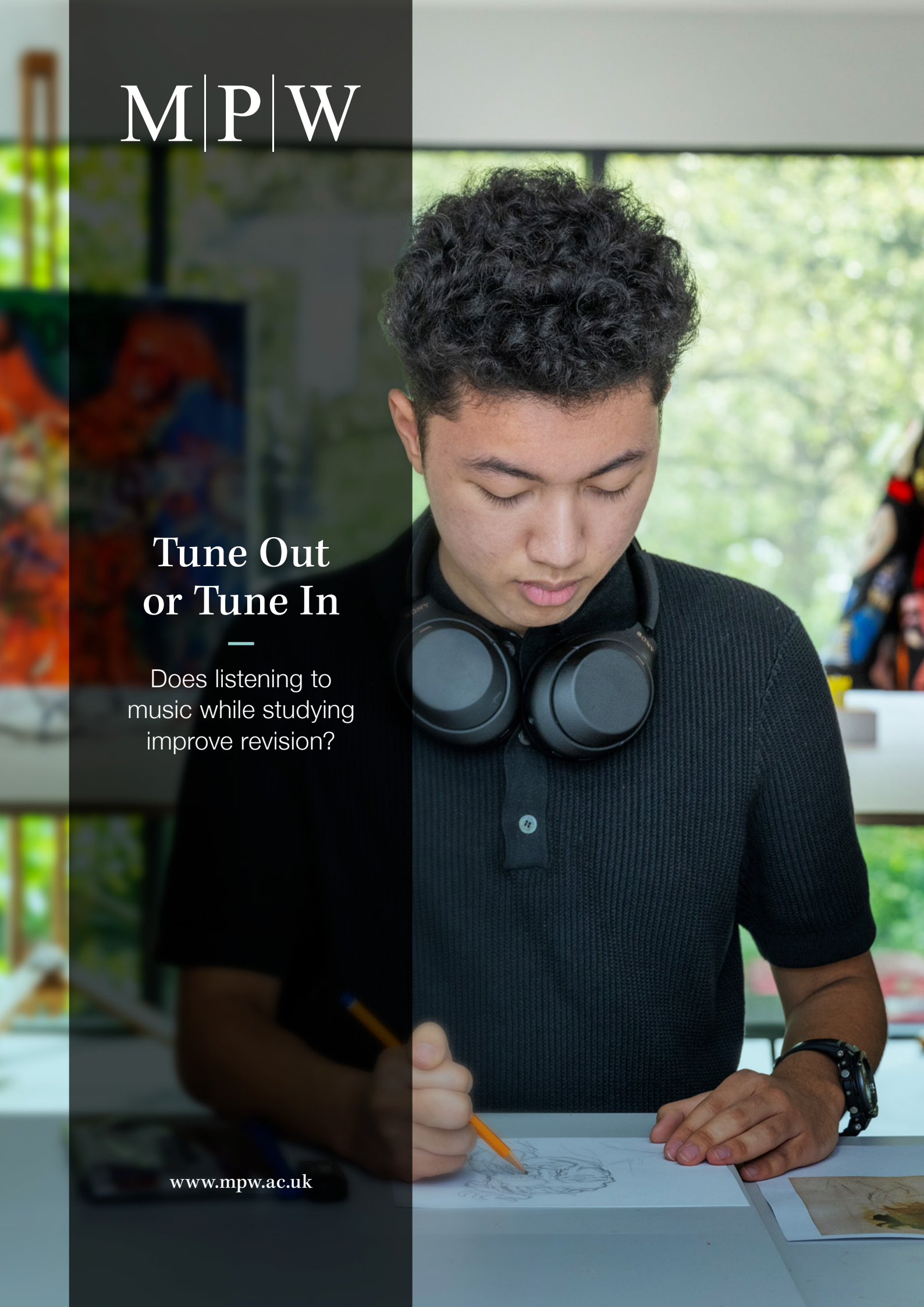
M|P|W

Tune Out or Tune In

Does listening to music while studying improve revision?



www.mpw.ac.uk

Foreword

"How can you possibly concentrate with those headphones on? What are you even listening to?"

