev and Chuck Jones are highlighted in the Artist and Composer section. The twenty-nine minute animated tale with accompanying orchestral soundtrack features such Hollywood stars as Lloyd Bridges and Kirstie Alley. With the use of videos of young musicians playing the various instruments representing the different characters of Prokofiev's story, children can not only hear, but see each instrument as it is played. The multi-ethnic performers appeal to all groups of students. The Log Jam Game is an arcade-style non-violent game featuring the characters from the tale.

Observations: Varying age groups can enjoy this interactive CD-ROM. Its appeal to younger students is found in the animation, sound, and ease of use. Older students find this an enjoyable way to study Prokofiev and his classic tale.

Comments: Some direction by the teacher needs to be given when a student first runs the program. Nearly all of the menu choices are pictures or symbols, and students will have to learn the function of each in this program.

Name of Program: Composer Quest

Company: Dr. T's Music Software, Asymetrix Corporation

Suggested Retail Price: $50.00

Suggested Content Area: Composers and Musical Eras

Grade Level: Grades 6-8

Brief Description: This bi-lingual CD-ROM allows users to choose either English or French as the interactive language of choice. Some prior knowledge of music and composers is necessary before the Time Machine can be used properly. The students can travel back in time and listen to excerpts from various famous composers, trying to identify the composer. Other concurrent events and artistic endeavors in history are highlighted, also. This program adheres to the guidelines outlined by the reference The California Framework for the Visual and Performing Arts.

Observations: Since previous learning is necessary, this disc is not primarily intended for beginning music students. The students may guess at answers, but this can become frustrating, and is not productive.

Comments: After initial teaching has taken place, this CD-ROM can be used as a follow-up to a study of composers.

Name of Program: History of Music: The Collection

Company: Zane Publishing

Suggested Retail Price: $30.00

Suggested Content Area: Music History

Grade Level: Grades 4-8

Brief Description: This set of four CD-ROMs includes titles such as Through the Classical Period, Romanticism to Contemporary, American Folk Music, and Music and Culture. Each CD-ROM has text and video that engage the learner in an interactive lesson. The program contains over 4,000 photographs, over 300 minutes of feature presentations, and over 400 interactive questions. Also included on disc is Webster's New World Dictionary, and an American Concise Encyclopedia.

Observations: The video presentations have the capacity to stop and start and not force students to start back at the beginning of the sequence. Varying activities can be chosen from the main menu.

Comments: This set of CD-ROMs allows input by students, but with the continuous video sequences, total supervision is not necessary by the teacher. A certain amount of student independence is achieved because of the format of the presentations.

Name of Program: Microsoft Musical Instruments

Company: Microsoft Corporation

Suggested Retail Price: $60.00

Suggested Content Area: Instruments and families of instruments

Grade Level: All levels

Brief Description: Microsoft Musical Instruments is an interactive CD-ROM that allows children to explore instruments, listen to the sounds, learn about families of instruments, and become familiar with the background and history of several musical instruments.

Observations: With varying amounts of supervision, this program can be used by many grades. Since it is a CD-ROM, some knowledge of that technology is necessary before the children can achieve independence in using the program.

Comments: Microsoft Musical Instruments gives children an opportunity to hear, see, listen, and learn about instruments that are both common and uncommon. Since over two hundred instruments are featured on the CD-ROM, children can become familiar with many more instruments than those to which a teacher would have access in any given situation.

Name of Program: The Musical Instruments of the Symphonic Orchestra

Company: Multimedia Products Corporation

Suggested Retail Price: $50.00

Suggested Content Area: Instruments of the orchestra

Grade Level: Grades 4-8

Brief Description: This multilingual CD-ROM includes English, German, French, Italian, and Spanish versions of the guide to the instruments of the symphonic orchestra. Instruments can be studied individually and in their appropriate section of the orchestra. An overview of the layout of the orchestra is the main screen, and from there choices may be made whether to read about, watch, listen to, or print facts about each instrument or group.

Observations: Though the picture format of the main screen can be considered user-friendly, this layout can also be confusing. Unless asked for, no directions are given once the program is launched. A tutorial is available from a help choice at the bottom of the screen. It is advisable to take advantage of the tutorial when running the program for the first time. Some teacher assistance may be required until students become familiar with the structure of the program.

Comments: With moving videos of musicians playing the instruments, students are given the opportunity to see and experience music in ways not possible in audio-only CDs.

