Use of Song as a Memory Device
to Access and Recall Embedded
Standards-Based Academic Content

by

Patricia Ogura

A curriculum project submitted to
Sonoma State University
In partial fulfillment of the requirements
For the degree of
Master of Arts
In
Education
Special Education Emphasis

_____________________________
Emiliano Ayala, Ph.D., Chair

_____________________________
Stephen Cederborg, Ph.D.

_____________________________
Kelly Estrada, Ph.D.
Copyright 2008

by

Patricia Ogura
AUTHORIZATION FOR REPRODUCTION OF MASTER’S PROJECT

Permission to reproduce this project in its entirety must be obtained from me.

Permission to reproduce parts of this project must be obtained from me.

____________________________  ______________________________
Date                               Signature

Patricia Ogura
Use of Song as a Memory Device
to Access and Recall Embedded
Standards-Based Academic Content

Project by
Patricia Ogura

ABSTRACT

Purpose of the Project:

The purpose of this project is to investigate whether music can be an
effective means by which to present content in other subject areas; to
ascertain current practice with regard to use of educational music in the
elementary classroom, and to create a resource database aligning readily
available educational music with California standards in the content areas.

Procedure:

A review of literature relevant to memory and recall through the use of
music as a mediator was conducted. A survey was designed to ascertain
current practice with regard to use of educational music in the classroom
among colleagues. The survey also provided limited resources for
exploration. Music was obtained and analyzed for subject area content,
and aligned with California content standards. A database was designed
and compiled.

Findings:

The literature review provided evidence that song can be an effective
medium of subject area content presentation. Teachers felt that music is
an effective presentation tool, adding interest and ease of recall, but do not
generally use music in their classrooms in that manner. Reasons given
included lack of time, resources and training.

Conclusions:

With an easily accessible database aligned to standards, teachers would
probably utilize more music in their classrooms as a means of content
presentation, thereby enhancing lessons and adding creativity to scripted
curricula. Present formatting limits distribution; in order to have the
widest possible audience, the database needs to be an online resource, searchable by grade level, content area, standard, keyword, and publisher.

Chair:

__________________________________________________________
Emiliano Ayala, Ph.D.                                       Date

MA Program: Education
Sonoma State University
# Table of Contents

Chapter 1: Introduction and Statement of Problem .................................................................1
  Background/Context ...........................................................................................................1
  Problem Statement .........................................................................................................4
  Scope (description) of the project ....................................................................................6
  Research Questions ...........................................................................................................7
  Significance of the project ...............................................................................................8
  Limitations .......................................................................................................................8
  Definition of Terms .........................................................................................................10
    API (Academic Performance Index) ................................................................................10
    AYP (Adequate Yearly Progress) ..................................................................................10
    Agraphia ......................................................................................................................10
    Alexia ..........................................................................................................................10
    Amusia .......................................................................................................................10
    Aphasia .......................................................................................................................10
    Echolalia ......................................................................................................................10
    Educational Music .......................................................................................................10
    Elementary music preparation teacher .......................................................................10
    Individualized Education Plan (IEP) ..........................................................................11
    Integrated curriculum ................................................................................................11
    Multiple Intelligences Theory .......................................................................................11
    Perseveration ..............................................................................................................11
    Rap music ...................................................................................................................11

Chapter 2: Review of Literature ............................................................................................12
  Overview .........................................................................................................................12
  How children learn .........................................................................................................13
  Use of music in the core curriculum ...............................................................................14
  Music as intervention .....................................................................................................16
  Memory deficits or processing difficulties? .......................................................................19
  Music, memory and the brain .........................................................................................20
  Amusia, aphasia, and interconnectedness .......................................................................22
  Brain exercises, increased memory function and intelligence ....................................24
Table of Contents (continued)

Inferences .................................................................25
In practice .................................................................25
Observations .............................................................27
Questions for further study ........................................28
Summary .................................................................28
Conclusion ...............................................................30

Chapter 3: Methodology .............................................31
Purpose of the Study ................................................31
Resources Used in the Study ......................................32
Description of the Sample/Measurement ..................32
Procedures for Data Collection and Analysis/Methodology ....32
Data Analysis: The Survey .........................................34
Resource Analysis ....................................................37

Chapter 4: The Project ...............................................42
Aligning Educational Music to State Standards in the Content Areas ......42
Kindergarten and first grade language arts song database ..........CD-rom
Summary .................................................................42
Conclusion ...............................................................43

Appendices .............................................................45
Appendix A: Educational Music Survey ...............................46
Appendix B: Survey Results ........................................46a
Appendix C: Music Resources Obtained from the Survey ..........47
Appendix D: Kindergarten English-language Arts Content Standards ...48
Appendix E: First Grade English-language Arts Content Standards ....52
Appendix F: Resources ................................................57

Bibliography ...........................................................59
Use of Song as a Memory Device
To Access and Recall Embedded Standards-Based Academic Content

Chapter 1: Introduction and Statement of Problem

Background/Context

My current teaching assignment is as a kindergarten/first grade severely handicapped transition class teacher at Ellerhorst Elementary School in Pinole, California, in the West Contra Costa Unified School District. Ellerhorst has three regular education kindergarten classes and three regular education first grade classes, providing some opportunity for mainstreaming my students. In addition, there are two other special education classes at Ellerhorst: one is a primary (grades 1-3) non-severely handicapped class; the other is grades 4-6 non-severely handicapped. The 2007-2008 academic year is my fifth year in the same position. Prior to that, I was an elementary music preparation teacher for five years.

While teaching classroom music to fourth, fifth, and sixth grade students in many elementary schools throughout this district, it became readily evident that there was little integration of the academic curricula. Although the district had adopted the state-approved Silver Burdett series of music textbooks, which is somewhat aligned with the social studies curriculum, there were no guidelines
for integrating the two. Additionally, due to the “failure” of many inner city schools to improve on the API (Academic Performance Index), or AYP (Adequate Yearly Progress)\(^1\), there was little or no time allotted for social studies itself in many schools due to district prescribed instructional minutes in language arts and math. Noting this, I developed cross-curricular connections, teaching the songs within the textbooks along with the social, historical and geographical settings in which the music had been created.

Not only were the students in my classes more engaged in the music when it was presented within the social/historical framework in which it was created, but it became clear that the students showed more interest and were better able to recall the related history as well. One inner-city sixth grade teacher used my music grade as the social studies grade on the student report cards since there was no time within his daily regimen (due to the aforementioned emphasis on language arts and math improvements) to teach social studies at all. I developed a world music unit in which the students were required to learn to read a world map and plot country locations by longitude and latitude, as each song was introduced. Inspired by the interests of my students in rap music, I developed a unit which followed the evolution of African American music from its West African folk roots through the slave trade to America, through the

\(^1\) California Department of Education, http://www.cde.ca.gov/ta/ac/
emancipation to modern day. In 2001, I was encouraged by our music
department to submit some of my lesson plans to the National Music
Foundation’s American Music Education Initiative (AMEI), and was awarded
two honorable mentions for use of American music in the classroom².

Due to budget cuts, music classes were reduced in 2003; an opportunity
was presented for me to change direction of my teaching career and redirect my
education toward the field of special education. Subsequently, I was assigned to
my current position as a special day class teacher for severely handicapped
kindergarten and first grade students.

The field of music has always been an integral part of my life, as a
professional pianist, accompanist, piano teacher and as a general music teacher
in our school district. As a result, it was only natural for me to integrate music
into my special education classroom. As I began teaching the Open Court
Reading program for kindergarten, and perceived need, I wrote songs to fill
those needs. Additionally, I have utilized existing educational music that fits
particular situations in the language arts program. As my studies in the field
progressed, and my students’ needs were regularly assessed through the IEP
(individualized education plan) process, it became clear that using a variety of
teaching methods to address different learning styles (modalities) was key to

student success in accessing and recalling core curriculum to the best of their abilities.