Pete Venables

Managing Director,
Mander Portman Woodward I MPW

Few phrases echo through family homes during exam season quite as frequently as this one. At MPW, where we work with students preparing for their GCSEs and A levels, the question of whether music helps or hinders revision is among one of the most common we hear from concerned parents.

It has to be said that this debate has intensified as technology has made music more accessible than ever. Today's teens have grown up with instant access to millions of songs through smartphones and wireless headphones. For many, music is a constant companion – including during study time.

When parents discuss this issue with us, views range from firm conviction that music must be a distraction to uncertainty about whether some types of music might actually help. That's why we commissioned Dr Aric Sigman, a respected psychologist who specialises in health education, to examine the existing research.

His report reveals a nuanced picture that may surprise many families. You might wonder why we've invested in studying something that appears to be common sense, but the persistent debates between students and parents show that what seems obvious to one generation isn't always clear to another.

By commissioning Dr. Sigman, we've secured impartial, scientific evidence that parents and teachers can reference when students question why they can't revise while listening to their favourite artists. The answers aren't as straightforward as either side of the family debate might hope. Instead, the research points to several fascinating factors that determine whether those headphones are helping or hindering your child's revision success.

What factors matter most? Are there specific situations where music might help rather than hinder? Why might your child's personality type determine whether they should study in silence or with background sounds? And how can families make evidence-based decisions about revision environments as exam day approaches?

This report answers these questions with practical, evidence-based guidance that might just bring harmony back to exam-season households. The solutions vary more than most would expect, offering fresh perspectives for both parents and students.

"I hope you find Dr Sigman's report both enlightening and useful as you support your child through this challenging period. After all, successful revision isn't just about what students learn – but also about creating the right conditions for that learning to flourish."

Pete Venables, Managing Director

Does listening to music while studying improve revision?

An overview of the existing research by Dr Aric Sigman

Introduction

Music is ubiquitous in the lives of teenagers today. As a result of dramatic changes in technology - from free music streaming to smartphones, Bluetooth and sophisticated miniature headphones - teenagers have access to an infinite menu of musical options available 24 hours a day in any environment they find themselves in. One of those environments is their study environment as they prepare for A level and GCSE exams.

Although many teenagers may enjoy listening to music while they revise *(Golz & Sadakata 2021)*, does this equate to the music actually improving the quality of their revision? If the answer was a simple 'yes', departments of education across the world might instruct school libraries to play the Top 40 as background music to improve students' comprehension and memory. Many parents don't necessarily share the same taste in music as their children and are sceptical about their children's claims. And even if there is a general 'Mozart effect' on revision quality, they worry that this may be lost on their child who is unlikely to tune into Symphony No. 41 in C Major. This disparity in parent-child assumptions about the merits and demerits of listening to music while revising for A Levels may lead to conflict in the home.

In order to provide greater clarity on this subject, a brief summary of relevant research is provided below followed by guidance that emerges from it. Research findings in this area are complex and nuanced and come from a wide range of academic fields. Therefore, it may seem unsurprising that there is no one-size-fits-all prescription for students. Each student has to consider a number of factors before deciding on whether they will actually benefit from listening to music while revising and if so, what type of music they should choose or avoid. The following are some of the key points emerging which can provide guidance to families during exam season.

The student's psychometric personality characteristics and current state of mind

Boredom threshold

Whether listening to music will improve cognitive functioning while revising will depend, in part, on one's personality—specifically, the need for external stimulation. People with a low boredom threshold become bored more easily and have a greater need for external stimulation which they seek out. People with a High Sensation Seeking (HSS) personality are particularly prone to boredom. And people with low boredom thresholds while involved in a cognitive task often come off worse when listening to music. Conversely, people with a higher boredom threshold and low need for external stimulation may improve their mental performance with music. *(Gonzalez & Aiello 2019)*

Anxiety proneness

'Trait test anxiety' is a personality trait that predisposes someone to be anxious about evaluations and assessments such as looming A level exams, and it's distinct from state anxiety, which is situational: anxiety during the exam. Students with higher levels of trait test anxiety may experience less efficient learning during revision. *(Moran 2016)* Listening to certain types of music while revising may be calming and therefore of benefit to these students. *(Bowling 2023)*