Name of Program: The Musical World of Professor Piccolo

Company: Opcode Interactive

Suggested Retail Price: $60.00

Suggested Content Area: Musical form, instruments, terms, and history.

Grade Level: Grades 4-8

Brief Description: This CD-ROM permits users to study various types of music, including church music, jazz, symphony, and rock. The map of Music Town is the main menu, and from there students click on various points of interest. Areas of exploration include the Library, the Game Room, Music School, the Church, the Jazz Club, and the Symphony Hall. Students are able to research musical instruments and musical terms in the library or play games such as Sound Off, Musical Pursuit, Pitch Adventure, and Rhythm Risk in the Game Room. The Music School has areas of study such as sound, notation, pitch, intervals, rhythm, chromatic signs, scales, key signatures, chords, and dynamics.
Upon entering the Church, the Jazz Club, and the Symphony Hall, students may experience the rendition of the above types of music as well as study their history and development.

Observations: Many students enjoy working with Professor Piccolo. Each student signs in at the beginning of the program, and is treated as an individual with a progressive level of study.

Comments: The format allows for various ability levels of students, while at the same time encourages children to listen to and become informed about different types of music.

CD-ROMs - Reference

Name of Program: Compton's Interactive Encyclopedia 1995

Company: Compton's NewMedia, Inc.

Suggested Retail Price: $50.00

Suggested Content Area: Research on topics relating to music

Grade Level: Grades 4-8

Brief Description: This CD-ROM has search features which enable students to retrieve information about a chosen music topic. The search can be limited to text, pictures, sound, movies, tables, or all of these options. Articles and pictures can be printed or copied and pasted into other applications. Other features of Compton's include the Idea Search which allows students to choose a topic and all related articles will be retrieved immediately. The InfoPilot shows a diagram of related topics, allowing students to expand their search by choosing one of the related ideas. That related idea becomes the center of the next search and new related topics appear on screen. The Editing Room gives students the opportunity to create multimedia presentations by using graphics, sound, text, animation, and photographs available on the CD-ROM.

Observations: The opening screens of Compton's can seem a bit intimidating to students at first, but after some explanation and practice, students become familiar with this program's way of searching for information. After working with Compton's, many students are comfortable with the style of this program.

Comments: The video accompanying text on screen seems more limited than in some of the other reference CD-ROMs, but the choices for study are numerous nevertheless. Students are able to exercise creativity with some of the multimedia capabilities of this program.

Name of Program: Encarta '95 The Complete Interactive Multimedia Encyclopedia

Company: Microsoft Corporation

Suggested Retail Price: $50.00

Suggested Content Area: Research on music-related topics

Grade Level: Grades 4-8

Brief Description: This CD-ROM has an attractive menu which allows students to research topics in music, then hear and see the selections made. The Related Articles feature will give options for further research in the area chosen. Several choices will be given relating to the original topic, and from them students are able to explore. Included in Encarta is a World Music InterActivity. The Game portion encourages students to listen to a musical instrument and attempt to locate its origin on a world map on screen. The Explore function of the game locates the instruments on their correct country and allows for more in-depth study of each instrument. Related articles are also available in the InterActivity.

Observations: Many students enjoy the research and activity features of this program. With some direction by the teacher at first, students become familiar with Encarta's search mode and can find their way around without much teacher help.

Comments: This program can be used by various age groups. The easy search features allows students of differing abilities to find and retrieve information. At first the opening screens may look confusing to students, but with use these become familiar.

Name of Program: Grolier Multimedia Encyclopedia (1995)

Company: Grolier Electronic Publishing

Suggested Retail Price: $60.00

Suggested Content Area: Research on musical instruments and families of instruments, composers, periods of music, cultural influences on music.

Grade Level: Grades 4-8

Brief Description: This CD-ROM introduces students to the research mode using on-line search modes and printouts of information. For a given project, students could make use of Grolier's easy search capability and find and relate information on a topic chosen. Printing can be done directly from the CD-ROM or excerpts and articles can be copied to the clipboard and pasted into another application such as a word processing program. Students can hear a musical instrument being played, read about it on screen, and print information about the instrument.

Observations: This program, because of its ease of use and its ability to search quickly, enables students to accomplish detailed research while allowing them to expand their search to related sources.

Comments: Information is available for many music categories and can be retrieved instantly, thus cutting down on research time. This allows the students a greater synthesis of materials, and the opportunity to expand search categories without feeling bogged down in the actual searching.