As a classroom general music teacher, I had long taught academic content through the use of song: states and capitals, the order of the Presidents, not to mention the social and historical events that are often reflected in the songs themselves. The study of language arts was frequently addressed through the poetry of song lyrics. The first year I taught special education, 2003-2004, I had a six-year-old boy in my class who was a remarkable singer. Within minutes of meeting, he asked if he could sing me a song. He asked me to count him in, and he sang Frankie Lyman’s “Why Do Fools Fall in Love?” complete with choreography. I couldn’t understand a word he was singing, but his pitch and soul were amazing. Immediately, I decided to use song as a vehicle for speech and language development with the class. The concept of embedding academic content at this level came a little later, after I became more aware of the memory deficits faced by many special education students.

**Problem Statement**

It is well documented that most learning disabled children have a variety of short and long-term memory difficulties (Gfeller, 1983; Jenkins, Randi, 2001). Many students have difficulty retaining information presented by traditional methods, requiring repeated presentation of the same material. Repetition is not
fun, leading to boredom, and students often lose interest. Most students love music. It has also been observed that songs are easily remembered by most, and students don’t mind repeating songs; therefore, it would seem logical that if academic information were imbedded into a song, it may be more easily recalled (Gfeller, 1983; Eady & Wilson, 2004).

Through a survey of my colleagues, and a wide-ranging review of currently available “educational” music, it has become apparent that there is no easily accessible, searchable reference book, database or website which would help teachers locate music that is appropriate for the lessons being taught. Even though the review of literature supports the use of music as a vehicle for content delivery, finding appropriate music can be a time-consuming and frustrating endeavor. The result, therefore, is that most classroom teachers do not use music in this way.

The purpose of this study, therefore, is to describe the potential effectiveness and impact of presenting academic information to learning disabled, as well as regular education children through song, primarily in the area of language arts; to demonstrate that the utilization of song as a sort of mnemonic device would help children recall embedded content by providing them with yet another means of access to the information (Gardner, 1983, 1993). The resultant project, a searchable database of educational music, will provide a
rich resource for classroom teachers, enabling them to more easily access educational music for use in the classroom.

**Scope (description) of the project**

This study has been guided and shaped by a review of existing literature on these related topics:

- learning disabilities and memory
- music as an aid to retention
- music as a paired-associates mediator
- theories of multiple intelligences
- enhancement of learning through music
- the influences of music on core learning
- studies of brain responses to music and language, and areas of overlap

A more thorough discussion follows in Chapter 2, the review of literature.

Through a review of a variety of existing educational music, I plan to align/coordinate selected songs with CDE content standards in the language arts. Transcriptions of the lyrics will be made available as possible (there may be copyright constraints).

This project involves the creation of a database of readily available educational music with embedded academic content, aligned with specific
California Department of Education (CDE) academic content standards in language arts for kindergarten and first grade.\(^3\) The end product of this project will be a database of songs which reinforce standards that are specifically evaluated on the benchmark assessments for kindergarten and first grade. The database will be organized by subject area, standard, keyword(s), song title, composer and publisher, with links to websites where the particular songs can be purchased. Although I have also written many original songs to address specific language art concepts, my own songs will not be included in the database as they are not commercially available.

**Research Questions**

1. Does the literature support the use of music as a medium through which to present academic content?

2. What is the current level of use of educational music as a presentation tool for concepts in the content areas?

3. Is music perceived by teachers as a valid method of presentation?

4. Would teachers use more music in the classroom to support and enhance their lessons if songs were aligned to standards that are required to be assessed?

\(^3\) California Department of Education, http://www.cde.ca.gov/be/st/ss/engmain.asp
5. Would an educational music reference database or website be a useful tool for general and special education classroom teachers?

Significance of the project

A goal of all teachers is to become better “assessors” of a student’s knowledge base and particular learning style. Through this project, it will be more possible to implement strategies that best suit the needs of those students who possess musical “intelligence”, or learning style (Gardner, 1983, 1993).

It is also hoped that this study will help teachers of so-called scripted curricula infuse creativity into what can be perceived as a constricted teaching environment. Even though the content is prescribed, as are the standards by grade level, presentation of the content can become intensely personal. This personal aspect should reflect the most effective instructional delivery style of the teacher, as well as the address the unique learning modalities of the students. In light of the fact that most general education teachers are not trained to teach music, the proposed database will be a tool to aid teachers in utilizing more music in the lessons they present.

Limitations

There are several limiting factors that will have an impact on this project. Due to time constraints, the quantity of readily available educational
music analyzed will be limited. Cost of purchasing music precludes wide-spread application or inclusion, unless grant or other funding can be obtained.

Additionally, through my initial review of related research it became clear that there are groups of students with whom this approach will obviously not work at all, or with whom it will be extremely difficult to assess its efficacy. One such group is hearing impaired children; another would be children with auditory processing difficulties. Children on the autism spectrum may be able to mimic or echo the song lyrics, due to the tendency of that group to have echolalia and perseveration issues, but recall and mimicry are two entirely separate entities. Recall implies the ability to retrieve the information at some point in time, hopefully with at least a modicum of understanding, and to generalize to other situations. Mimicry, on the other hand, is a simple repetition of the sound heard, with lack of understanding and inability to generalize.

Although this study was initiated with teachers of kindergarten and first grade students with speech and language delays in mind, the concept of utilizing songs with embedded academic content can be used by any general education teacher with an interest in infusing his/her language arts program with a more creative element.
Definition of Terms

**API (Academic Performance Index):** the cornerstone of California's Public Schools Accountability Act of 1999; the API measures the academic performance and growth of schools on a variety of academic measures.

**AYP (Adequate Yearly Progress):** a statewide accountability system mandated by the No Child Left Behind Act of 2001 which requires each state to ensure that all schools and districts make Adequate Yearly Progress.

**Agraphia:** the inability to write.

**Alexia:** the inability to read.

**Amusia:** a disturbance of musical expression or appreciation.

**Aphasia:** the loss of speech, whether receptive or expressive.

**Echolalia:** the repetition of vocalizations made by another person, typical of individuals with autism or Tourette’s syndrome.

**Educational music:** Song that has embedded academic content, such as language arts concepts, history, science, and math.

**Elementary music preparation teacher:** An itinerant credentialed specialty teacher who provides release time for elementary classroom teachers in grades 4-6 to do their own lesson preparations. In the West Contra Costa Unified School
District, elementary classroom teachers in grades 4-6 are given 100 minutes of preparation time per week by contract. There are 6 categories of “prep” teachers: general classroom music, physical education, science, computer, literacy/math and art.

**Individualized Education Plan (IEP):** a legal document that delineates special education services for special needs students. The IEP includes any modifications that are required.

**Integrated curriculum:** a holistic approach to education wherein subject areas intertwine; no subject is taught in a vacuum, but as part of a larger whole.

**Multiple Intelligences Theory:** as presented by Howard Gardner in 1983, human beings possess many different ways, or intelligences, through which information is best accessed, acquired, and/or expressed.

**Perseveration:** this refers to a set of repetitive behaviors displayed by an individual in any of the verbal, physical or gestural domains.

**Rap music:** an urban style of predominantly African-American music in which melody is limited or non-existent, and rhythm and rhyme is dominant. Text often relates to social issues and injustice.
Chapter 2: Review of Literature

Overview:

The intent and scope of this literature review is to examine existing research on the topic of utilizing music as a tool or strategy to help learning-disabled children more easily access and recall academic information in core curriculum. With the No Child Left Behind legislation in place, and the mandates of IDEA, it is clear that learning disabled children are to be included in the general education classroom, and are to be provided modified curriculum so that the core curriculum may be accessed. It has been determined that learning disabled children have a variety of short and long-term memory deficits or impairments, and that memory impairments, whether visual, auditory, or both, are associated with diminished semantic processing (Ceci, Ringstrom, Lea, 1981). It has also been observed in my work as a music teacher that songs are easily remembered by most; therefore, it would seem logical that if academic information were imbedded into a song, the song may well become a tool for recall.