Introvert / extrovert

Research back in the 1980s reported that more introverted students performed worse on memory tasks when they were in the presence of music compared to silence, while extroverts were less affected by the presence of music. *(Campbell & Hawley 1982)* Others have subsequently reported that introverted people had greater difficulty concentrating and experienced more fatigue when their mental processing tasks took place with background noise or distraction. *(Belojevic et al 2001, 2003; Abbasi et al 2020)*

Working memory capacity

All revision material needs to be processed within our working memory for it to be at all useful. It's our cognitive system that temporarily stores and manipulates information for reasoning, comprehension and learning. It's like a mental notepad where we can hold information while we're actively working with it.

However, working memory is a limited-capacity system, it can only hold a small amount of information at a time. *(Li et al 2025)*

Some students have a lower working memory capacity than others and their revision is more likely to be impaired by listening to music while studying. For them, listening to background music while revising may require additional working memory capacity that may otherwise be invested in the revision process.

However, in students with a higher level of working memory capacity researchers find that 'background music neither hindered nor fostered learning. For these learners it is merely a matter of personal preference as to whether they wish to learn with background music or not, for example in an attempt to raise their motivation levels. However, learners should be careful with their decision as to which music they chose to listen to'. *(Lehmann & Seufert 2017)*

Mood and motivational status

Music has been found to improve mood and productivity *(Orpella et al 2025)* and it has been suggested that this can benefit revision. However, to avoid the music improving mood or motivation while at the same time diminishing cognitive efficiency, it is important to take into account the type of music as discussed in the conclusions section below. And it may be preferable in some cases to listen to the music before or between revision sessions as opposed to during revision.

The revision environment

Ideally, students should revise in a quiet location. However, if there is significant noise from outside the home or interruptive sounds within the home, this can obviously interfere with learning, through distraction and an increase in stress or anxiety. *(Hahad et al 2025)* In such cases, the use of some music to mask the interfering noises may be an option for some students. *(Yuan et al 2023)*

Features of the music

Lyrics and the Seductive Details Effect

Listening to music while revising can trigger the Seductive Details Effect. This happens when students are exposed to interesting but irrelevant information that is not necessary for the actual revision. The 'seductive' nature of the interesting music is thought to divert a student's cognitive processing away from the revision material. *(Kienitz et al 2023; Sundararajan & Adesope 2020)* This phenomenon becomes more pronounced as the music becomes more relevant and interesting. Listening to pop music with lyrics is often cited as a 'seductive detail' when trying to learn. For example, when Chinese students attempted to learn while listening to pop music, 'comprehension performance was negatively affected by music with lyrics compared to the no music condition'. And when the students attempted to learn while listening to pop music with lyrics in their own native language (Mandarin), their comprehension of the material was worse than when they listened to pop music with foreign (English) lyrics. The researchers concluded 'listening to pop music with lyrics reduces reading comprehension performance. However, listening to background music causes much less distraction'. *(Sun et al 2024)*

> ***"The 'seductive' nature of the interesting music is thought to divert a student's cognitive processing away from the revision material."***
>
> **Sundararajan & Adesope**

Music v Cognitive Load Theory: too much information?

As mentioned above, revision is most effective when working memory is not overloaded. However, working memory can become overwhelmed when processing large amounts of new or complex information, leading to reduced comprehension and retention of revision material. Listening to some types of music may require more processing and so listening while revising may overload a student's cognitive processing capacity, leading to less comprehension and retention of what is revised. *(Schellenberg & Weiss 2013)* Music with more relevant, meaningful or linguistically sophisticated lyrics would be an obvious example.

