

Classical vs. Pop Music and Reading Comprehension among Music Students: An Exploratory Pilot Study

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DOI: <https://doi.org/10.47772/IJRISS.2026.100701128>

Received: 11 August 2026; Accepted: 17 August 2026; Published: 22 August 2026

ABSTRACT

Background music is widely used by university students during study, yet evidence on whether particular genres support or disrupt concentration remains mixed, especially among trained musicians. This exploratory pilot study examined how classical and pop music related to reading comprehension and subjective concentration among a deliberately small sample of postgraduate music students. Four Master in Music Education students at Universiti Teknologi MARA (UiTM) Shah Alam were assigned to one of two conditions: classical music (Mozart's Piano Sonata No. 11 in A major; $n = 2$) or pop music (Lady Gaga's "Born This Way"; $n = 2$). During a remote Google Meet session conducted under COVID-19 constraints, each participant read a neutral chemistry-history text for ten minutes while listening to the assigned track, then answered ten comprehension questions without referring back to the text. Comprehension scores are reported descriptively only (classical: 7/10 and 3/10; pop: 5/10 and 8/10); no inferential statistics were computed, and the small N precludes generalisation. The primary contribution is a Braun and Clarke thematic analysis of questionnaire responses and individual online interviews, which yielded four themes: (1) distraction from understood-language lyrics; (2) musical familiarity, structure, and climactic features; (3) task type as a moderator of music suitability; and (4) individual preference and study habit. Participants consistently described lyrics in languages they understood, high-frequency or bass-heavy pop arrangements, and analytically engaging classical climaxes as disruptive during dense factual reading, while familiar instrumental or non-understood-language tracks were often experienced as less intrusive. The study is framed as hypothesis-generating groundwork for larger, controlled investigations rather than as evidence of causal genre effects.

Keywords: background music, reading comprehension, music students, exploratory pilot study, thematic analysis

INTRODUCTION

Whether background music helps or hinders academic concentration remains an open and highly context-dependent question. Many higher-education students report that music supports focus during revision, while others insist that silence is essential. Experimental and meta-analytic work has produced similarly mixed conclusions: music with lyrics often interferes with verbal tasks by competing for phonological and semantic resources, whereas instrumental music is frequently less disruptive, though complex, loud, or unfamiliar pieces can still draw attention away from the primary task [5], [8], [19]. Early claims associated with the so-called Mozart effect—that listening to classical music directly enhances spatial-temporal reasoning—have been substantially qualified; subsequent syntheses attribute short-lived gains largely to transient changes in mood and arousal rather than to a genre-specific cognitive boost [14], [18].

Most of this literature has sampled non-musicians. Postgraduate music students constitute a theoretically interesting population because extensive aural training can sharpen auditory discrimination and selective attention, yet the same training may also predispose listeners to analyse musical structure involuntarily when

music is present in the background [12], [17]. In other words, features that non-musicians treat as ambient sound—harmonic progression, syncopation, dynamic climax—may capture a musician's attention precisely because they are meaningful. Relatively few studies have examined how music students themselves experience background music during non-musical academic tasks such as reading dense factual prose.

This paper reports a small-sample, exploratory pilot study conducted with four Master in Music Education students at the Faculty of Music, Universiti Teknologi MARA (UiTM) Shah Alam. The work adapts elements of an earlier college-student paradigm by Dodge and Mensink [7] to a remote Google Meet setting necessitated by COVID-19 restrictions. Two participants listened to a classical piano work and two to a contemporary pop track while reading a chemistry-history passage, after which comprehension was assessed and subjective experience was explored through a questionnaire and individual online interviews.

Three points of framing are essential and are stated at the outset. First, $N = 4$ is a deliberately small exploratory sample; the study does not claim statistical power, causal inference, or population generalisability. Second, the comprehension scores are presented as descriptive observations only—no inferential tests were performed or are implied. Third, the primary intellectual contribution is qualitative: a thematic analysis of participants' accounts that generates grounded hypotheses about how lyrical content, familiarity, task type, and personal habit may jointly shape music students' concentration during reading. Quantitative scores are retained because they are real data from the sessions, but they are secondary to the thematic findings and must be read with the small- N caveat firmly in view.