The review which follows is organized as follows:

- How children learn, and express what they have learned (p. 13)
- Use of music in the core curriculum (p. 14)
- Music as intervention (p. 16)
• Memory deficits or processing difficulties? (p. 19)
• Music, memory and the brain (p. 20)
• Amusia, aphasia, and interconnectedness (p. 22)
• Brain exercises, increased memory function and intelligence (p. 24)
• Inferences (p. 25)
• In practice (p. 25)
• Observations (p. 27)
• Questions for further study (p. 28)
• Summary (p. 28)
• Conclusion (p. 30)

How children learn, and express what they have learned

Howard Gardner (1983, 1993) identifies musical intelligence as one of his theorized seven basic intelligences. The others are language, logical-mathematical analysis, visual-spatial, kinesthetic (use of the body), an interpersonal understanding of others, and an intrapersonal understanding of self. All of the arts - visual, theatrical, dance, music – heighten the ability of children to learn through the senses and consider multiple perspectives. There can be multitudes of ways to solve problems and find answers. A research project in Philadelphia in 1992 presented convincing evidence that the arts enrichment program that was provided to at-risk inner-city children significantly
increased a wide range of learning skills as compared to a matched control group (Berry, 1998). It was indicated that the arts in general provided more opportunities for engagement in learning than other, more traditional early childhood programs.

According to Gallas (1994, 116, 118), the arts in general perform three interrelated functions:

1. As a methodology for acquiring knowledge.
2. As a subject matter for study.
3. As an array of expressive opportunities for communicating with others.

It is the first of those functions which is most applicable to this review. Children may not have the verbal ability to express their metaphoric transformations through acquired knowledge, but by providing them with a variety of means of expression – talking, painting, dancing, writing, building, etc. – their transformations may be made clear to the adult assessing the learning that has occurred.

**Use of Music in Core Curriculum**

Studies show that the use of music to enhance lessons in core curriculum is effective as a motivator and enhances academic achievement (Eady, Wilson, 2004, 243). In and of itself, music played simply as background ambient ‘noise’ does not enhance achievement, but tends to increase time on task and
motivation. Reading skills can be taught utilizing the poetry of song lyrics. In another study cited (Eady, Wilson, 2004, 244), two different classes received social studies/science instruction, one group with music integrated throughout, and the other without. The achievement level of the integrated group was superior in all three subject areas: social studies, science and music. Attitude toward subject matter also improved when popular music was used to reinforce the subject studied.

Children and adults alike are better able to remember facts, time, people and settings from just a few bars of a song. Music, with its rhythm and melody, creates a motivating stimulus and aids recall (Diefenbacher, 1999, 32-33). Open Court Reading (OCR) is our district’s prescribed language arts program. Many concepts are presented through songs. The melodies used by OCR are familiar melodies with new lyrics: the tune of “B-I-N-G-O” for the vowels, for example, “A-E-I-O-U”. Writing new lyrics to fit a well-known melody links to prior knowledge and cuts down on the learning curve (Gfeller, 1983; Diefenbacher, 1999). There is a great deal of educational music commercially available, such as the venerated Schoolhouse Rock series. Presentation in a video format also taps into the visual learner modality (Ceci, 1981; Gardner, 1983, 1993).

The primary opposition to the use of music as a vehicle to access core academic content seems to come from music educators. The basic tenets of the
theory of multiple intelligences as applied to education is that an intelligence can be both the content of instruction and the means to communicate that intent. With regard to the common practice of using rhythms and/or simple songs as tools for enhancing memory, it is stressed that in order for the concept being taught to be truly understood, it must be transferred back to the subject area from which it came. The argument is that in spite of the appearance of engagement and success, there is really no learning in the subject area, or in the area of music. From the perspective of a music educator, using music to teach academic content trivializes the teaching of music, compromises its integrity, and makes superficial connections between subjects (Kassell, 1998).

**Music as Intervention**

In order to make a correlation between memory and music, part of this literature review included a search for articles strictly related to song recall. One such study on song recognition by preschool children “offers evidence to suggest that listening to songs repeatedly over an extended period of time contributes to integration in long term memory of words and music among preschool children” (Feierabend, Saunders, Getnick, Holahan, 1998). The children listened to short melodies 15 times over a 4-week period, presented with words, without words, and with a neutral syllable. They were simultaneously presented with a visual image that represented each melody. It was determined that the song recall was
largely dependent upon the text; the children were less able to recall the melodies without the text than they were the text without the melodies.

The research of Staples (1968), Myers (1979), and Shehan (1981), all focused on the effects of music on retention in paired-associate tasks; the first two focused on mentally retarded children, while the latter focused on children with learning disabilities. Although the Myers study didn’t find any statistically significant differences between the modes of presentation, the other two researchers did find significant differences. Shehan’s results would indicate that greater success is achieved in short-term memory enhancement when music is paired with visual or verbal/visual mediators. The Staples study results showed greater memory enhancement was achieved through the use of iso-rhythmic mediators (repeated rhythmic pattern on a single pitch); the subjects had significantly (statistically) greater success with recalling paired-associates presented within the iso-rhythmic framework than they did with either melodic or aural presentation. This would indicate the power of chant and rap music when used to facilitate memory, as rap music relies more heavily on rhythm than melody.

There is also evidence indicating that information acquired through musical intervention transfers across the curriculum and into other areas, both academic and social (Campabello et al, 2002). Academic facts were set to music;
pre- and post-tests indicated overall positive growth in retention of facts presented in a musical setting. They also noted that children with learning difficulties in the study required more repetition, or the addition of kinesthetic involvement to help with recall during the post-testing.

Not all academic tasks lend themselves to musical rehearsal, however. Factual information, such as state capitals, multiplication tables, or procedural steps readily lends itself to musical presentation. Using music as a mnemonic device can be used as a self-monitoring statement for the student (reminding themselves of proper steps to take). It is also recommended that instructors should integrate the strategy of “chunking” information. These strategies will only be effective if the student receives adequate guidance in their use, remembers how to apply them, and remembers to use them when needed. If academic content is set to familiar melodies, the students have less to process and learn. Visual aids also work in tandem with mnemonic devices. Results indicated that the highest rates of retention were obtained by those methods of presentation which utilized music in conjunction with another mode, e.g. visual or verbal (Shehan, 1981). The strategy itself must be practiced. According to Gfeller (1986), “the mnemonic aid is a tool toward a larger goal, not an end in and of itself.” It was noted that both learning disabled students and non-
learning disabled students had greater success with repetition (practice) of the material, along with modeling and cueing.

**Memory deficits or processing difficulties?**

In spite of the fact that some disabilities are auditory in nature while others are visual in nature, standardized assessment tools do not differentiate among various types of learning disabilities. Some children are afflicted with both auditory and visual memory impairments. Semantic processing, the ability to infer meaning upon an object and be able to “chunk” together related items, is dependent upon which modality is impaired and the presentation of the material. If a child has an auditory processing impairment, and the information is presented via auditory means, that child will not be successful in semantic processing. Similarly, a child with visual memory impairment will not be successful if information is presented visually. Conversely, if information is presented visually to a child with auditory processing difficulties, he will be more successful in semantic processing, just as will a child with a visual processing impairment be more successful if information is acquired auditorily (Ceci et al, 1981).
Music, Memory and the Brain

The subject of music and memory is very complex, and involves different parts of the brain. In addition, there are different types of memory that can be triggered by music and others that must be tapped in order to create music. As a pianist, I had become fundamentally aware of three active types of memory required for me to perform any piece of music: auditory, tactile and visual. It was necessary to recall what the piece sounded like (auditory); my fingers had to “remember” the physical moves required, both in the present moment and in anticipation of what was to come; and I could “see” in my mind’s eye what the music looked like on the page. If any part of those three was lost, the continuity, the momentum that carried the piece to its conclusion, would also be lost. If I allowed my mind to wander ahead in the music, or be distracted by the audience instead of staying in the present, the thread would be broken, and I would lose my place. If I performed while reading from a different edition of the music, the visual image might be different enough that my eyes simply did not know where to look. It became an organic whole.

From the standpoint of day-to-day life, there are other forms of memory involved: autobiographical, episodic, semantic, and procedural.

Autobiographical is as it implies: personal consciousness and identity. Episodic refers to a conscious memory of events. Semantic is the accumulation of general
knowledge, and the ability to form new connections. Procedural memory, the unconscious memory of how to do things, relies on a learned sequence or pattern of actions (tactile, in my prior frame of reference). There are documented cases of amnesia victims who had been professional musicians; in spite of losing their entire life’s autobiographical, episodic and semantic memories, procedural memory was unimpaired (Sacks, 2007). Procedural memory, also called implicit memory, appears to involve more primitive parts of the brain, such as the cerebellum. Even if there is major damage to the hippocampus and cerebral cortex, procedural memory can remain intact.

