Using Music in the Classroom

By Dorothy Lockhart Lawrence Editor of PPOV

Can music in the classroom make a difference? Welsh science teacher Anne Savan couldn't believe the difference it made in her chemistry lab. When the government insisted that all children complete the standard National Curriculum, Savan became concerned. For some reason her new group of pupils in the mid 1990's was the most challenging ever. Her class of boys had special educational needs plus emotional and behavioral difficulties. One of her students had such poor coordination he made 19 attempts at a lab experiment requiring the student to put a peanut on a spoon, then heat it in the flame of a Bunsen burner. He never achieved it and his behavior resulting from his frustration was uncontrollable.

Chance observation of a television program gave Savan the idea that music of a certain frequency might help students with poor coordination. She began to play classical music, usually orchestral Mozart (she tried Mozart's piano concerto's but they did not work) during daily science lessons over a period of five months. The response to the music was dramatic as the pupils became calm and cooperative within minutes of entering the room. Savan's notes from lesson 1 report, "*No one spoke, quarreled, asked to borrow anything, wanted to go to the toilet for the whole lesson. I have not had such a relaxed lesson with 7D ever.*" The remaining lessons for the five months produced the same results, calm, cooperative students who were able to complete each lesson.

From her experience and subsequent research, Savan believes the music may have relaxed her pupils enough to improve their physical coordination and lower their frustration levels enough to allow them to perform manual tasks effectively and efficiently.

Music in the classroom may have different effects, depending on the strengths and weaknesses of the pupils in the classroom. It may also depend on the existing level of noise pollution at the school and surrounding area.

Noise pollution is a growing problem, and schools are not exempt. "*As early as 1975,*" says Garrett Keizer in his article "Sound and Fury" in the March 2001 Harper's magazine, "*researcher Arline Bronzaft found that children on the train-track side of a New York public school were lagging a year behind their classmates on the other side of the building in learning to read.*"

Researchers in Germany found the same learning difficulties with children who lived near an airport. Various researchers report that kids seem especially vulnerable to excessive noise. Even schools that are not located near an airport, railroad tracks, or a freeway have plenty of everyday noise that can be distracting. Overhead lights emit low buzzing sounds. Air conditioning, machines, voices in the school cafeteria, and gym classes all add unwelcome and distracting noise.

For children who are sensitive, environmental noise pollution can be a constant source of stress. That's why Advanced Brain Technologies, with the National Academy for Child Development (NACD) looked for a way to produce the healthiest sound environment possible. Over a 20-year period, NACD experimented with many ways of creating a sound filter including white noise, environmental sounds, nature sounds, and many forms of music. NACD also examined the research in a neurodevelopmental context. NACD concluded that the best sound filter is simply structured classical music with some nature sounds. It does not dull auditory function like white noise and it even enlivens neurological function.

When Advanced Brain Technologies was founded, one of its objectives was to offer recordings that would

provide a consistent, high-quality therapeutic auditory environment. Sound Health was born. Classical music was specifically re-arranged and recorded to eliminate the drama and changes of mood and tempo that engage the listener's attention in a live performance. CD's were created to capture the beauty of the music without the distractions so they can be played day to day in the background with consistently good results. Pieces were selected that were rich in therapeutic tonal harmonics, music that would stimulate the brain through its structure as well as through a broad spectrum of frequencies.

While Mozart has become the media's favorite buzz word, original studies for accelerated learning showed that Baroque music in general, with average tempos of 50-70 beats per minute (b.p.m.), was optimal for learning. This music also provided health benefits such as lower muscle tension, lower blood pressure, and a slower pulse rate. That is why Advanced Brain Technologies created three CD's in its Sound Health series using Baroque music with 50-60 b.p.m.: Music for Learning, Music for Concentration, and Music for Thinking, These CD's feature only classical compositions which were arranged for and recorded by the Arcangelos Chamber Ensemble using psychoacoustic and accelerated learning technologies to craft the music for use in a specific purpose.

SuperLearning 2000 authors Sheila Ostrander and Lynn Schroeder tell us that "*Tests at Iowa State University, for instance, found that slow Baroque music alone (without the full accelerated system) speeded up learning by 24 percent and increased memory retention by 26 percent. Teachers working for the Washington State Department of Immigration played the music during English classes for recent arrivals from Cambodia, Laos, and other Asian countries. Teachers reported it eased the trauma these older adults experienced at having to pick up a new language and use it in a very foreign culture. The music also accelerated their learning.*"

At the 1991 Northwestern Indiana Science Fair, sixth grader Jamee Cathcart designed a study with Baroque music. Eleven out of twelve students showed remarkable improvement in test scores after listening to Baroque music.

Do other types of music work as well? Another study using hard rock music was done by sixteen year-old David Merrill who won top regional and state science-fair honors for it. Merrill got 72 mice and divided them into three groups: the hard rock group, the Mozart group, and the control group who had no music at all. He got the mice used to living in aquariums in his basement, then started playing music 10 hours a day. He put each mouse through a maze three times a week that originally had taken the mice an average of 10 minutes to complete.

Over time, the 24 mice in the control group were able to cut about 5 minutes from their maze completion time. The Mozart mice cut their time back 8 1/2 minutes. The hard rock mice added 20 minutes to their time, a 300% increase in maze-running time from their original average.

