

## **Ruple: Teaching Health Careers Education**

### **The Role of Music in Learning**

Don't underestimate the role that music plays in learning. Research on music has shown its effect on improving attention and reducing stress. Anderson, Marsh, and Harvey (1999) from the Center for the Neurobiology of Learning and Memory at the University of California, Irvine tested the impact of listening to music while taking a standardized test. Learners took spatial intelligence tests after listening to music for 10 minutes. Some learners listened to Mozart, some listened to other music, and others took the test in silence. The IQs of the students who listened to Mozart improved nine points from a pretest; the two control groups' scores did not increase. The researchers theorized that listening to certain music could help learners relax and focus while learning, increasing their test scores. These results have become known as "The Mozart Effect" (Campbell, 1997).

### **Research on Music, Attention, and Relaxation**

Music can improve attention. Berns, Cohen, and Mintum (1997) studied the effects of improving attention through the introduction of novelty. Anything perceived by the brain as different from the norm can cause the release of neurotransmitters and hormones such as norepinephrine and dopamine. These hormones affect the amygdala, the center of emotional memory (Sprenger, 1999). Dopamine has a great impact on motivation, curiosity, learning, and memory and also activates the emotional responses.

Music synchronizes with the brain waves and relaxes the mind so that higher levels of learning can occur. Music activates the limbic area of the brain that is so crucial to long-term memory (Russell, 1999). Because of the relationship between music and long-term memory, use music in the classroom that is unfamiliar to the students. Familiar music will trigger memories that may actually interfere with learning.

Some students experience extreme stress during classes. The body releases cortisol, adrenaline, during stress to ensure survival (Pert, 1997). The long-term presence of cortisol clouds the ability to think clearly and remember (Newcomer, Selke, Melson, and Hershey, 1999). Blood flow is reduced to the cortex and high-level thinking is inhibited (Reichal, 2000). Hirokawa and Ohira (2003) tested the blood levels of stress chemicals in students after a stressful event and showed that soothing classical music triggered the relaxation response.

### **How to Effectively Use Music to Enhance Learning**

As a rule, use music that is approximately 60 to 80 beats per minute—this rate synchronizes with the brain waves in the alpha state (8 to 12 cycles per second). Baroque music using violins and guitars is very good for this. Avoid music with horns or brass.

Russell (1999) provides some guidelines for using music in the classroom:

1. Play music that is in a major key and that is uplifting as students enter the class.
2. Play music that is rather low in volume for the first part of the class during introductions and while setting goals.
3. Play alpha baroque music during case study or individual work.
4. Play alpha music with lights slightly dimmed for reviews at the end of the day.
5. Play music that is fun and upbeat, and energizing while students are leaving the class at the end of the day.

Be sure to observe copyright laws when selecting and using music. Music that is purchased individually is licensed for personal use only. It is a violation of copyright laws if this music is used while making a profit. Check for sources of music that is “in the public domain” to use in the classroom.

Pay careful attention to where the source of the music is placed. Students who learn through the auditory senses will be the most disturbed by music initially and may complain. Resist the temptation to turn the music off, but invite those students who are bothered by it to move farthest away from the source. Kinesthetic learners will gain the most benefit from music and be the most accepting. Visual learners will not be bothered much by music.

All students may have an initial reaction to the music and question its use. The instructor should be prepared to explain the purpose and benefits of using music to the students and continue to use it.

Don't overlook having students develop their own musical mnemonic devices to improve retention. Instructors will be surprised at the amount of musical talent that may surface from introducing musical activities. Even if the results are not of the highest quality of composition, students will remember them because they are fun and because they developed it.

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