Procedural memory is reinforced by repetition and rehearsal, as well as a reliable sequence of events. When a musician repeatedly practices a piece of music, the act itself becomes ingrained in procedural memory, with the momentum of the piece carrying the execution of its performance toward its conclusion. A note studied in isolation means nothing and has no momentum; it is the context, both rhythmic and melodic, that carries it forward, connecting it in sequence to that which follows. As Sacks so eloquently stated, “Listening to music is not a passive process but intensely active, involving a stream of inferences, hypotheses, expectations, and anticipations.” (Sacks, 2007)
Amusia, aphasia, and interconnectedness

Aphasia is defined as the loss of speech, whether receptive or expressive; amusia is a disturbance of musical expression or appreciation. The symptoms of amusia include difficulty recognizing sounds as musical, loss of rhythmic sense, and hearing music and voices as a monotone. Receptive aphasia, the inability to understand speech, appears to be as a result of damage to the left temporal lobe of the brain; expressive language loss is more commonly thought to be a left frontal lobe injury (Sacks, 2007). Amusia and aphasia often appear together, although it is possible for each to occur in absence of the other. Right brain hemisphere injuries, or lesions, appear to affect pitch and timbre recognition, whereas left hemisphere injuries or lesions affect speech and rhythm recognition (Andrade & Bhattacharya, 2003). In addition, alexia, the inability to read, and agraphia, the inability to write, may appear in various combinations with aphasia and amusia. Examples include a singer who could only recognize melodies of familiar songs if the lyrics were included; a pianist who had slight aphasia but could read, compose, and perform music accurately; individuals who could write, but not read music; and a composer who could not write in script or speak, but who could read and write music.

There is also evidence that music can “unlock” speech for individuals affected with aphasia, the loss of expressive or receptive speech, usually as a
result of stroke or brain injury (Sacks, 2007). It appears that the production of words within the context of the song relies upon the sequence of the words, much as the procedural memory is relied upon to perform a piece of music. Music therapy can succeed at times in restoring speech when conventional speech therapy fails. This is presumed to be dependent upon the so-called “mirror neurons”, which enable a person to imitate the actions of others.

Language is primarily a left brain hemisphere function, but with melodic intonation therapy (MIT), wherein patients sing or intone words and phrases, the right hemisphere is stimulated into “taking over” linguistic functions and speech can be retrieved (Sacks, 2007).

Through modern imaging techniques, such as the electroencephalogram (EEG) and positron emission tomography (PET), it has become possible to determine which parts of the brain are activated by exposure to music. In general, it would appear that the right hemisphere of the brain is the area in which perception and short-term retention of tonal patterns occurs; it is in the left hemisphere that specialization for rhythm and identification and recognition of melodies occurs. It has also been documented through PET that while ‘favorite’ music is being listened to, areas of the brain associated with reward and pleasure show activity (Andrade & Bhattacharya, 2003). Neuroimaging research indicates that the language areas of the brain are stimulated by the processing of musical
syntax and harmonic processing, although neuropsychological studies suggest
dissociation between the two (Patel, 2003, p. 675, 679). This would indicate that
more research is necessary, with emphasis on integration, rather than isolation,
of the domains, in order to ascertain areas of overlapping brain functions.

**Brain exercises, increased memory function and intelligence**

When one exercises one’s brain, whether through “brain games” or the
study of music, or simply learning new things, the brain’s neuronal network is
enhanced and becomes more complex. Through a variety of brain exercises, the
memory can be improved, thereby increasing basic intelligence. An improved
memory allows for quicker retrieval of information, with the associated
improvement of connections between seemingly unrelated pieces of information.
The use of memory systems such as mnemonic devices and “chunking”
information together are viable means by which to enhance memory functions
(Restak, 2001).

Various studies have shown a connection between listening to music and
improved performance on tests, strengthening thinking and reasoning. In
addition, recent brain research indicates that musical training stimulates and
enhances brain circuitry. Through PET imaging, it has been discovered that the
cerebellum of musicians is larger than that of nonmusicians. The cerebellum
maintains balance and fine motor control, and is intimately linked to the parts of
the cerebrum dedicated to thinking skills. It stands to reason, therefore, that learning to play an instrument would increase small motor control, create increasingly complex circuits within the cerebellum, ergo higher thinking processes within the cerebrum (Restak, 2001).

**Inferences**

Music has been shown to motivate students, encourage more time on task, increase academic achievement, improve attitudes toward subject matter, and enhance recall. Through brain research, there is clear evidence that music and language receptive areas of the brain overlap to a degree, and that music therapy may succeed in restoring speech where other forms of speech therapy have failed. The use of mnemonic devices, such as music has been shown to improve memory, and improved memory increases basic intelligence (Restak, 2001). Based on research which supports the use of music across the curriculum for general, non-learning disabled students, it is logical to infer that learning disabled students would also benefit from the use of music across the curriculum.

**In practice**

I had been using familiar songs in my class to teach some concepts; for example, the days of the week song (to the tune of “Clementine”), and the ABC
song (“Twinkle, Twinkle”), but many of the kindergarten and first grade concepts had no pertinent songs of which I was aware. I began to write songs for my students to help them access the core curriculum, and the songs have been successful in their intent; students have been heard singing the songs when asked to recall information, such as months of the year. I have also used pre-recorded educational music on a regular basis. My students generally love music, are more engaged, and do use songs as tools to recall information. One student sang through his test on letter sounds, using a song we had been practicing all year, getting all of them correct.

All of my students have speech and language impairments and are not always able to say all of the words; however, they are able to make their requests for specific songs very clear. If interest in a song has waned, it’s time to try something different. If a particular presentation of material is difficult for a student to grasp, it is important to re-teach, using a different modality, or “intelligence” (Gardner, 1983).

In my classroom, I teach to all of the senses, and feel that method is validated by both Shehan’s and Staples’ research (as well as supported by Gardner’s theory of multiple intelligences and Ceci’s work on memory impairments). One example is that I have the Open Court alphabet cards below the whiteboard with ASL signs for each letter prominently displayed with it
(visual). When I teach a letter, I have the children sing up to it with the ABC song (musical intelligence), trace the letter in the air (kinesthetic), say the phoneme associated with the letter (auditory) and make the ASL hand sign (kinesthetic).

**Observations**

I would agree with Kassell’s contention that in order for the academic concept being taught to be truly understood, there must be evidence that the information has been transferred back to the subject area from which it came. If the mnemonic aid becomes a tool toward a larger goal, not an end in and of itself, then the technique has been successfully implemented (Gfeller, 1986). Among the students currently in my class, I can say without a doubt that there are students with auditory processing difficulties (the autistic children come immediately to mind), and visual processing impairments (one student with amazing recall of story details cannot tell the difference between a curved line and a straight line, and always holds books upside down). It is imperative that the methodologies utilized to teach them (and to assess them) be aligned with their areas of strength, not impairment.
Questions for further study

If, as research seems to confirm, the use of music as a vehicle for delivery of content works, albeit not for everyone, then the question remains: why isn’t music more widely used in the elementary classrooms as a means of content delivery? Do general education classroom teachers have the training to integrate and utilize various art forms in the classroom setting? Are resources and training available to them?

The Ceci research raised other questions that are compelling. If music is an important part of my classroom methodology but only reaches students who are auditory learners, should it be combined with other methods of presenting information, such as movement and/or visual aids? I believe Gardner’s theory sets the groundwork for utilizing whatever methodologies work with individual students, and merits further consideration for application within the classroom, both general education and special education.

Summary

Greater success is achieved in short-term memory enhancement when music is paired with visual or verbal/visual mediators (Shehan, 1981). There appears to be a stronger correlation between rhythm and recall than melody and recall, supporting the use of chant and rap music as a vehicle for presentation of material (Staples, 1968). Behaviorally, children appear to be more engaged when
information is presented with music, implying that music helps maintain attention and focus. When used together with training on retention techniques, music can vary and enhance the learning experiences of educationally mentally retarded (EMR) children.