Merrill told the Associated Press that he'd attempted the experiment the year before. He'd allowed the mice in the different groups to live together. "*I had to cut my project short because all the hard-rock mice killed each other*," Merrill said. "*None of the classical mice did that.*"

Besides being calming and increasing attention span, certain types of classical music can be a powerful catalyst in the creative process. Colin Rose and Malcolm J. Nicholl, in their book "Accelerated Learning for the 21st Century," tell how Albert Einstein and Charles Schultz have used music for inspiration.

Albert Einstein's solution to struggles with a complicated formula was to pick up the violin, an instrument he began playing at the age of six, and play Beethoven and Mozart sonatas. Einstein's oldest son remembered that "*Whenever he felt that he had come to the end of the*

road or into a difficult situation in his work he would take refuge in music, and that would usually resolve all his difficulties."

Cartoonist Charles Schultz credits music as the inspiration behind many of his insights that came to life though Charlie Brown, Lucy, and Snoopy in one of the world's most famous cartoon strips - Peanuts. Schultz describes going to a concert and says "*your mind begins to travel from one thing to another, and all of a sudden you're inspired by the music by the emotion and from that I will get some of my very best ideas.*"

Advanced Brain Technologies wanted to learn just how music from Sound Health would change the experience in the classroom. So they provided CD's to several schools and asked for teachers' comments. In addition to Music for Concentration and Music for Thinking which are in the 50-60 b.p.m. range, they provided Music to De-Stress, with 30-60 b.p.m., to kindergarten teachers for rest and naptime.

Eight teachers at Brookewood Elementary School in Grovetown, Georgia responded. Both teachers and students benefited from quieter, more orderly students said Principal Jonny Carr. "*Our teachers love the CD's.*"

Brookewood kindergarten teachers used Concentration in their classes during thinking and working activities Comments were:

- "*Very effective in helping children settle down quietly. More effective on the teacher!*"
- "*During work time, the children were more attentive and quieter.*"
- "*The students have to work quietly to hear the music, so the music helps to remind them to work and not talk.*"

The kindergarten teachers used De-Stress during rest and naptime:

- *"More children went to sleep during rest time when listening to De-Stress."*

All the kindergarten teachers recommended the Concentration and De-Stress CD's for relaxation and stress relief.

Two teachers of Grade 3 classrooms at Brookewood used Thinking and Concentration CD's during independent work sessions. They reported:

- *"Calming, students more focused, appears to be more concentration, room quieter."*
- *"Better focus. Seem to attend to task longer. The students ask for the music."*

Three teachers of Grade 5 classrooms used the CD's Thinking and Concentration for individual or small group work, taking a test or quiz, after PE, during tests, etc. Grade 5 teachers at Brookewood reported:

- *"Students like them, they ask for the music."*
- *"It appears that students are working more diligently and getting better grades."*
- *"Calms students, settles them down, has a soothing effect. Beautiful, relaxing music helps students focus more."*

All Grade 5 teachers recommended the CD's for enhancing learning, relaxation, and stress relief. One teacher at the Wildwood School in Southern California added this note to her survey form, "*Thank you for so positively affecting my teaching atmosphere.*" This sentiment was echoed by other teachers we heard from, that the music helped them to relax and therefore be more effective.

The principal of an elementary school in Omaha, Nebraska sent us the following letter after a third grade teacher began using the CD Music for Concentration in her classroom.

"I can't wrestle my copy of Concentration away from one of my teachers. This teacher teaches third grade and one of her students is significantly ADHD with some strong obsessive/compulsive characteristics. Concentration is the most effective thing we have found to help him stay on task. When that CD is playing he is able to focus and work for extended periods of time. Thanks, once

again. I know one child for whom you have made a difference!!!"

She also wrote that all the teachers in the school reported value in the music, and paraprofessionals who tend to be in a number of classrooms commented how much they liked being in a classroom that was playing music. She added, *"I believe Sound Health has improved the learning environment for students."*

Since these early studies, Advanced Brain Technologies has added several titles, listed below. Whether it is setting a mood, settling students, masking distracting noises, de-stressing the teacher or inspiring creativity for a writing assignment, music from Sound Health has proven to be a welcome addition to the classroom.

How to Use Sound Health in Your Classroom

Remember that playing any music at an excessive volume can be a distraction. Follow these simple rules:

Select a CD to fit the project your students are engaged in doing:

- Learning, Concentration, and Thinking at 50-60 b.p.m. for study, testing, workgroups, and computer time
- De-Stress, Relax at 30-60 b.p.m. for settling the class after high energy activities or disruptions, or rest times
- Inspiration, at 60-90 b.p.m. for creative work
- Motivation at 120-140 b.p.m. and Productivity at 70-130 b.p.m. for task completion and kinesthetic activities.

Keep the volume low:
This means you should still have the ability to speak at a conversational level without raising your voice. The music should be in the background creating a filter for unwanted noise in the classroom throughout the day. This creates the body relaxed, mind alert state.

Increasing volume:
For a break after 45 minutes or more of studying, you may increase the volume a bit so that students may listen for a few minutes to the music. This technique is recommended in the book "Learn with the Classics" by Anderson, Marsh and Harvey. It is meant to relax students and let their minds reflect on what they have learned.

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