Name of Program: Infopedia Multimedia Encyclopedia and Reference Library

Company: Future Vision Multimedia, Inc.

Suggested Retail Price: $60.00

Suggested Content Area: Reference topics dealing with music

Grade Level: Grades 4-8

Brief Description: Using Funk & Wagnall Encyclopedia, this reference CD-ROM allows students to use interactive multimedia to experience music and enhance the study of various music topics. Other features include the Hammond Atlas, Roget's Thesaurus, World Almanac and Book of Facts, Webster's Collegiate Dictionary, Webster's Dictionary of English Usage, Webster's Dictionary of Quotations, and Webster's New Biographical Dictionary. The menu is picture-based, with explanations showing on screen after the cursor has been held over a picture for one second.

Observations: Children used to text-based menus find this format confusing at first, but with practice can use this reference tool to research music topics. Some areas included in the Performing Arts section of the CD-ROM are Music, Musical Instruments, and Musicians and Composers. Further choices are given in each of these categories. Text accompanying sound allows children simultaneously to see a picture on screen and hear an instrument play a short selection.

Comments: This CD-ROM is a type of reference tool that can be used by various grades, but requires some assistance initially because of the type of search format used.

Name of Program: Microsoft Bookshelf (1993)

Company: Microsoft Corporation

Suggested Retail Price: $50.00

Suggested Content Area: Research on topics relating to music

Grade Level: Grades 4-8

Brief Description: This CD-ROM is a multimedia Reference Library containing an American Heritage Dictionary, Bartlett's Familiar Quotations, The Concise Columbia Encyclopedia, Roget's Thesaurus, Hammond World Atlas, The Concise Columbia Dictionary of Quotations, and a World Almanac. Searches can take place in any or all of these selections. There is a limited amount of sound, animation, and images available on this CD-ROM as well. Students can study various musical forms, for instance by seeing examples on the screen and listening to the form being played. Also, a pronunciation feature allows students to hear the word being researched.

Observations: The text capacity of this CD-ROM is one of its greatest strengths. With the entire Bookshelf available, a well-rounded approach to a topic can be realized. Though not as comprehensive as some other reference CD-ROMs, this program allows for study using text in various forms.

Comments: Using this program can enhance a study by giving access to areas such as quotations and pronunciations, not as readily available in some other reference CD-ROMs.

Name of Program: Software Toolworks Multimedia Encyclopedia

Company: Grolier, Inc.

Suggested Retail Price: $50.00

Suggested Content Area: Reference in musical topics

Grade Level: Grades 3-8

Brief Description: This reference CD-ROM gives students an opportunity to access information in various formats. Animation, video, sound, as well as text are provided for several topics dealing with music. This is a concise version of a reference multimedia encyclopedia, and does not have the range of possibilities found in some other CD-ROMs. For example, when accessing musical instruments, the sound-only feature is activated. Accompanying pictures do not appear simultaneously on-screen.

Observations: The ease of use of the search mode is one of this program's strong points. Searches can be limited easily by using the limitations including and, not, and or when accessing musical topics. Selections can be further limited to sound, animation, or text-only.

Comments: This is a beneficial program when quick, concisely-stated information is required. Further in-depth study may take place in a different application, but this is a good reference CD-ROM for a beginning study of a topic.

Name of Program: Webster's Interactive Encyclopedia

Company: ATTICA Cybernetics Ltd.

Suggested Retail Price: $40.00

Suggested Content Area: Reference in musical topics

Grade Level: Grades 4-8

Brief Description: This interactive reference CD-ROM has a picture-based menu which has explanations accompanying choices when the cursor passes over the area on the screen. There are several modes which can be employed, such as Home Screen, Timeline, Topics, Outline, Quiz, Browse, Search, Index, and Display. Also available is an audio tour familiarizing users with functions of this program.

Observations: This program takes students some time to learn the search functions. The lag between request and retrieval often causes users to doubt that the choice was made. The tendency is to click again, even though the program has been activated and is looking for information.

Comments: For students used to a word-based menu allowing ease of search, this program may require some training.

<u>DISKETTES</u>

Name of Program: Cakewalk Apprentice for Windows

Company: Twelve Tone System, Inc.

Suggested Retail Price: $40.00

Suggested Content Area: Music production and multimedia presentations

Grade Level: Grades 7-8

Brief Description: This 3.5" diskette version is a sequencing program and multimedia control application for Windows 3.1.