Research affirms that music can be a useful tool to aid special education children, both lower intellectual functioning and learning disabled, recall academic facts more easily and become more engaged in lessons. The evidence provided by Gfeller (1983) lends credence to the importance of modeling and cuing in addition to repetition of the material. The concepts of “chunking” information and setting new information to familiar melodies reduce the learning curve and time spent learning the songs as well.

Although a lifelong music educator myself, I would tend to disagree with the assertion that imbedding academic content into music, utilizing familiar tunes, destroys the integrity and intent of the music itself (Kassell, 1998). Although Kassell is opposed to the practice of setting academic content to rhythms and tunes, the point being made by educators who do so has been misconstrued. Those educators are not teaching music as the subject at hand. They are not attempting to trivialize music, or deny that music deserves to be taught as a subject itself, but are using music as a tool and a strategy to help students
gain access to curriculum and recall content. It is an admirable endeavor, one in which I believe wholeheartedly.

**Conclusion**

I believe it is clear that the arts are critically necessary to a well-rounded, comprehensive curriculum. Music is uniquely human; the presence of music in human lives is universal (Diefenbacher, 1999). Every culture in the world produces music, and music has many purposes. From the story-telling traditions of western Africa to European grand opera, from American commercials/TV music to urban plight told via rap and hip-hop, there are many common threads. We grow up with music that specifically identifies and defines our generation, and it becomes a part of us.

As Gardner’s theory of multiple intelligences (1983) has so aptly shown, information should be presented in as many ways as is possible in order to facilitate access in whatever way a child is most able. The arts were recognized as core subjects in the Goals 2000 legislation (1994), with voluntary national standards written. Jane Alexander, former head of the National Endowment for the Arts, summarized, “When we teach a child to sing, or play an instrument, we teach her to listen. When we teach a child to draw, we teach her to see. When we teach a child to dance, we teach him about space. When we teach a child design, we teach the geometry of the world. When we teach children about the
folk and traditional arts and great masterpieces, we teach them to celebrate their roots and find their place in history.” (Berry, 1998). It is up to us, the teachers, to expand our repertoires of techniques, tools, and strategies beyond the typical linguistic and logical methods that are predominantly used in classrooms, so that all modalities and intelligences are enabled.

Chapter 3: Methodology

Purpose of the Study

It has been documented that most learning disabled children have a variety of short and long-term memory difficulties (Gfeller, 1983; Jenkins, Randi, 2001). Many students have difficulty retaining information presented by traditional methods, requiring repeated presentation of the same material. Most students love music; it has also been observed that songs are easily remembered by most, and students don’t mind repeating songs; therefore, it would seem logical that if academic information were imbedded into a song, it may be more easily recalled (Gfeller, 1983; Eady & Wilson, 2004).

Through a survey of my colleagues, and a wide-ranging review of currently available “educational” music, it has become apparent that there is no easily accessible, searchable reference book or website which would help teachers locate music that is appropriate for the lessons being taught. Even though the review of literature supports the use of music as a vehicle for content
delivery, finding appropriate music can be a time-consuming and frustrating endeavor. The result, therefore, is that most classroom teachers do not use music in this way.

The purpose of this study, therefore, is to create a searchable database of educational music, providing a rich resource for classroom teachers, enabling them to more easily access educational music for use in the classroom that is appropriate and pertinent to the lessons being taught.

**Resources Used in Study**

Funding for the purchase of music used in this project came from personal sources. There were no grants obtained.

**Description of the Sample/Measurement**

The curriculum inquiry survey to determine the potential need for a standards-based educational music resource database was distributed to my colleagues at a K-6 elementary school (Appendix A). The results of the survey were tabulated in a spreadsheet (Appendix B); a description of the survey and analysis of the results follows.

**Procedures for Data Collection and Analysis/Methodology**

The steps undertaken for this project were as follows:
1) A brief survey was designed and distributed to teachers at my school, a K-6 elementary school (Appendix A, **Educational Music Survey**). This survey was performed in order to ascertain and evaluate current usage of educational music in the classroom, as well as collect resources for educational music. The school has approximately 20 teachers, of whom 10 responded to the survey. Results were tabulated in a spreadsheet (see Appendix B, **Survey Results**). Discussion follows under **Data Analysis; Survey**, p. 34.

2) Music resources were evaluated for subject area and possible grade level relevance under **Resource analysis**, p. 37).

3) Music was obtained where possible (see Appendix C, **Music resources obtained from the surveys**).

4) California state standards for Kindergarten and first grade language arts were obtained from the California State Board of Education website: http://www.cde.ca.gov/be/st/ss/engmain.asp (see Appendices D and E, **Kindergarten and First Grade Language Arts Standards**).

5) A spreadsheet of California state content standards for kindergarten and first grade language arts was designed (on CD).

6) Individual songs were and lyrics evaluated for subject area content and inserted into the spreadsheet where appropriate.
7) A database organized by grade level and content standard was created.

Data Analysis

The Survey

The survey was designed as an anonymous instrument, and addressed the following points:

- Whether or not the survey respondents use educational music in their classrooms.
- The subject area(s) in which music is currently in use.
- Deemed effectiveness of the use of music as a presentation tool.
- The factors that contribute to the effectiveness of music as a presentation tool.
- Assessment of need for more training and/or resources for use of music in the classroom.
- As a means by which to collect music currently in use.

Most of the respondents (70%) indicated that they use music in their classrooms; two said “little” or “very little” and one said “rarely”. One person stated that he/she uses music “for holidays” but doesn’t have time to use on a regular basis.
The subject area in which music is most frequently employed is by far language arts (80%), followed by math (60%), social studies (60%) and science (30%). Nearly everyone stated that they consider use of music an effective means of content presentation; one said that he/she felt the use of music could be an “excuse”, for what was not explained. One special education teacher stated that she felt use of song encouraged language and communication. With regard to whether utilizing music will help some students access material better, nearly every one said yes; one person said “sometimes”.

The factors that contribute to the effectiveness of music as a presentation tool were listed as:

- Memory: easier to remember words in a song, also math facts (80%).
- Able to rehearse on short notice, with repetition enhancing recall (20%).
- Increased interest (40%).
- Students learn faster (20%).
- More fun for students (10%).
- Other modalities addressed, e.g. auditory learners (20%).

(The percentages following each factor indicate the survey responses.) One teacher wrote:

“I feel that some students learn more effectively when there is a repetition and/or pattern to the content being presented. Music is also a more creative expression that some students can naturally adhere to causing
their attention to increase and their retention of concepts to be more easily accessed.”

In response to the question of whether or not the teachers would use more music if there were more training and/or resources available, 90% of respondents said yes, but with caveats: one said “yes, if I had more time”, another said “yes, we need a grade level music program with CDs, music books, etc.” Only one person said no, and that was because there is just not enough time in the instructional day. Interestingly enough, our district has a music program for grades 4-6 through which there are state-approved grade level music books with companion CDs available, but our school opted out of the classroom music program. Several individuals took the time to list music that they currently use, which became the list of resources analyzed for this inquiry.

In general, I found that while there is little music being used to enhance lessons in the content areas, all teachers felt that this method of delivery could provide a more interesting and memorable way to present subject area content. The consensus seems to be that teachers would use more music in their classrooms if more resources were available to them. It would also appear that most teachers are a bit uncomfortable teaching music as a subject, and therefore shy away from using academic music unless it is already part of a scripted program, such as Open Court.
Resource analysis

1. Music K-8 Magazine, www.musick8.com, Plank Road Publishing. Music K-8 Magazine is a bimonthly (approximately) publication specifically for music teachers. There are five issues per year, with an average of 8 songs per issue. A companion CD is available for each issue. The website has a search function by holiday or subject category. There is no listing by content standard. Cost is $124.70 per year for magazine, student parts and CDs.

2. Hap Palmer: One Little Sound, Two Little Sounds

http://www.happalmer.com/onelittlesound.htm. These are wonderful examples of educational music, teaching concepts such as rhyming, phonemic awareness, alphabetic principles, math and sequential operations. The music is catchy and easy to learn. An excerpt from the website follows:

“Here’s a fun musical way for children to learn about reading, writing, and mathematics. Phonics and numbers are presented in a meaningful context of colorful rhymes and stories. Through hand and finger motions, full body movement, and opportunities for verbal expression, children are fully engaged in the learning process.

