Study, Stress and Music

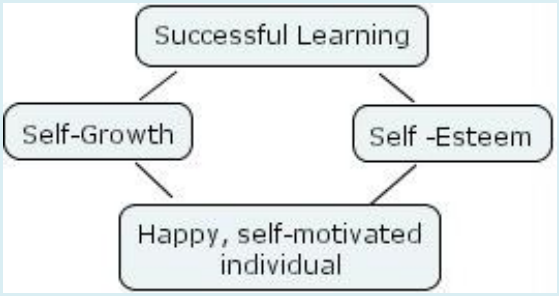
By Michael Griffin

Is background music beneficial or harmful during study? Given that about 75% of students listen to music whilst they do their homework, we ought to find out.

It is natural to **enjoy learning**. We are born curious and eager to gain new knowledge to make sense of the world we live in and gain an increased understanding of our self. This new and successful learning results in **self-growth** and **self-esteem.**

Human beings seek self-esteem and happiness more than anything else

Aristotle



This model of a happy, self-motivated learner can be disrupted by stress and negative emotions.

...the little emotions are the captains of our lives and we obey them without realizing it.

Vincent Van Gogh, 1889

Stress occurs when there is a *perception* that a given challenge is greater than our skills. Stress can be good or bad, depending on how we deal with it. Good stress causes a narrowing of attention, bad stress causes a focus on negative outcomes. Bad stress can interfere with brain circuitry making learning more difficult. Physiological changes resulting from stress include increases in pulse rate, blood pressure and body temperature. Severe stress can cause headaches, tears and ulcers. In summary, stress can negatively affect learning. When I ask students if they have been stressed recently a majority of hands rise.

Music is an art form which deals with the representation of emotion through the medium of sound. It can have a physical effect on us because it is closely linked with emotion, perhaps even more so than the abstract nature of words. The number one reason people listen to music is to moderate their emotional state. In a very real sense, music connects us with our inner selves.

Numerous studies leave us in no doubt that music can affect our mood state and stress levels. In fact, a great deal of present research involves the use of music in medical situations to assist recovery rates and induce a desired physiology (usually a lowering) of heart rate, blood pressure and body temperature. The use of music as an element in medical intervention is an example of creative connection between subject areas. I explore this topic more in my staff PD units on trans-disciplinary learning and creativity.

Great innovation and new ideas emerge from trans-disciplinary connections

Kozumi -Japanese researcher on innovation

Does music help or interfere with studying? Firstly, it depends what the task is. The more difficult the cognitive challenge, the more likely background music will disrupt the learning process. For less challenging learning tasks, music can greatly assist in providing external stimulation and a positive learning arousal state. Secondly, it depends on the characteristics of

the music which we will come to in a moment; and thirdly, it depends on personality type. Extroverts enjoy and often require more external stimulation than introverts, and are likely to handle background noise better than introverts.

What are the music characteristics that aid or disrupt study?

Tempo

The recommended tempo for background music is in the range 70 -110 beats per minute, slightly faster than the heartbeat at rest. Music at fast tempi exerts a greater cognitive load (demands more attention) because our brain is processing more musical events per second. Fast music also raises the heartbeat, which is why gymnasiums use certain types of music with their fitness programs. Very slow music lowers the heartbeat, creating a state that might be too relaxed for study purposes.

Volume

Music which is very loud or forceful exerts a greater cognitive load which makes concentration more difficult. Music which is too soft can also be irritating if we find we are straining to listen. Music with sudden dynamic (volume level) changes is also unsuitable. Volume level is an individual preference, but needs to be moderately low and consistent.

Tonality

For this topic, tonality refers to whether music is in a major or minor key. Music written in a major key generally has a happy character, whilst minor, sad. One does not need to be familiar with this music jargon as even very young children are adept at picking the tonality of music. For example, *Twinkle Twinkle Little Star* is in a major key, whilst a funeral march would be in a minor key. Choosing music written in a major key and at an appropriate tempo is best for study purposes, although many people find that slightly quicker minor key music also works. This is because of relationships between musical characteristics - particularly between tempo and tonality, creating different arousal thresholds.

Lyrics

Many young people have a listening repertoire of only songs; that is, music with words. Lyrics are the most distracting aspect of background musical listening, because they compete with the same brain regions that process language. More particularly, studies have found that the most distracting background music per se is fast and familiar vocal music known by, chosen and liked by the listener.