The objectives of this pilot were therefore modest and exploratory: (a) to describe individual comprehension scores under classical versus pop background conditions in a music-student sample; and (b) to analyse participants' personal perceptions of how the assigned music related to their concentration, reading, and recall. The guiding research questions asked how instrumental music and music with text were experienced during a reading-comprehension task, and what role genre, task demands, and preference appeared to play in those experiences.

LITERATURE REVIEW

Research on background music and cognition is extensive but fragmented. Reviews and primary studies converge on several moderators rather than on a single genre effect. For verbal tasks such as reading comprehension, music containing lyrics—especially lyrics in a language the listener understands—tends to impair performance relative to silence or to instrumental music, consistent with the irrelevant-sound and dual-task literatures [8], [9], [19]. Instrumental music is not uniformly benign: fast-and-loud excerpts, highly complex textures, and unfamiliar structures can still reduce comprehension, whereas moderate-tempo, lower-arousal instrumental tracks are more often tolerated or even subjectively preferred [3], [5].

The arousal-mood hypothesis offers one integrative account: music influences performance mainly by shifting affective and physiological state, which may facilitate simple or well-practised tasks but disrupt demanding semantic processing [18]. Personality and habitual listening further moderate outcomes; for example, introverts have been found more vulnerable than extraverts to background music during reading [9], and listeners who regularly study with self-selected playlists may develop filtering strategies that occasional listeners lack [16]. Systematic reviews emphasise that task type, music features, and population characteristics interact, so blanket recommendations for or against study music are rarely warranted [5], [6].

Music training adds a further layer. Trained musicians often show enhanced auditory skills and speech-in-noise processing [12], [17], yet heightened sensitivity can cut both ways during dual-task situations: the same listener who benefits from refined auditory scene analysis may also be drawn into analytical listening when a structurally interesting piece plays in the background. Malaysian and regional studies have begun to examine music, attention, learning, and well-being in local student populations [1], [2], [10], [11], [13], [15], but work that centres postgraduate music students' own accounts of concentration under contrasting genres remains scarce. The present pilot addresses that gap in a deliberately modest, hypothesis-generating way.

METHODOLOGY

This exploratory pilot adopted a qualitative-dominant mixed-methods design. A brief comprehension probe supplied descriptive performance snapshots, while open-ended questionnaire items and individual online interviews supplied the primary dataset for thematic analysis. The design adapted the reading-and-comprehension component of Dodge and Mensink's college-student paradigm [7] to a fully remote protocol. Because the sample was intentionally small, the study was never powered for between-group statistical comparison; quantitative scores are reported only as individual observations.

Participants and sampling

Four postgraduate students enrolled in the Master in Music Education programme at UiTM Shah Alam took part in the main sessions. A separate procedural pilot with four Master in Music Performance students was run beforehand to refine timing, volume instructions, questionnaire wording, and technical requirements (stable connection, earphones, screen recording). Pilot participants were not included in the main analysis. Main-study participants were young adults (approximately 21–24 years) and included both male and female students. Assignment to condition yielded two participants in the classical condition (Participants A and B) and two in the pop condition (Participants C and D). Recruitment and scheduling were constrained by COVID-19 campus and facility rules, which also motivated the remote format; the small N reflects these practical limits and the study's explicit pilot purpose rather than an attempt at representative sampling.

Musical stimuli and reading materials

The classical stimulus was Mozart's Piano Sonata No. 11 in A major, a work frequently used in music-cognition research for its formal clarity and moderate character. The pop stimulus was Lady Gaga's "Born This Way," selected for its prominent lyrics, strong beat, and relatively bright, high-energy production. Both tracks were played through participants' own earphones at approximately 50% of device maximum output, following calibration guidance developed in the procedural pilot. The reading passage was a neutral text on the history of chemistry and early chemists/alchemists, chosen because it contained no musical content and presented moderate factual density. Comprehension was assessed with ten questions targeting factual recall (names, dates, quantities, events) and basic inferential understanding; scoring awarded one point per correct answer (maximum 10).