Musical chords

Listening to certain musical chords alone without other instruments or parts playing while trying to learn has been found to improve 'concurrent associative memory' - the ability to simultaneously store and retrieve multiple links between different pieces of information while revising. Surprisingly, researchers found that listening to simple 'pleasant sounding' major chords while trying to learn new information was linked to worse memory. Even minor chords (more sad, melancholic) were linked with better memory than major chords. Conversely, memory was 'enhanced when studied in the presence of highly complex chords'. The researchers stress that the findings relate to chords alone, not whole pop songs. *(Kurzom et al 2023)*

Brain activity

A study in the journal Scientific Reports entitled 'The effects of background music on neural responses during reading comprehension' concluded that 'background music affects brain responses during reading comprehension by increasing the difficulty of semantic integration [combining and understanding multiple pieces of information to form a unified meaning]'. *(Du et al 2020)*

Pop song v bird song: Swift v swift

Younger people are more concerned about the natural environment yet overlook nature sounds when considering music to revise by. A clear example of the benefits is found in the title of a study in Scientific Reports - 'Birdsongs alleviate anxiety and paranoia in healthy participants'. (Stobbe et al 2022)

Nature sounds are also thought to improve cognitive performance. The study 'Of cricket chirps and car horns: The effect of nature sounds on cognitive performance' concluded 'we observed significant improvements in cognitive performance for individuals exposed to nature …evidence that brief experiences with natural sounds can improve directed attention functioning in a single experimental session'. *(Van Hedger et al 2019)* Another study was conducted while children studied intensively in the classroom and were given 3-minute breaks where they listened to various types of sound. In addition to the students feeling more restored, the researchers reported 'participants also showed better performance in short-term memory after exposure to fountain sound and stream sound, followed by soft and relaxing music without lyrics, and birdsong. Those results confirmed the actual restorative effects of perceived restorative soundscapes on children's cognitive performance.' *(Shu et al 2019)*

Scientists are now looking at the underlying mechanisms by identifying changes in the brain's functional connectivity and better cognitive functioning in response to listening to nature sounds. A recent study published in Environmental Research reported 'we found higher functional connectivity …when listening to nature as compared to urban sounds which was positively correlated to (post-pre) differences of the composite score of ...' two cognitive tasks. *(Stobbe et al 2024)*

Conclusions

Paradoxically, in order to avoid or minimise distraction and information overload while revising, it's better for students to listen to music they're not particularly interested in and don't have strong feelings about. Listening to music they either adore or dislike can affect their ability to concentrate.

Music with lyrics should be avoided, including rap, hip-hop and R&B. And if the music has lyrics, it's better if they are in a language the student doesn't understand.

Pump up the volume?

Irrespective of the sound choice, anything the student listens to should be played at a soft volume, not at a higher volume, which is more likely to cause distraction.

Fast or slow?

Music that is both fast and loud, often found in electronic dance music and pop, should be avoided, as it can distract and overstimulate at the same time. Examples are Shake It Off by Taylor Swift, which is 160 beats per minute (BPM), and Blinding Lights by The Weeknd at 171 BPM. The average tempo in pop music is 100 - 130 BPM. And although R&B has a much slower tempo of only 60 - 80 BPM and may be softer and more predictable in style, it is often lyric-led, henceforth potentially distracting.

Keep it predictable

Avoid surprising or experimental music. Music that suddenly changes abruptly or lacks a steady rhythm can be more distracting than steady more predictable music. Heavy metal music can fall into this category as it may contain dramatic shifts between loud and soft passages and also change tempo. Adverts that suddenly appear in streaming services are an excellent example of an interrupting, jarring effect to be avoided.

Keep it classic

A general prescription for students revising would be to choose slow, instrumental music. While classical music often falls into this category, students can also consider soft electronic or ambient music.

Don't overlook nature

Humans have an evolutionary connection with nature and are hardwired to respond to it. Listening to nature sounds such as fountain sounds, rain, stream sound or birdsong may not be as exciting or interesting as pop music, but while revising may reduce anxiety, increase restorativeness, improve attention and cognitive function more effectively than Bad Habits by Ed Sheerhan.

Silence is golden

Ideally, students should revise in a quiet location. However, if there is significant noise from outside the home or interruptive sounds within the home, the use of some music to mask the interfering noises may be an option.