So it's not about genre of music, be it classical, jazz, pop or rock, but the inherent musical characteristics which affect our mood and learning readiness. These characteristics include tempo (the speed of the beat), volume, tonality (major or minor) and whether or not the music is instrumental or has words. There are indeed more pertinent musical characteristics including texture, melodic range and rhythmic complexity, but this beyond the scope of a typical student presentation. There is still much we don't know about the effects of music listening on behaviour, and fMRI scanning is contributing much to our understanding.

If background music is to assist the learning process, we need to help students understand that if they do choose to play background music during homework, the primary aim remains to engage in a sustained period of learning. If music can help maintain a healthy learning-arousal state then well and good. But it's not about entertainment, and not all music is appropriate.

The largest body of music with

- moderate tempo
- consistent volume
- emotionally cool
- major tonality
- instrumental

is music from the baroque and classical periods.

Suitable baroque music includes compositions by Bach, Handel, Vivaldi and Pachelbel, and suitable classical music includes selections from Haydn, Mozart and Boccherini. I have compiled a 10-hour mp3 playlist for schools and individuals. Each piece was personally examined and selected based on the above criteria. Contact me if you would like this sent to you.

Those who like studying with background music have found some of the following benefits:

- *It shuts out distractions*
- *I get immersed in my own world and become more productive*
- *It puts me in a positive frame of mind and a better mood*
- *It gives me a general feeling of well being*
- *It calms me before a large task and I stay focused for longer*
- *It makes time go by fast*
- *It helps me work quicker*
- *It's good for repetitive homework tasks*
- *It helps my creativity*
- *It makes studying more* ***enjoyable***

In summary, the use of background music for study is a personal thing. What is suitable for one will not necessarily be for another. For the record, this author finds it very difficult to concentrate on reading or writing with music on.

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Full discussion: *Background Music in the Learning Environment: Borrowing from Other Disciplines.*
Download from www.musiceducationworld.com/?q=schoolenvironments (50 pages)

Michael Griffin has presented to students and staff in Australia, New Zealand, Thailand, Malaysia, Germany, Austria, England, Italy, United Arab Emirates, Qatar, Oman and Ethiopia. Unique, educational and entertaining, time duration flexible; suggested between 60-120 minutes. Presentation includes a number of examples played on the piano.

Michael Griffin

After more than 20-years as a music educator and administrator in Adelaide and Dubai, Michael now travels extensively as an education presenter, working for schools in all parts of the world. In Australia he was presented with the Education and Arts Ministers' Award in 2006 and was nominated for a National Teaching Excellence award in 2005. Michael has won many significant national and state prizes as a choral and jazz ensemble director, and since been an invited clinician in Australasia, Europe, Asia, Africa and the Middle East. He speaks regularly at conferences and for teacher associations. As an author, Michael has recently published the 'Music and Keyboard in the Classroom' series, and 'Modern Harmony Method', and is presently working on a book about musical learning. He writes for publications in Australia and England. As a musician, Michael has been a resident performer at world-renowned hotels such as Hayman Island (Australia) and the 7* Burj al Arab (Dubai).

Recent workshops and conferences:
BSME Arts Conference Oman, May 2010
ICS Addis Abba Ethiopia April 2010
Salzburg Spring Choral Festival March 2010
35 workshops in NZ/Australia Feb/March 2010
Birla Public School, Qatar 2010
Garden International School, Malaysia 2010
Greenfields, Dubai UAE 2009
British International School, Phuket 2009
International School of Stuttgart 2009
The Hall School, London 2009
Dubai International Academy, UAE 2009
St Peters College, Adelaide 2009
Scotch College, Adelaide 2009/10
Hillcrest Christian College, Victoria 2009/10
ANCA 'Jazz 4 Choirs, South Australia 2009
ECIS Annual Conference, Hamburg 2009

Future 2010 bookings include:
Eton College, Windsor
ECIS Nice, France guest presenter for mathematics
Geneva Schools' Creativity Forum
International School of Lausanne, Switzerland
International School of Luxembourg
Kings School Worcester, England
Magic Mozart Festival presenter, Salzburg
Keynote speaker, Allans PD days Brisbane, Australia
Gold Coast eisteddfod Australia, adjudicator
ISME, China guest presenter
Bishop Mackenzie School, Malawi
Australian National Eisteddfod, adjudicator 2011