The songs focus on the relationship between letter symbols (the alphabet) and sounds of the English language (phonemes). The songs also encourage children to search for relationships, order and predictability as they work with numbers...Included with each CD is a teaching guide that describes ways to actively involve children with each song.

This CD can be downloaded in an MP3 format from various online retailers, such as www.cdbaby, or www.cdFreedom.com.
3. Little Ears: Songs for Reading Readiness (Fran Avni); I’m All Ears: Sing into Reading (Fran Avni), http://www.songsforteaching.com/store/Little‐Ears‐27‐Songs‐for‐Reading‐Readiness‐CD‐p‐544.html, http://www.songsforteaching.com/store/Im‐All‐Ears‐Sing‐Into‐Reading‐CD‐p‐543.html. Concepts presented within the songs are listed on the CD insert; I found that the songs were a little complex and more difficult to learn than the Hap Palmer songs. Both of these disks are part of the Leapfrog Schoolhouse materials. To quote from the CD case information:

“This song sequence is based on the work of Dr. Orna Lenchner, reading specialist, author, educator, and creator of The Sounds Abound program (LinguiSystems), video, and games. Dr. Lenchner has acted as advisor to this project.”

4. Illumination (for Peak Performance, Hemi‐Sync). J.S. Epperson, http://www.toolsforwellness.com/21401.html. This instrumental CD is designed to encourage concentration and focus. The website contains the following information regarding this CD:

“Develop a coherent and highly focused whole‐brain state with Illumination For Peak‐Performance and soar through any task requiring mental focus and concentration. This joyful composition may be helpful for ADD/ADHD, dyslexia and other learning challenges.”

5. We Sign Patriotic Songs (DVD),

http://www.wesign.com/ProductsPatriotic.htm. The intent of this DVD is
to teach the patriotic songs and the ASL of each song. The DVD information online is as follows:

“We Sign Patriotic Songs is a collection of classic American patriotic songs. Each song features an instructor track where you learn to sign each word using American Sign Language (ASL) before you sing and sign-along.”

6. **Music from reading and social studies books (5th grade).** I was unable to obtain further information, but assume the survey respondent was referring to standardized curriculum currently in use in our school. Our district uses Open Court Reading and McGraw-Hill Social Studies series.

7. **50 Thematic Songs Sung to Your Favorite Tunes (grades prek-2), by Meish Goldish.** Scholastic: [www.scholastic.com](http://www.scholastic.com). This is a book of songs set to familiar tunes, with emphasis on social and pre-academic skills that might be taught during circle time. The table of contents reveals songs in the following categories: Heroes, Holidays & Happy Days; Me, My Friends & I; Basic Skill Builders (ABC’s, numbers, colors, shapes, etc.); Animals; and All Around the Neighborhood). While it has been shown by various studies that having an already-familiar tune set with new lyrics cuts down on the time spent learning the songs (Gfeller, 1983; Diefenbacher, 1999), it would seem to me that a companion CD would
help greatly. If the teacher was not comfortable teaching music, using this
book might prove problematic.

8. Twin Sisters Productions, Insects & Spiders, www.twinsisters.com, 1-800-248-8946. This website has an amazing quantity of educational music, including music for speech development.

9. Kids Celebrate America, 1-877-777-7523. A search of this title supplied by one of the survey respondents returned nearly 400,000 ‘hits’. I assume that it is a CD of patriotic music by various artists.

10. Ron Brown "Math Music", "Intelli-tunes", www.intelli-tunes.com, 1-877-977-0571. This site has a wide variety of subject area and concept music, including movement. Many of the CDs are downloadable in MP3 format for around $15. The samples I listened to were a little on the “country music” side. The following excerpt was taken from the website:

Why Use Music to Teach Children?

Music is a universal language central to every culture of the world. It has been used to entertain, communicate, educate, inspire, and instill a sense of social and communal understanding. Rhyme, rhythm, song and movement have historically been used as powerful teaching tools that have infused the values, mores and customs of cultures and societies. Research evidence now suggests that the musical arts are central to the cognitive process and dramatically impact the functions and systems responsible for all learning…
Music reduces mental fatigue, calms tension, focuses thinking and greatly impacts creativity and sensitivity. Normal brain wave function generally falls into the category of BETA. Music can evoke the more relaxed ALPHA and THETA brain wave states which are more conducive to memory and enhanced creativity. Specific selections of music can therefore be utilized to set the tone for discovery and learning in the classroom. Educators are now beginning to understand the vast implications of music as a powerful teaching tool!

Learning through music is extremely effective because it is completely brain compatible. It stimulates and unifies cognitive function and automatically touches three of the four modalities through which the brain processes information. Music is auditory, kinesthetic/tactile (movement), and tactual (elicits emotion). When song lyrics are made available in the printed form, music also taps the visual modality. Music provides meaning and relevance to the learning process through its inherent emotion and patterning. Songs, poems, rhymes, and raps can thus become incredibly effective vehicles for long term and cumulative learning.

Consider this! More than 80% of all the information processed by the brain comes in through our ears. Our daily lives are naturally filled with rhymes, rhythms and mnemonics. We commonly access specific stored information with mental strategies such as: Thirty days hath September... Red sky in the morning...and ROY G. BIV (colors of the rainbow). These techniques can therefore be invaluable resources for remembering and recalling information.

11. Open Court Reading Sound/Letter songs CD. The songs included in the Open Court Reading program are often formulaic (e.g. the use of the tune “B-I-N-G-O” for the vowel song “A-E-I-O-U”) and/or traditional, such as “Bluebird, Bluebird.” They are not aligned with standards.

12. New science curriculum (Scott Foresman) CDs. I was unable to obtain these.
Chapter 4: The Project

Aligning Educational Music To State Standards in the Content Areas

Based on the review of literature in support of using music as a vehicle for curricular content delivery, and results of the curriculum inquiry, I have decided to undertake a curriculum design project. This project is an effort to create a database of educational music which is aligned with state standards in Kindergarten and first grade language arts. In reviewing the resources gleaned from the survey, and from searching online for educational music, I have learned that there is an amazing quantity of music available. Content areas are often mixed on a single CD; any analysis of lyrics for content must be done on a song-by-song basis. The steps involved in this process have been:

1. Collect music (through the teacher survey and my own online research).
2. Analyze lyrics of individual songs and align with Kindergarten and first grade language arts standards.
3. Create a database of songs by subject area, grade level, and content standards (see Microsoft Excel spreadsheets “Kindergarten/First Grade Language Arts Curriculum Project on accompanying CD-rom).

Summary

This project was undertaken to address a need observed in public elementary schools today, more noticeable since the recent rounds of budget cuts
and especially in schools that have failed to meet annual gains on standardized testing. So-called “underperforming schools” have increased instructional minutes per day in the core areas of language arts and math (as these are most visible in the accountability reports), at the expense of the arts.

One of the first subject areas to be cut in times of fiscal downturns is music. Not only do our elementary schools not have music teachers anymore, most elementary school teachers are not trained to teach music and are therefore reluctant to use music as a means of instruction in their classes. As a former classroom music teacher, I am aware that the content of many subject areas can be taught successfully through song. It has become clear to me that general education classroom teachers do not use the resources available to them for a number of reasons: lack of information, training and relativity of the songs to the standards they are required to teach. This database, although limited in the quantity of music analyzed, is an effort to address that need, and shows potential for further expansion.

**Conclusion**

From this inquiry and curriculum project, I have come to the conclusion that a database of educational music tied to content standards would be a very useful tool for teachers to have, enabling them to easily access music that is already aligned with the lessons (by standard) that are being taught. It is my
hope that this database can be expanded in the future to include all grade levels and subject areas.

While this type of database would be a valuable resource for the implementation of more educational music in the classroom, its availability and exposure are limited in the current format. The widest possible audience could be reached if the database were in the form of a centralized reference website linking readily available educational music from a variety of publishers by content standard. In searching online for such a reference database or website, I have not found one. This type of website would be a useful addition to the resource page on the California Department of Education’s website as well.