The sound of (exam hall) silence

Exam halls do not play music - especially pop music. And to prepare students for the genuine event, schools do not play music during mock exams either. Therefore, as a student nears their exam date(s) it may be advantageous to replicate the sonic environment of the exam hall they will face on the day and not play music or sounds while they revise. *(Creely & Waterhouse 2024)*

Recommendations

Students and their families must consider whether an A level or GCSE candidate has a low boredom threshold. If they do, it may be better to avoid listening to music while revising and perhaps saving it for short study breaks. Students with a higher boredom threshold and lower need for external stimulation may improve their mental performance with certain music, as addressed above.

Students who are prone to anxiety with higher levels of trait test anxiety in advance of their exams may experience less efficient learning during revision. Listening to certain types of more relaxing music while revising may be calming and therefore of benefit to these students.

Highly introverted students may be more easily distracted and may benefit from studying in silence or with minimally intrusive music. Nature sounds may be preferable.

Students with lower working memory capacity - a more limited mental notepad they can hold information in while actively working with it - should try silence or minimally intrusive music. Those with greater working memory capacity can listen to music that isn't intrusive and may even increase their degree of motivation.

While a student may increase their motivation to study by listening to rousing music just ahead of the revision session, this can become counterproductive if listening at the exact same time as revising. Increases in the complexity of the revision material is very cognitively demanding and might reduce or eliminate any benefit of music.

Instead of last-minute cramming revision for exams, doing shorter study sessions - e.g. 25-30 minutes followed by a break - can significantly improve some memory and promote better conceptual understanding of revision material. *(Yuan 2022)* Listening to music that is either relaxing to stay calm or more energising to maintain motivation may be a strategy to employ during the study breaks. For more complex subject matter, it may require a student to extend the revision session to 60–90 minutes before taking a longer break.

> *"Highly introverted students may be more easily distracted and may benefit from studying in silence or with minimally intrusive music. Nature sounds may be preferable."*

Playlist

For students that still really want to listen to music while revising, MPW has prepared a playlist on Spotify.

Some of our favourite pieces are listed below.

1. **Brian Eno** - *"1/1"* (from Music for Airports)
   A classic ambient piece designed to be unobtrusive
2. **Claude Debussy** - *"Clair de Lune"*
   A well-known, gentle, and slow classical piano piece
3. **Erik Satie** - *"Gymnopédie No. 1"*
   Minimalist and melancholic piano music, very predictable
4. **The Nature Soundscapes** - *"Woodnear Forest (Rain)"*
   The calm and relaxing sound of rain falling in a forest with rain drops falling from trees and moss
5. **Tycho** - *"Awake"*
   Modern electronic music, often described as chillwave; instrumental, mid-tempo but generally steady
6. **Boards of Canada** - *"Olson"*
   An ambient electronic track with a warm, slightly nostalgic feel, repetitive structure
7. **Path to the Wild** - *"Relaxing Birdsong"*
   A variety of bird sounds designed to evoke a sense of tranquillity and relaxation
8. **Ludovico Einaudi** - *"Nuvole Bianche"*
   A popular modern classical piano piece, known for being calming and repetitive
9. **Max Richter** - *"On the Nature of Daylight"*
   A slow, atmospheric modern classical piece often used in films
10. **Aphex Twin** - *"#3" (from Selected Ambient Works Volume II)*
    A purely ambient, beatless electronic track

Beyond Sound: strategic revision techniques

Effective revision requires multiple strategies working in harmony. The following techniques can help students maximise their study time regardless of whether they choose silence or soundtracks, says Pete Venables.

1. Avoid Siberia

Never revise in the Siberian isolation of your bedroom. The dining room or kitchen table is less lonely, and you're more likely to stay on track (and off your phone) if others are around. Family members can also help by testing you, keeping the motivation up, and making sure the coffee keeps flowing!

2. Plan to succeed

Create a revision schedule to ensure all topics are covered - and at the right time. Tackle the harder topics, or least favourite subjects, first. This helps reduce the stress of uneven preparation, starting too late, or leaving too much until the last minute.

3. Active revision

Don't just lie on your bed reading. The "reading = revision" strategy can give the illusion of learning, but it's passive. Be active: answer questions, get someone to quiz you, or try teaching the material to someone else (family members are great, but the dog is often more patient).