Procedure

All sessions were conducted remotely via Google Meet. Participants joined from a quiet room with a stable internet connection, used earphones, and kept their microphones on as instructed. After informed consent, each session proceeded in three phases. In the reading phase, the assigned music began as the participant started a ten-minute reading period; participants were asked not to pause, rewind, or adjust volume during this interval. In the comprehension phase, the music was stopped and participants had up to ten minutes to answer the ten questions without referring back to the text; compliance was monitored by webcam. In the qualitative phase, participants first completed open-ended questionnaire items about concentration, perceived help or hindrance, salient musical features, usual study-music habits, and the role of task type; each participant then took part in an individual semi-structured online interview that probed questionnaire answers in greater depth. Sessions lasted approximately 45 minutes per participant.

Data analysis and ethics

Comprehension scores were tabulated per participant and summarised with simple descriptive comments only. No t-tests, ANOVAs, or other inferential procedures were applied, and none should be inferred from the reporting. Questionnaire and interview data were transcribed and analysed following Braun and Clarke's six-phase thematic analysis: familiarisation, initial coding, theme searching, theme review, theme definition and naming, and write-up [4]. Themes were developed inductively from participants' language while remaining sensitised to constructs highlighted in the literature (lyrics, familiarity, task type, preference). All participants provided informed consent. Anonymity was preserved through letter codes (A–D), and the work followed UiTM ethical expectations for student research involving adult volunteers.

RESULTS

Results are presented in two parts. The first reports individual comprehension scores as descriptive observations. The second—and principal—part presents four themes from the qualitative analysis, illustrated with verbatim quotations from the questionnaire and individual interviews.

Descriptive comprehension scores

Table 1 displays each participant's condition and score. In the classical condition, Participant A scored 7/10 and Participant B scored 3/10. In the pop condition, Participant C scored 5/10 and Participant D scored 8/10. The within-condition spreads (four points in classical; three points in pop) are large relative to the scale, and the highest individual score occurred under pop while the lowest occurred under classical. These patterns are incompatible with any simple claim that one genre uniformly supported better comprehension in this sample. Given $N = 4$, the figures are best read as individual snapshots that motivate qualitative inquiry, not as estimates of genre effects.

Table 1: Individual comprehension test scores by music condition (maximum = 10)

Participant	Music Condition	Comprehension Score (out of 10)
A	Classical (Mozart, Piano Sonata No. 11 in A major)	7
B	Classical (Mozart, Piano Sonata No. 11 in A major)	3
C	Pop (Lady Gaga, "Born This Way")	5
D	Pop (Lady Gaga, "Born This Way")	8

Three of the four participants reported that they ordinarily listen to music while studying (A, C, and D); Participant B did not. This habit difference is taken up in the thematic findings below and offers one plausible contributor to the score dispersion alongside genre.

Qualitative findings: thematic analysis

Four interrelated themes were identified: (1) the distracting nature of understood-language lyrical content; (2) the roles of musical familiarity, structure, and climactic or high-arousal features; (3) task type as a moderator of music suitability; and (4) individual preference and established study habit. Together they suggest that, for these music students, concentration during reading was shaped less by the label "classical" or "pop" alone than by specific audible features interacting with the demands of dense factual text and with each listener's routines.

Theme 1: Distracting nature of understood-language lyrics

Across conditions, participants repeatedly identified lyrics—particularly lyrics in languages they understood—as a primary pull on attention during reading. Participant A, who scored 7/10 under classical music and habitually studies with sound, contrasted instrumental or non-understood-language tracks with songs in Malay, Indonesian, or English:

"If I listen to music with text that I can understand the meaning such as Malay, Indonesian, or English, I kind of like to analyze the meaning of the lyrics and I would really focus on that instead of focusing on something that I am working on. So I get distracted easily by it. Instead of doing something that I should be doing, I tend to pull myself to try to understand the meaning of the lyrics in the music that I am listening to. So when I listen to instrumental music, or any music with text that I do not understand such as Korean music, I will not try to analyze the meaning of the lyrics, instead I can focus more on what I am reading."

She linked this pattern to an internal monologue that could coexist with non-lyrical sound but competed with comprehensible words: "Unless I listen to music that I can understand the lyrics, such as English and Malay, I tend to get distracted." Reflecting on the classical condition specifically, she judged that the absence of

understandable text had helped: "Since I listened to classical music, I believe I did better at answering the questions than if I was listening to generic pop music that I could understand."