Observations: This application appears to be above most elementary school general music programs. Arrangements and sequencing are relatively sophisticated in this program. This could cause difficulty for some students.

Comments: Playing music and watching tracks which are being played are two main features which could be beneficial to students and teachers.

Name of Program: Finale 3.0

Company: Coda Music Technology

Suggested Retail Price: Academic price $250.00 (non-academic price is much higher)

Suggested Content Area: Music notation, recording, and playback

Grade Level: Teacher-modified form of this program could be used with Grades 6-8

Brief Description: Finale is a music notation application that allows users to create, modify, playback, and print music from lead sheets to full orchestral scores. An electronic MIDI-capable keyboard can be used, but is not essential for simple music notation and playback. Finale can be loaded onto the hard drive from 3.5" diskettes.

Observations: Finale has a very steep learning curve. It could be used to help students learn to write or transpose music. Immediate results are available with the playback and print features.

Comments: Because Finale is a difficult program, much teacher supervision is necessary. Few students would be able to work independently until they have had extensive practice with Finale. Their finished products can be impressive because the printed music has a professional look. Finale has won several World Class Awards and just recently was selected as the standardized file format for submission for publication by Warner Brothers.

Name of Program: Melissa's Music Flashcards

Company: Personal Companion Software

Suggested Retail Price: $10.00

Suggested Content Area: Music Theory

Grade Level: Kindergarten through Grade 2

Brief Description: This 3.5" diskette version was created to help small children read notes in treble and bass clefs. Various key signatures can be chosen for practice. The notes are flashed on the staff and a click of the right mouse button on the correct letter will produce a note as a happy face. An incorrect response produces a sad face. There is a HINT option which will help children who are familiar with a piano keyboard to determine the correct name of the note.

Observations: Children may need guidance, and some prior music knowledge is helpful. For reinforcement of names of notes, this is an inexpensive practice program.

Comments: Some teacher support may be necessary, because no directions appear on screen if the HELP function is not activated. Since the program uses the right mouse button, children who are used to the left mouse button for all choices will have to be informed and reminded how to choose the responses for this program.

Name of Program: MetroGnomes' Music

Company: The Learning Company

Suggested Retail Price: $50.00

Suggested Content Area: Musical rhythm, melody, and form

Grade Level: Kindergarten through Grade 1

Brief Description: The 3.5" diskette version of this program introduces young learners to music by using such activities as the Mushroom House, the Musical Flower Garden, the GnomeTown Parade, the Melody Maker Festival, and the Musical Picnic. Included in these areas are the three basic elements of music: rhythm, melody, and form. Children not only practice listening, internalizing beats, and creating original music, they also encounter many of the folk songs of the Western cultural heritage.

Observations: Reading skills are not required once the program is launched, so very young players could enjoy this journey into music. The menu and activities are picture-oriented, so choices and execution of the program can be accomplished semi-independently by early learners after some introduction by the teacher.

Comments: For many young children this program is easy to use, enjoyable, and educational.

Name of Program: MIDI Kit With Recording Session for Windows

Company: Midisoft Corporation

Suggested Retail Price: $80.00

Suggested Content Area: Recording and Editing Music, Notation, Composition

Grade Level: Grades 5-8

Brief Description: This 3.5" diskette set includes a universal MIDI adapter cable that connects the computer to a MIDI-compatible instrument. This feature allows for real time recording, so actual pieces played on a piano keyboard, for instance, can be notated, saved, edited, and played back. The ability to play, record, and hear immediate results is a great incentive for learning music. As soon as a note is played, it appears on the staff on screen. This, too, helps with notation, composition, and performance.

Observations: The ability of this program seems to be far above a grade school setting. The program can record up to 32,000 tracks of music, an overwhelming number for a typical elementary school. The flexibility of the program is found in the ability to alter key signature, time signature, and clef of recorded pieces.

Comments: This program allows for sophisticated recording, editing, and playback with the MIDI attachment. Instead of entering music with a mouse or computer keyboard, students also have the option of playing music in real time and seeing, hearing, and printing their results. Grade school students probably could not make use of the full features of a program with these capabilities.

Name of Program: MIDI Made for Windows

Company: LLERRAH, Inc.