4. Go for colour

Use mind maps, spider diagrams, Post-it notes, Quizlet, Memrise, mnemonics, storytelling, whiteboards, A3 paper, coloured paper, highlighters, and gel pens. You need to memorise the material—and a colourful approach helps. Black text on white paper is easy to forget.

5. Turn detective

Find out exactly what the examiner is looking for. Study past papers, mark schemes, exemplar responses, and examiner reports. These resources give valuable insight into how to shape your answers. Then practise accordingly.

6. Trick yourself

If you tend to procrastinate, tell yourself you're only going to revise for half an hour before taking a break, rather than committing to a full morning of slog. This helps you get started - and once you're going, you'll often keep going. Build in rewards throughout the day.

References

Abbasi M, Tokhi MO, Falahati M, et al. (2020). Effect of personality traits on sensitivity, annoyance and loudness perception of low- and high-frequency noise. Journal of Low Frequency Noise, Vibration and Active Control. 2020;40(2):643-655. doi: 10.1177/1461348420945818

Belojevic, G., Slepcevic, V., & Jakovljevic, B. (2001). Mental performance in noise: The role of introversion. Journal of environmental Psychology, 21(2), 209-213.

Belojevic, G., Jakovljevic, B., & Slepcevic, V. (2003). Noise and mental performance: Personality attributes and noise sensitivity. Noise and Health, 6(21), 77-89.

Bowling DL. (2023) Biological principles for music and mental health. Transl Psychiatry. 2023 Dec 4;13(1):374. doi: 10.1038/s41398-023-02671-4.

Campbell JB, Hawley CW (1982). "Study habits and Eysenck's theory of extraversion– introversion". Journal of Research in Personality. 16 (2): 139–146. doi:10.1016/00926566(82)90070-8

Creely, E., & Waterhouse, P. (2024). The power of silence for learning, artistic expression and mindfulness. Journal of Silence Studies in Education, 3(2), 73 - 76. https://doi.org/10.31763/jsse.v3i2.107

Du M, Jiang J, Li Z, Man D, Jiang C. (2020). The effects of background music on neural responses during reading comprehension. Sci Rep. 2020 Oct 29;10(1):18651. doi: 10.1038/s41598-020-75623-3.

Goltz, F., & Sadakata, M. (2021). Do you listen to music while studying? A portrait of how people use music to optimize their cognitive performance. Acta psychologica, 220, 103417.

Gonzalez, M. F., & Aiello, J. R. (2019). More than meets the ear: Investigating how music affects cognitive task performance. Journal of Experimental Psychology: Applied, 25(3), 431.

Hahad, O., Kuntic, M., Al-Kindi, S. et al. (2025). Noise and mental health: evidence, mechanisms, and consequences. J Expo Sci Environ Epidemiol 35, 16–23 (2025). https://doi.org/10.1038/s41370-024-00642-5

Kienitz, A., Krebs, M. C., & Eitel, A. (2023). Seductive details hamper learning even when they do not disrupt. Instructional Science, 51(4), 595-616.

Kurzom N, Lorenzi I, Mendelsohn A. (2023). Increasing the complexity of isolated musical chords benefits concurrent associative memory formation. Sci Rep. 2023 May 9;13(1):7563. doi: 10.1038/s41598-023-34345-y.

Lehmann JAM, Seufert T. (2017) The Influence of Background Music on Learning in the Light of Different Theoretical Perspectives and the Role of Working Memory Capacity. Front Psychol. 2017 Oct 31;8:1902. doi: 10.3389/fpsyg.2017.01902.

Li, H H. et al. (2025) Neural mechanisms of resource allocation in working memory.Sci. Adv.11,eadr8015(2025). doi:10.1126/sciadv.adr8

Moran, T. P. (2016). Anxiety and working memory capacity: A meta-analysis and narrative review. Psychological Bulletin, 142(8), 831– 864. https://doi.org/10.1037/bul0000051

Orpella J, Bowling DL, Tomaino C, Ripollés P. (2025) Effects of music advertised to support focus on mood and processing speed. PLoS One. 2025 Feb 12;20(2):e0316047. doi: 10.1371/journal.pone.0316047.

