

EXECUTIVE FUNCTIONS

PRIMARY/ELEMENTARY SCHOOL

The Executive Functions (Primary/Elementary School) bundle is filled with research, tools, and information. These tools can either be shared with parents to enhance their knowledge or used by teachers to increase their own confidence and effectiveness in communicating with parents.



DEVELOP YOURSELF

These tools have been designed to facilitate your learning and understanding of the research on music learning and brain development.

Discover practical ways to apply the research directly to your teaching.



SHARE DIRECTLY WITH PARENTS

These tools have been exclusively tailored to be shared directly with parents.

Use these resources as a tool to connect with parents, gain their support for the work that you do and help them understand the powerful benefits of music learning.

WHAT'S INCLUDED?

GET YOUR MESSAGE OUT

Communication Bundle

\$30AUD

8 x Social media ready Quotable Research Cards

1 x Shareable Music Learning Infographic

1 x Shareable Video

- Children are born with a musical talent

4 x News Articles that you can share at the click of a button

1 x Easy to share research Ebook

- 5 ways music learning enhances executive function

SUPERCHARGE YOUR ADVOCACY

Development Bundle

\$50AUD

Includes everything in the "Get your message out" set

PLUS

2 x Professional Readings with Teaching Reflections

- Which musical instrument is "better" for cognitive development?
- Is music learning special?

2 x Easy to share research summaries

- What connects music learning and executive function?
- Cognitive Enhancements through Music

1 x Shareable Video

- How are music and sport similar?

Which bundle will you choose?

[Click here to add to cart](#)

GET YOUR MESSAGE OUT

COMMUNICATION BUNDLE

8 X SOCIAL MEDIA READY QUOTABLE RESEARCH CARDS

These bite-sized gems of information are tailored to enhance your emails, newsletters, and parent presentations, making it effortless for parents to grasp the advantages of music education.

Easy to add to newsletters, emails and social media

[See full collection](#)

“Learning to play a musical instrument in childhood can result in long-lasting changes in brain organization.”



Wen, C. Y., & Schlaug, G. (2010). Music making as a tool for promoting brain plasticity across the life span. *The Neuroscientist*.

“Active music making is a particularly crucial factor for executive functions improvement.”



Friächen, U. et al. (2021). Music lessons enhance executive functions in 6- to 7-year-old children. *Learning and Instruction*, 74, 101442.

“The authors concluded that practicing music during childhood provokes moderate but lasting positive effect on intelligence and academic performance.”



James, C. E. et al. (2019). Formal string instrument training in a class setting enhances cognitive and sensorimotor development of primary school children. *bioRxiv*.

“Rhythmic entrainment represents an important underlying mechanism of music training that supports cognitive function.”



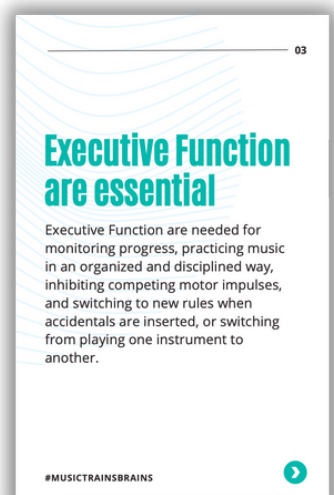
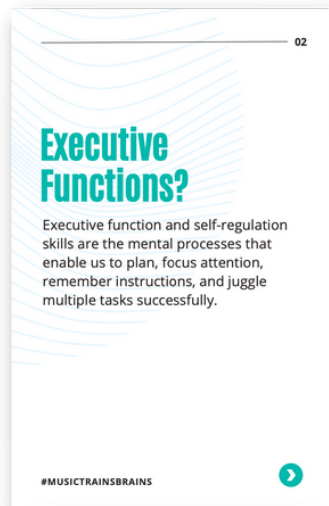
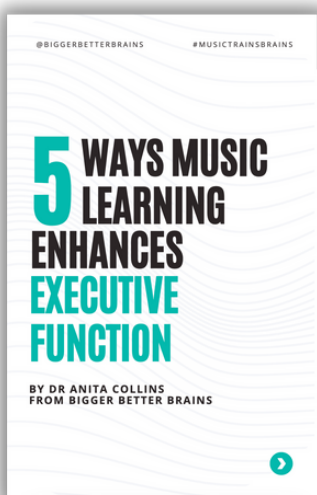
Mandirbawaka, E. A., et al. (2018). How musical training affects cognitive development: rhythm, reward and other modulating variables. *Frontiers in neuroscience*.