Participants in the pop condition described related interference, often bundling lyrics with other high-arousal features. Participant C (5/10, pop) reported that the track was "too distracting as it has many musical elements and is loud," and that she "needed to repeat her readings several times" to process unfamiliar chemistry content. Participant D (8/10, pop) found the song poorly matched to sustained reading because of its bass and arrangement, and stated that it was "really hard for him to recall all the information from the text as the song was too noisy and not relax[ing]." The shared thread is that semantically accessible vocal content—and, for some, the broader pop production package—competed with encoding of the reading material, consistent with dual-task and irrelevant-speech accounts [8], [9], [19].

Theme 2: Familiarity, structure, and climactic or high-arousal features

Genre labels did not exhaust participants' explanations; familiarity, structural events, frequency balance, and dynamic shape were equally salient. Participant B (3/10, classical), who does not usually study with music and is a classical piano major, described being pulled toward the piece at structurally interesting moments:

"At first, I was actually distracted, because I was listening to the music and I felt interested to listen to the music more but I tried to focus on the reading again and yes I did focus on reading. But shortly after it went to the climax, I was distracted again because of the music because it sounded so interesting because I heard a syncopated rhythm. The music was also gradually getting loud and I love the music so I got distracted because I was interested in the music."

She added that analytical listening is closely tied to her training: "Because I am majoring in classical piano, I listen to classical music a lot. So when I hear classical music, I tend to analyze the music instead." Over the session she partly adapted—"at first it was distracting but I get used to it because the music has repetition"—and noted that the lack of lyrics made it easier to treat the sound as accompaniment once novelty declined: "And one more thing is that there is no lyric, so to me I just enjoy listening to it while focusing on the test." Even so, she preferred silence for study overall.

In the pop condition, timbral and spectral qualities mattered. Participant C described Lady Gaga's track as aurally aggressive on first exposure:

"Yes, so the music that you gave to me was by Lady Gaga, and that was my first time listening to that song. The music elements were like ripping my ears as the tone of the music was very sharp. This is also because the music was in a high frequency and compared to the pop song that I recommended or suggested, even if the music was an electronic bass music, I am more comfortable with it because it had more bass in it instead of high frequency elements."

Participant D focused on groove and motor recruitment:

"The music was making my body move. I can't focus on my reading because of that. I keep on stopping while reading so it was really hard for me to understand the text and yet I keep on reading the text again so that I am able to understand. If you give me classical music, or maybe more calming music, I will be able to read the text more relaxed."

Conversely, Participant A experienced the Mozart track as compatible with imagery that supported comprehension of a historical narrative. She explained that historical films often use classical scores, so the chemistry-history passage felt of a piece with that sound world:

"Basically the text was about the history of chemistry and the music that was given to me is classical, which is Mozart. I do not know about anyone else but, I definitely like to watch movies. Usually those historical movies will eventually use classical music as background so the text that I was reading was a bit like in those era '1700s'. I kind of imagine those people in the movie with that music background while doing the experiment."

For her, structure and style aligned with the text's era rather than competing with it. These accounts suggest that among music students, structural listening, timbral comfort, and narrative fit can amplify or dampen distraction beyond a binary classical-versus-pop contrast.

Theme 3: Task type as a moderator of music suitability

Participants consistently argued that the same track could be helpful or harmful depending on what they were trying to do. Dense factual reading of unfamiliar historical material was widely described as requiring calmer, less motorically activating sound. Participant D made the contingency explicit:

"Usually when I do assignments or read something, I will always listen to music. But with only certain genres. In the experiment last time, you gave me a pop song by Lady Gaga and with the text that was basically about chemistry history, I could not really cope with it. For history articles or text, I think it would be more suitable if I listen to music that is more calming and chill. The tempo of the pop music and more heavy elements was really distracting and it was hard for me to focus on the text. But I think it would be different if I read an article that was about learning or any other than history. For me, the type of text I read really matters for the type of music I listen to."