‘Music is a moral law- it gives wings to the mind, a soul to the universe, flight to the imagination, a charm to sadness, a life to everything.’

- Plato
APPENDICES
EDUCATIONAL MUSIC SURVEY

The purpose of this survey is to collect information regarding your current use of educational music in your classroom. Research has shown that children have many different types of learning styles; the most well-known theorist is Howard Gardner, with his theory of multiple intelligences. Answer as completely as you have time for; all input is appreciated and useful towards my culminating project.

**Definition:** Educational music is song that has embedded academic content, such as language arts concepts, history, science, etc.

1) What grade level do you currently teach? ________________________________

2) Do you use educational music in your teaching? __________________________

3) In which subject areas do you use educational music? (check all that apply)
   - Language Arts __________
   - Math __________
   - Social Studies __________
   - Science __________

4) Do you consider the use of educational music an effective means of content presentation? ___________________________________________________________

5) Do you feel having another tool (song) will help some students access material better? ___________________________________________________________

6) If so, why (e.g. more interesting, as a memory tool)? ______________________

7) Would you use more music in your classroom if there were more training/resources available? _____________________________________________

Please list some/all of the music you currently use in your classroom (song titles/collections/singers/composers) to support the lessons presented. Please use the back of this sheet. You can also email your list to me, if preferred, at p_ogura@sbcglobal.net. Thank you for your time.
APPENDIX C

Music resources obtained from the survey

The following list is comprised of music currently being used in various classrooms at my school. Titles were provided by survey respondents; websites and phone numbers were compiled by means of an online search engine (Google).

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Little Ears: Songs for Reading Readiness (Fran Avni); I'm All Ears: Sing into Reading (Fran Avni)</td>
</tr>
<tr>
<td>5</td>
<td>We Sign Patriotic Songs (DVD), <a href="http://www.wesign.com/ProductsPatriotic.htm">http://www.wesign.com/ProductsPatriotic.htm</a></td>
</tr>
<tr>
<td>6</td>
<td>Music from reading and social studies books (5th grade)</td>
</tr>
<tr>
<td>7</td>
<td>50 Thematic Songs Sung to Your Favorite Tunes, Scholastic</td>
</tr>
<tr>
<td>8</td>
<td>Twin Sisters Productions, Insects &amp; Spiders <a href="http://www.twinsisters.com">www.twinsisters.com</a>, 1-800-248-8946</td>
</tr>
<tr>
<td>9</td>
<td>Kids Celebrate America, 1-877-777-7523</td>
</tr>
<tr>
<td>11</td>
<td>Open Court Reading Sound/Letter songs CD</td>
</tr>
<tr>
<td>12</td>
<td>New science curriculum CDs</td>
</tr>
</tbody>
</table>

After a review of the above-listed music selections/websites an overview and analysis of each resource was performed where possible.
APPENDIX D

Kindergarten
English-language Arts Content Standards.
Taken from: http://www.cde.ca.gov/be/st/ss/engkindergarten.asp
Last modified: Wednesday, October 24, 2007

Reading

1.0 Word Analysis, Fluency, and Systematic Vocabulary Development

Students know about letters, words, and sounds. They apply this knowledge to read simple sentences.

Concepts About Print
1.1 Identify the front cover, back cover, and title page of a book.
1.2 Follow words from left to right and from top to bottom on the printed page.
1.3 Understand that printed materials provide information.
1.4 Recognize that sentences in print are made up of separate words.
1.5 Distinguish letters from words.
1.6 Recognize and name all uppercase and lowercase letters of the alphabet.

Phonemic Awareness
1.7 Track (move sequentially from sound to sound) and represent the number, sameness/difference, and order of two and three isolated phonemes (e.g., /fl/, /sl/, /thl/, /lj/, /ld/, /lj/).
1.8 Track (move sequentially from sound to sound) and represent changes in simple syllables and words with two and three sounds as one sound is added, substituted, omitted, shifted, or repeated (e.g., vowel-consonant, consonant-vowel, or consonant-vowel-consonant).
1.9 Blend vowel-consonant sounds orally to make words or syllables.
1.10 Identify and produce rhyming words in response to an oral prompt.
1.11 Distinguish orally stated one-syllable words and separate into beginning or ending sounds.
1.12 Track auditorily each word in a sentence and each syllable in a word.
1.13 Count the number of sounds in syllables and syllables in words.

Decoding and Word Recognition
1.14 Match all consonant and short-vowel sounds to appropriate letters.
1.15 Read simple one-syllable and high-frequency words (i.e., sight words).
1.16 Understand that as letters of words change, so do the sounds (i.e., the alphabetic principle).

Vocabulary and Concept Development

1.17 Identify and sort common words in basic categories (e.g., colors, shapes, foods).
1.18 Describe common objects and events in both general and specific language.

2.0 Reading Comprehension

Students identify the basic facts and ideas in what they have read, heard, or viewed. They use comprehension strategies (e.g., generating and responding to questions, comparing new information to what is already known). The selections in Recommended Literature, Kindergarten Through Grade Twelve (California Department of Education, 2002) illustrate the quality and complexity of the materials to be read by students.

Structural Features of Informational Materials

2.1 Locate the title, table of contents, name of author, and name of illustrator.

Comprehension and Analysis of Grade-Level-Appropriate Text

2.2 Use pictures and context to make predictions about story content.
2.3 Connect to life experiences the information and events in texts.
2.4 Retell familiar stories.
2.5 Ask and answer questions about essential elements of a text.

3.0 Literary Response and Analysis

Students listen and respond to stories based on well-known characters, themes, plots, and settings. The selections in Recommended Literature, Kindergarten Through Grade Twelve illustrate the quality and complexity of the materials to be read by students.

Narrative Analysis of Grade-Level-Appropriate Text

3.1 Distinguish fantasy from realistic text.
3.2 Identify types of everyday print materials (e.g., storybooks, poems, newspapers, signs, labels).
3.3 Identify characters, settings, and important events.

Writing
1.0 Writing Strategies

Students write words and brief sentences that are legible.

Organization and Focus
1.1 Use letters and phonetically spelled words to write about experiences, stories, people, objects, or events.
1.2 Write consonant-vowel-consonant words (i.e., demonstrate the alphabetic principle).
1.3 Write by moving from left to right and from top to bottom.

Penmanship
1.4 Write uppercase and lowercase letters of the alphabet independently, attending to the form and proper spacing of the letters.

Written and Oral English Language Conventions

The standards for written and oral English language conventions have been placed between those for writing and for listening and speaking because these conventions are essential to both sets of skills.

1.0 Written and Oral English Language Conventions

Students write and speak with a command of standard English conventions.

Sentence Structure
1.1 Recognize and use complete, coherent sentences when speaking.

Spelling
1.2 Spell independently by using pre-phonetic knowledge, sounds of the alphabet, and knowledge of letter names.

Listening and Speaking

1.0 Listening and Speaking Strategies

Students listen and respond to oral communication. They speak in clear and coherent sentences.

Comprehension
1.1 Understand and follow one-and two-step oral directions.
1.2 Share information and ideas, speaking audibly in complete, coherent sentences.

2.0 Speaking Applications (Genres and Their Characteristics)

Students deliver brief recitations and oral presentations about familiar experiences or interests, demonstrating command of the organization and delivery strategies outlined in Listening and Speaking Standard 1.0.

Using the listening and speaking strategies of kindergarten outlined in Listening and Speaking Standard 1.0, students:
2.1 Describe people, places, things (e.g., size, color, shape), locations, and actions.
2.2 Recite short poems, rhymes, and songs.
2.3 Relate an experience or creative story in a logical sequence.
Grade One  
English-language Arts Content Standards.  
**Taken from:** http://www.cde.ca.gov/be/st/ss/enggrade1.asp  
**Last modified:** Friday, September 28, 2007  

**Reading**  

1.0 Word Analysis, Fluency, and Systematic Vocabulary Development  

Students understand the basic features of reading. They select letter patterns and know how to translate them into spoken language by using phonics, syllabication, and word parts. They apply this knowledge to achieve fluent oral and silent reading.  

Concepts About Print  
1.1 Match oral words to printed words.  
1.2 Identify the title and author of a reading selection.  
1.3 Identify letters, words, and sentences.  