Schellenberg, E. G. & Weiss, M. W. (2013) Music and cognitive abilities. In Psychology of Music 499–550 (Elsevier Academic Press, 2013). 10.1016/B978-0-12-3814609.00012-2.

Shu S, Ma H. (2019) Restorative Effects of Classroom Soundscapes on Children's Cognitive Performance. Int J Environ Res Public Health. 2019 Jan 21;16(2):293. doi: 10.3390/ijerph16020293.

Stobbe E, Sundermann J, Ascone L, Kühn S. (2022) Birdsongs alleviate anxiety and paranoia in healthy participants. Sci Rep. 2022 Oct 13;12(1):16414. doi:10.1038/s41598-022-20841-0.

Stobbe E, Forlim CG, Kühn S. (2024) Impact of exposure to natural versus urban soundscapes on brain functional connectivity, BOLD entropy and behavior. Environ Res. 2024 Mar 1;244:117788. doi: 10.1016/j.envres.2023.117788. Epub 2023 Nov 29.

Sundararajan, N., & Adesope, O. (2020). Keep it coherent: A meta-analysis of the seductive details effect. Educational Psychology Review, 32(3), 707-734.

Sun Y, Sun C, Li C, Shao X, Liu Q, Liu H. (2024) Impact of background music on reading comprehension: influence of lyrics language and study habits. Front Psychol. 2024 Apr 5;15:1363562. doi: 10.3389/fpsyg.2024.1363562.

Van Hedger SC, Nusbaum HC, Clohisy L, Jaeggi SM, Buschkuehl M, Berman MG. (2019) Of cricket chirps and car horns: The effect of nature sounds on cognitive performance. Psychon Bull Rev. 2019 Apr;26(2):522-530. doi: 10.3758/s13423-0181539-1.

Yuan, J., Wang, X., Zhu, J., & Tian, M. (2023). The effect of background music and noise on alertness of children aged 5–7 years: An EEG study. Cognitive Development, 66, 101295.

Yuan X. (2022) Evidence of the Spacing Effect and Influences on Perceptions of Learning and Science Curricula. Cureus. 2022 Jan 13;14(1):e21201. doi: 10.7759/cureus.21201.

M|P|W

LONDON **020 7835 1355**
90-92 Queen's Gate
London SW7 5AB

london@mpw.ac.uk

BIRMINGHAM **0121 454 9637**
16-18 Greenfield Crescent
Birmingham B15 3AU

birmingham@mpw.ac.uk

CAMBRIDGE **01223 350158**
3-4 Brookside
Cambridge CB2 1JE

cambridge@mpw.ac.uk

www.mpw.ac.uk

cife

ISA INDEPENDENT SCHOOLS ASSOCIATION

ISI Independent Schools Inspectorate

independent schools council

Tailored, *not uniform*

Our mission is to work with students to transform academic aspirations into reality.

Aims

Encourage students to have high academic aspirations

Work in partnership with parents to encourage a strong work ethic and the confidence and self-belief to achieve those aspirations

Provide a broad and flexible curriculum that allows bespoke programmes of study which reflect individual needs and allow students to cultivate their specific academic interests and aptitudes

Assist students in achieving high academic success through a combination of small class sizes, high quality teaching and a clear focus on learning outcomes

Provide an excellent system of pastoral support that is geared towards individual needs and recognises the personal and emotional challenges faced by 14 to 19 year olds

Enable students to make informed choices about educational progression in such a way as to maximise their chances of securing places on competitive and prestigious courses

Provide a friendly and informal environment in which students are encouraged to develop personal discipline and values, lead fulfilled lives and make a positive contribution to society

Chair of Governors: Steve Boyes BA MSc PGCE
Mander Portman Woodward Ltd 90-92 Queen's Gate, London SW7 5AB *Tel:* 020 7835 1355

cife ISA INDEPENDENT SCHOOLS ASSOCIATION ISI Independent Schools Inspectorate independent schools council