Ready to print and hand out to your community

[Click for more](#)

5 WAYS MUSIC LEARNING ENHANCES EXECUTIVE FUNCTION

Present complex research in a reader-friendly format, helping you grasp the profound connection between music education and brain development.

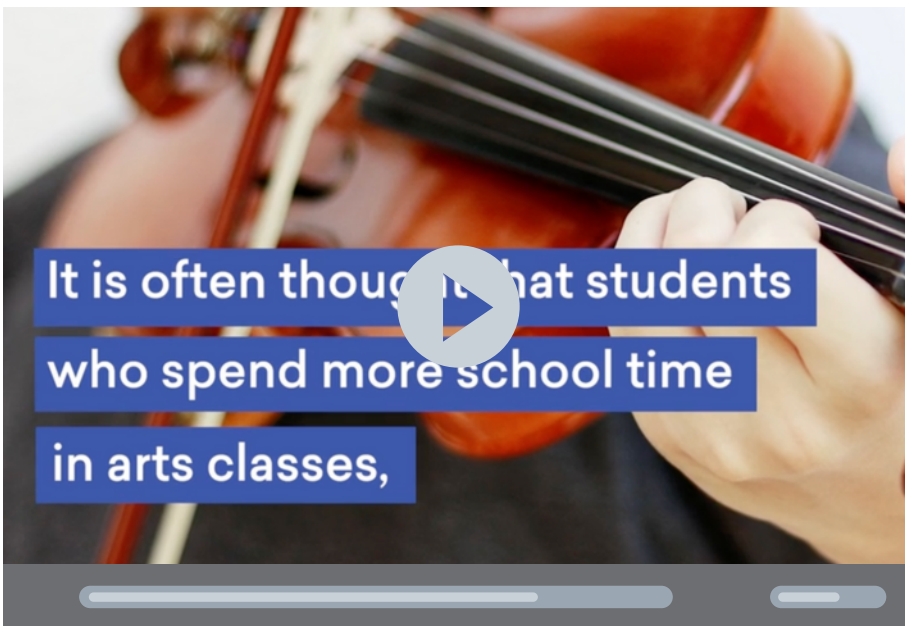


GET YOUR MESSAGE OUT

COMMUNICATION BUNDLE

1 X SHAREABLE VIDEO

Children are born with a musical talent



Quickly and easily share this video on Facebook

[See full collection](#)

Amplify your program booklet or add into your concert invitation

[Boost your students!](#)

MUSIC LEARNING HELPS INFOGRAPHIC

This research backed infographic has been designed to help your community understand how music learning can help executive functions.



Great for A4 printing

[Click here to add this bundle to your cart](#)

SUPERCHARGE YOUR ADVOCACY

DEVELOPMENT BUNDLE

2 X PROFESSIONAL READINGS WITH TEACHING REFLECTIONS

Authored by Dr. Anita Collins, these professional readings provide a comprehensive analysis of research findings and offer practical strategies for incorporating them into your teaching practices.

Discover how you can apply the research to your teaching

[Click for more](#)

Which musical instrument is “better” for cognitive development?

If you were thinking of the results like a podium at the Olympics, it might look something like this.



I am sure many piano teachers and pianists reading this are jumping to conclusions. Researchers have found that they truly are the smartest musicians. But let's look at the findings to consider the many understandings we could take from this.

Key findings from the study:

In the discussion section of the paper, the researchers mention that there were some limitations to the study in order to address music's impact on cognitive development.

These findings are related to music educational programs for children. It is important to note that, in some cases, learning an instrument can be challenging for children. Therefore, teachers should be aware of these challenges and adapt the program to the child's needs, and if the child is not interested in learning an instrument, it is not necessary.

It is worth noting that playing a rhythmic instrument does not require reading, and playing a melodic instrument does not require reading.

Conversely, harmonic musicians need a knowledge of melody and instrumentals need rhythmic knowledge. Thus, our results on cognitive skills complexity of certain music programs.

Looking at the order in which we teach music, it is possible that we should structure it to be more cognitively difficult tasks. In other words, we should start with rhythm and then progress into melody and then learn to read the capacity to process the increasing difficulty of music.

Furthermore, does it follow that increased musical complexity increases cognitive complexity as measured by these eight tasks and areas that we should be adding as we introduce these types of tasks to a group of students? All of our students seem to have shown that this instrument provides the greatest cognitive benefits. But is this study correct? Does it show music learning to improve

Which musical instrument is “better” for cognitive development?