Phonemic Awareness  
1.4 Distinguish initial, medial, and final sounds in single-syllable words.  
1.5 Distinguish long- and short-vowel sounds in orally stated single-syllable words (e.g., bit/bite).  
1.6 Create and state a series of rhyming words, including consonant blends.  
1.7 Add, delete, or change target sounds to change words (e.g., change cow to how; pan to an).  
1.8 Blend two to four phonemes into recognizable words (e.g., /c/ a/ t/ = cat; /f/ l/ a/ t/ = flat).  
1.9 Segment single-syllable words into their components (e.g., /c/ a/ t/ = cat; /s/ p/ l/ a/ t/ = splat; /r/ i/ ch/ = rich).  

Decoding and Word Recognition  
1.10 Generate the sounds from all the letters and letter patterns, including consonant blends and long- and short-vowel patterns (i.e., phonograms), and blend those sounds into recognizable words.  
1.11 Read common, irregular sight words (e.g., the, have, said, come, give, of).  
1.12 Use knowledge of vowel digraphs and r-controlled letter-sound associations to read words.  
1.13 Read compound words and contractions.
1.14 Read inflectional forms (e.g., -s, -ed, -ing) and root words (e.g., look, looked, looking).
1.15 Read common word families (e.g., -ite, -ate).
1.16 Read aloud with fluency in a manner that sounds like natural speech.

Vocabulary and Concept Development
1.17 Classify grade-appropriate categories of words (e.g., concrete collections of animals, foods, toys).

2.0 Reading Comprehension

Students read and understand grade-level-appropriate material. They draw upon a variety of comprehension strategies as needed (e.g., generating and responding to essential questions, making predictions, comparing information from several sources). The selections in Recommended Literature, Kindergarten Through Grade Twelve illustrate the quality and complexity of the materials to be read by students. In addition to their regular school reading, by grade four, students read one-half million words annually, including a good representation of grade-level-appropriate narrative and expository text (e.g., classic and contemporary literature, magazines, newspapers, online information). In grade one, students begin to make progress toward this goal.

Structural Features of Informational Materials
2.1 Identify text that uses sequence or other logical order.

Comprehension and Analysis of Grade-Level-Appropriate Text
2.2 Respond to who, what, when, where, and how questions.
2.3 Follow one-step written instructions.
2.4 Use context to resolve ambiguities about word and sentence meanings.
2.5 Confirm predictions about what will happen next in a text by identifying key words (i.e., signpost words).
2.6 Relate prior knowledge to textual information.
2.7 Retell the central ideas of simple expository or narrative passages.

3.0 Literary Response and Analysis

Students read and respond to a wide variety of significant works of children’s literature. They distinguish between the structural features of the text and the literary terms or elements (e.g., theme, plot, setting, characters). The selections in
Recommended Literature, Kindergarten Through Grade Twelve illustrate the quality and complexity of the materials to be read by students.

Narrative Analysis of Grade-Level-Appropriate Text
3.1 Identify and describe the elements of plot, setting, and character(s) in a story, as well as the story’s beginning, middle, and ending.
3.2 Describe the roles of authors and illustrators and their contributions to print materials.
3.3 Recollect, talk, and write about books read during the school year.

Writing

1.0 Writing Strategies

Students write clear and coherent sentences and paragraphs that develop a central idea. Their writing shows they consider the audience and purpose. Students progress through the stages of the writing process (e.g., prewriting, drafting, revising, editing successive versions).

Organization and Focus
1.1 Select a focus when writing.
1.2 Use descriptive words when writing.

Penmanship
1.3 Print legibly and space letters, words, and sentences appropriately.

2.0 Writing Applications (Genres and Their Characteristics)

Students write compositions that describe and explain familiar objects, events, and experiences. Student writing demonstrates a command of standard American English and the drafting, research, and organizational strategies outlined in Writing Standard 1.0.

Using the writing strategies of grade one outlined in Writing Standard 1.0, students:
2.1 Write brief narratives (e.g., fictional, autobiographical) describing an experience.
2.2 Write brief expository descriptions of a real object, person, place, or event, using sensory details.

Written and Oral English Language Conventions
The standards for written and oral English language conventions have been placed between those for writing and for listening and speaking because these conventions are essential to both sets of skills.

1.0 Written and Oral English Language Conventions

Students write and speak with a command of standard English conventions appropriate to this grade level.

Sentence Structure
1.1 Write and speak in complete, coherent sentences.

Grammar
1.2 Identify and correctly use singular and plural nouns.
1.3 Identify and correctly use contractions (e.g., isn’t, aren’t, can’t, won’t) and singular possessive pronouns (e.g., my/ mine, his/ her, hers, your/s) in writing and speaking.

Punctuation
1.4 Distinguish between declarative, exclamatory, and interrogative sentences.
1.5 Use a period, exclamation point, or question mark at the end of sentences.
1.6 Use knowledge of the basic rules of punctuation and capitalization when writing.

Capitalization
1.7 Capitalize the first word of a sentence, names of people, and the pronoun I.

Spelling
1.8 Spell three-and four-letter short-vowel words and grade-level-appropriate sight words correctly.

Listening and Speaking

1.0 Listening and Speaking Strategies

Students listen critically and respond appropriately to oral communication. They speak in a manner that guides the listener to understand important ideas by using proper phrasing, pitch, and modulation.

Comprehension
1.1 Listen attentively.
1.2 Ask questions for clarification and understanding.
1.3 Give, restate, and follow simple two-step directions.

Organization and Delivery of Oral Communication
1.4 Stay on the topic when speaking.
1.5 Use descriptive words when speaking about people, places, things, and events.

2.0 Speaking Applications (Genres and Their Characteristics)

Students deliver brief recitations and oral presentations about familiar experiences or interests that are organized around a coherent thesis statement. Student speaking demonstrates a command of standard American English and the organizational and delivery strategies outlined in Listening and Speaking Standard 1.0.

Using the speaking strategies of grade one outlined in Listening and Speaking Standard 1.0, students:
2.1 Recite poems, rhymes, songs, and stories.
2.2 Retell stories using basic story grammar and relating the sequence of story events by answering who, what, when, where, why, and how questions.
2.3 Relate an important life event or personal experience in a simple sequence.
2.4 Provide descriptions with careful attention to sensory detail.
APPENDIX F

Resources

The following are useful resource websites related to using music in education and therapy for special and regular education students.


Googol Learning. Music for math and science; email newsletter available. http://www.googolpower.com/content/

Hap Palmer Educational Songs. Songs primarily for baby and early childhood concepts, with movement included; activities and teaching aids that can be made. www.happalmer.com


Mr. R’s Songs That Teach – An enriched integrated language arts music experience! It addresses language arts and math programs and is aligned with state and district English Language Arts Content, Math, Science & Health, Social Science, and ELL Standards. There is a concise listing of California Content Standards, with links to the songs on the website. http://www.songsthatteach.org/home.html


Schoolhouse Rock Official Site. First through Fourth grade essentials, with history of the program. DVDs and CDs available, some free downloads. http://www.school-house-rock.com/cdrom1_4.html


Songs for Learning by Harry Guffee. Songs that teach math concepts, upper elementary and middle school level. www.songsforlearning.com

Songs for Teaching, Using Music to Promote Learning. Music is categorized by subject area, with separate sections for preschool/kindergarten and special education; email newsletter available with free monthly downloads. http://songsforteaching.com/

Teacher Created Resources. Standard, well-known children’s songs in Midi format, with lyrics written out (not sung). Sound samples are available at the website; most of the music is sung by children. http://www.theteachersguide.com/ChildrensSongs.htm

Twin Sisters Productions, Songs that Teach. A wide variety of music in the following categories: early learning, phonics, speech development, math, social studies, science and foreign languages (French, German, Italian and Spanish). http://www.twinsisters.com/onlinecatalog/songsthatteach.htm


Campabello, Nicolette; De Carlo, Mary Jane; O’Neil, Jean; Vacek, Mary Jill (2002). Music Enhances Learning. *Master of Arts Action Research Project, St. Xavier University and Skylight Professional Development Field-Based Master’s Program*.