Suggested Retail Price: $35.00

Suggested Content Area: Creating and playing music

Grade Level: Grades 4-8

Brief Description: This 3.5" diskette version affords students the opportunity to listen to various types of music and incorporate these as background for other applications. One feature young students enjoy is the appearance of attractive pictures on screen while music is playing.

Observations: After registering this shareware program, the user receives the full version which includes over 200 music selections, providing over five hours of music for the computer. Various categories include Movies, Children's, Joplin Rags, Folk, Holiday, Religious, and original Rock, Jazz, and Pop. An animated Jukebox player stores over 5,000 MIDI, wave, and video files.

Comments: The ease of use of this program gives children confidence and allows them to have control over musical selections to be played or used with other programs.

Name of Program: Midisoft MusicMagic

Company: Midisoft Corporation

Suggested Retail Price: $40.00

Suggested Content Area: Music notating, editing, playing, and printing

Grade Level: Grades 4-8

Brief Description: This 3.5" diskette version allows students to create, modify, edit, record, play, and print music. MIDI files from other applications can be loaded, modified, played, and printed, also. The ease of use and flexibility of this program are two of its strong points. There is an on-screen HELP file which allows users to become familiar with notation and MIDI applications, as well as topics specifically contained in this program.

Observations: With little guidance, students can generate quality results using this program. The set-up is similar to many of the music-authoring programs, and once the technique is learned, it can be used with many applications.

Comments: This program does not have the in-depth sophistication of a notation program like Finale, but it certainly is less expensive, and is a useful addition to existing music education programs.

Name of Program: Midisoft Sound Impression

Company: Midisoft Corporation

Suggested Retail Price: $80.00

Suggested Content Area: Composition, editing, playback, mixing, and recording

Grade Level: Grades 5-8

Brief Description: This 3.5" diskette program allows users to create scores, notate and edit music, record MIDI and CD Audio files, add music to voice tracks, produce music, voice, and sound effects to use with other applications, and create multimedia presentations.

Observations: This program has many features above the ability of most elementary school students. The full range of the program could not be explored in the typical grade school setting. However, serving as a good introduction to production, notating, and editing , this program could encourage students to study areas of production more fully at a later time.

Comments: The on-line help feature can be beneficial while using a program with the great range of capabilities exhibited by this application

Name of Program: Midisoft® Studio for Windows

Company: Midisoft Corporation

Suggested Retail Price: $200.00

Suggested Content Area: Composition, Notation, Production, Sight Reading, Recording

Grade Level: Grades 6-8

Brief Description: This 3.5" diskette version allows students to compose, modify, play, and print music. The Studio works in conjunction with other Midisoft products, such as Multimedia Music Library (MIDIbase) to allow pre-written selections to be loaded and studied, played, modified, or printed. Midisoft Studio has the capability of reading any MIDI files, so many applications can be incorporated into this program. Selections can be heard with full instrumentation once the program has been set-up for the sound card and MIDI output of the particular system being used. Multiple tracks of music can be played or recorded.

Observations: This program is a capable of professional output, and is used for music authoring on a large scale. A grade school classroom probably would not be able to use this program to its fullest potential.

Comments: The notes being played are highlighted, so sight reading skills can be practiced as the selections play. For the price, this program would not be a beginning choice for those just entering the field of teaching composition or recording. On separate diskettes, this program is also available in German, French, Spanish, and Italian.

Name of Program: Multimedia Music Library

Company: Midisoft Corporation

Suggested Retail Price: $50.00

Suggested Content Area: Listening, Composing, Music Theory, Performance

Grade Level: Grades 4-8

Brief Description: This 3.5" diskette version allows users to choose from over 100 pieces of royalty-free music selections. Linked with Midisoft MusicMagic™, editing and playback of all pieces becomes possible. Any program capable of reading MIDI files can be used with this Library. Originally, this collection was designed to accompany visuals to multimedia presentations. Used in a classroom, this feature can be a powerful tool to supplement other lessons.

Observations: This library could be a welcome addition to an existing MIDI library or study of music using MIDI techniques.

Comments: With its own MusicMagic MIDI Player included, this program can function without the need for additional programs to run the MIDI files.

Name of Program: Musicator Win 2.0

Company: Musicator A/S

Suggested Retail Price: $50.00

Suggested Content Area: Composition, Sequencing, and Scoring

Grade Level: Grades 6-8

Brief Description: This 3.5" demo version allows students to write, print, and play their own music or play and print pre-written selections. This program is possibly more advanced than the typical elementary school setting. Taking advantage of the full features of the sequencing portion would not be possible without additional training. The screens are much more detailed than many other notation programs, and could be confusing to students used to working with some of the other applications.