Professional Reflection - Part 2

Teaching Brain Buzz

Do you notice any correlations, similarities or differences between your students when you sort them into instrument groups such as in the study? Do they approach their learning, musical and non-musical, differently or similarly? Do you teach them differently because of their primary instrument and the skills that instrument may or may not enhance?

SUPERCHARGE YOUR ADVOCACY

DEVELOPMENT BUNDLE

2 X EASY TO SHARE RESEARCH SUMMARIES

Present complex research in a reader-friendly format, helping you grasp the profound connection between music education and brain development.

Ready to use research - easy to understand format

[Click for more](#)

MUSICAL INGREDIENTS FOR COGNITIVE CHANGE
Ingredients for permanent, positive cognitive change

Music Program Checklist

- TIME** How much and how often?
- AGE** How old should a child be when they commence and is any age too late?
- PEDAGOGIES** Is one pedagogy the best pedagogy?
- NOTATION** Do children need to read music?
- INSTRUMENTS** Does the music learning need to happen through an instrument?
- EXPERTISE** Can anyone teach music?

MUSIC LEARNING HELPS EXECUTIVE FUNCTION

What connects music learning and executive function?

The connections between music learning and the enhancement of executive functions in children continues to be investigated. This area of research is of interest to neuroscientists and psychologists because musically trained children and adults have been found to have enhanced executive function skills including cognitive flexibility, working memory and verbal fluency, and better on behavioural tasks such as verbal fluency, rule-based task switching. The research is helping us understand how music contributes to this enhancement, improving our overall understanding of these cognitive functions.

Executive functions are defined in the research as "a family of top-down mental processes needed when you have to concentrate and pay attention ... (There are) three core EFs: inhibition (inhibitory control, including self-control (behavioural inhibition) and interference control (selective attention and working memory

AGE How old should a child be when they commence and is any age too late?

Starting age
A lot of earlier research used music learning as a tool to find what was known as a sensitivity period for cognitive development. The hypothesis was that the first seven years of life was the most important period for cognitive development. This thinking is still applicable but as we learn more about the brain we come back to reliable adage "it just isn't that simple".

The answer is if a child begins learning music before the age of seven the music learning process can assist with enhancing:

1. The language network which then assist verbal communication skills and reading development
2. The sensorimotor network which coordinates the body with the brain and helps processing speeds from multiple sensory inputs
3. The inhibitory control network which controls the ability to maintain attention, switch attention and make memories for new concepts, words and ideas.

Too late to start
Research has been done with 8-10, 10-12, 14-17, 17-25 year olds and every decade beyond 30.

The answer is music learning has been found to positive impact cognitive development, including neuroplasticity, mental stability, physical health and overall brain health.

PEDAGOGIES Is one pedagogy the best pedagogy?

Who is the winner
The answer is we don't have enough research to say if one pedagogy is superior to any other. This is because researchers have only recently started to take note of the impact of the specific pedagogy that is used in the research experiment.

The answer is that elements of many of the recognized music education pedagogies or methods have been found to benefit cognitive development.

Elements such as rhythm vocalisation, sound to symbol connection, movement and clapping of rhythms, singing in tune and focusing on playing in tune and in time with an ensemble.

EXPERTISE Can anyone teach music?

Teaching music
Music learning needs to be sequential, scaffolded and adaptive to the student. In order to teach music in an early childhood setting or on an instrument in a high school, teachers need to have extensive personal experience and have professional learning in how to deliver effective music learning to all students.

The answer is not everyone can teach music, and we should be careful of the idea that if we can play music we can teach it.

To provide permanent, positive cognitive development teachers need to have significant personal and professional experience with the learning and teaching of music.

What is executive function according to the research?

Executive functions are the mental processes that are used to plan, organize, and govern our inhibitory control, cognitive flexibility and working memory. They are the mental processes that are used to plan, organize, and govern our inhibitory control, cognitive flexibility and working memory.

Research considerations
Researching executive function skills is a complex task, due to the large number of subcategories and the way they are measured. For this reason, researchers often select only two or three skills to investigate in relation to music learning. These studies use a sequential experimental design with two experimental groups: one control group and one music-learning group.

Research has found that music learning:

- Improves student resilience by up to 30%!
- Improves emotional stability as a result of advanced executive function!
- Promotes independence in learning and the ability to remain on task and work towards set goals!

"Researchers have found that 93% of the STEM graduates reported musical training at some point in their lives, as compared to only 34% of average adults."

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