Observations: This program does not seem to be one for beginners, nor those with little musical training. The capabilities are great, and with practice and time, this program could be a help to more advanced students.

Comments: Some students may find the screens confusing at first. The program is intended for advanced music techniques in playback and scoring.

Name of Program: Music Sculptor

Company: Aleph Omega Software

Suggested Retail Price: $6.00

Suggested Content Area: Recording, editing, and playing music

Grade Level: Grades 4-8

Brief Description: This shareware 3.5" diskette version of a MIDI program allows users to record, edit and play music. The split screen includes a piano keyboard in the bottom half and the cursor turns into a hand shaped design which gives students the experience of actually playing music on a piano keyboard. Songs can be recorded and played back, giving immediate feedback to the students' musical endeavors. Several MIDI files are included in the program and can be loaded, viewed, and played. MIDI files elsewhere in the computer can be used with this program, also.

Observations: The ability to see the piano keyboard on screen is helpful for visual learners. With the ability to play other MIDI files, this program is versatile, and can be used with various age groups.

Comments: Because it is shareware, this application requires an additional registration fee of $30.00 paid to the programmer. The flexibility of the program makes it able to supplement many types of music education needs.

Name of Program: MusicTime

Company: Passport Designs Incorporated

Suggested Retail Price: $50.00

Suggested Content Area: Composition, Recording, Playback, Sight Reading, Transcription, Transposition

Grade Level: Grades 3-8

Brief Description: This 3.5" diskette version allows users to notate music, playback creations, play files containing songs already written, transpose original as well as file songs, print music, and follow notes on screen as music is being played. Songs in similar MIDI formats can be loaded into MusicTime and played, printed, or modified. This feature expands the existing MIDI library one already has and allows sharing of files across programs. When entering notes using the mouse, the note appears on the staff on-screen and is heard as it is notated. This feature enables users to listen to their note choices, eliminating many errors in composition.

Observations: This program's ease of use is perhaps one of its greatest strengths. MusicTime is not as detailed as some other music authoring programs, but it is flexible and allows for various ability levels.

Comments: For sophisticated notation needs, Finale exhibits more detail. For ease of use and fulfilling the needs of varied age groups, MusicTime may be beneficial.

Name of Program: Music Transcription System II

Company: Questar Products, Ltd.

Suggested Retail Price: $5.00± (This began as Shareware, and with version 2.44 there is no additional registration fee. The cost is the vendor's distribution cost.)

Suggested Content Area: Notation

Grade Level: Grades 4-8

Brief Description: Version 2.44 is found on 3.5" diskettes, and is a simple beginning program for music transcription. On a limited basis, students are able to create, modify, play, and print music.

Observations: Students may need a basic understanding of music notation before attempting this program. Directions are straightforward and the menu is word-based. Since it is not meant to be as sophisticated as some of the more commercial notation programs, it relies on ease of use as a strength.

Comments: Though it is not written to provide the detail of some other music authoring programs, this program can be helpful for beginning students interested in composing.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary

This author's interest in quality software in the field of Music Education led to the evaluation of many available programs. The purpose of this study was to compile and evaluate a list of available software in the area of music education. By using an evaluation form and running the programs, the objectives of compiling and evaluating a list of music education software were realized in the twenty-eight programs studied.

The procedure of loading, running, and evaluating the programs was kept consistent for each software package used. Each evaluation contained the same areas of study: Name of program, company, suggested retail price, suggested content area, grade level, brief description, observations, and comments.

Software was organized into three divisions: CD-ROMs-Music Education, CD-ROMs -Reference, and Diskettes. Results took the place of the individual software evaluations found in Chapter IV.

Conclusions

With the vast amount of software on the market, it can seem overwhelming to attempt to create a software library without spending a great deal of time or money. This set of evaluations can serve as a starting point for others faced with a similar situation. Not all software works for all settings, and not all students respond similarly to the same piece of software. During this evaluation process, several programs were determined to be useful for various grades, with varying degrees of dependence on teacher assistance.

Recommendations

What works well for one school in one region or setting may not be as beneficial to another school in a different area. A particular school's needs can be met more fully if educators from the school are involved in the evaluation process. This author recommends that educators conduct their own software evaluations whenever possible, thus fulfilling the needs of the individual students involved.

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