He further separated reading from other academic work: classical music for reading articles; hip hop for assignments; electronic or club music for editing or practical tasks - "Depends on the situations I'm in." Participant C similarly reserved upbeat, familiar pop for material she already knew and for energising writing work, matching tempo to task urgency: "When I read a text, I will listen to upbeat music with mid tempo and when I do assignments I will listen to fast upbeat music." She associated classical or textless music with winding down when cognitively overloaded, noting that she "usually listen[s] to that kind of music before going to sleep or when I try to calm myself down," and that "when there is too much information in my head, I will listen to classical music or music without text to calm myself down."

Participant A described music's role during long reading as anti-boredom and mild mood elevation, provided the track did not impose understandable lyrics: "When I had to read a long text about history. I will get bored easily without having anything as music background rather than reading everything in silence which is very boring." Collectively, Theme 3 aligns with literature showing that complex verbal tasks are more vulnerable to salient musical features than simpler or creative tasks [3], [5], [9], and it cautions against one-size-fits-all study-music advice.

Theme 4: Individual preference and study habit

Habit and preference threaded through every account. Participant A curated playlists around languages she would not semantically parse—classical, K-pop, Korean R&B, instrumental, "basically anything that is not in English or Malay." Participant C preferred familiar electronic or idol-pop tracks such as "Savage" by aespa when she wanted pace and motivation, and stressed comfort with known music: "when I consume information, I can just listen to the music I know and proceed with the task I am working with." Participant D combined classical and hip hop strategically by activity type and preferred Romantic-era classical over denser Baroque textures when he wanted calm:

"For me, classical music really does work to calm us down. For example, for me, I am not really into baroque or [eighteenth] century music. That is a classical piece too but in a different period. If I read an article or text while listening to classical music in the [Baroque] century, I think I won't be able to concentrate because the music has a lot of dissonance and chords that are really unpleasant to hear. If you listen to classical or romantic music, you can really feel the music or feel what the composer try to write and that will make you relax. So for me, classical and romantic music really helps me a lot especially during my diploma and degree time."

Participant B, the only non-habitual study-music user, found even instrumental classical only partially compatible with reading and ultimately preferred "not listening to music and a very silent surrounding." She allowed that classical without text was more workable than pop with text ("Yes for classical but not pop music with text"), but still secondary to silence: "I can listen to classical music without text while studying but I prefer

not to listen to music because I can focus more on studying." These contrasts imply that part of what looks like a "genre effect" in small samples may instead reflect the match or mismatch between an imposed track and a listener's practised auditory routine—an interpretation that larger within-subject designs could test directly.

DISCUSSION

Read as an exploratory pilot, the study's contribution is a set of grounded observations about how four postgraduate music students experienced classical versus pop background music during a short reading-comprehension task. The descriptive scores did not favour either genre: the best and worst performances cut across conditions, and within-condition variability was substantial. The qualitative data, by contrast, were coherent. Participants pointed to understandable lyrics, high-arousal pop production (sharp high-frequency energy, heavy bass, motoric groove), and—among classically trained listeners—structurally interesting climaxes and an urge to analyse the music as the main routes to distraction during dense factual reading. Familiar instrumental or non-understood-language music, moderate repetition, and calmer stylistic choices were more often described as tolerable or mood-supporting, especially when aligned with the listener's usual habits and with the demands of the task.

These patterns sit comfortably with existing theory without requiring strong causal claims from the present N. Lyrical interference during verbal tasks echoes irrelevant-sound and dual-task findings [8], [9], [19]. The importance of arousal and dynamic profile resonates with work showing that fast, loud, or highly stimulating music can impair comprehension even when lyrics are absent [3], [5]. The arousal-mood perspective helps explain why the same participant might want upbeat pop for routine or creative work yet reject it for unfamiliar historical prose [18]. Most distinctive to this population is the analytical-listening theme: music students may not be able to leave musicianship at the door when a sonata climax or a striking syncopation appears, a possibility foreshadowed by research on musicians' auditory expertise [12], [17].

Practically, the pilot suggests cautious, personalised guidance rather than genre prescriptions. Students—and music students in particular—may benefit from noticing whether a track invites semantic processing of lyrics, motor entrainment, or formal analysis during reading, and from matching quieter instrumental or non-understood-language options to heavy verbal study. Educators might treat auditory environment as a learnable study skill: experimenting with familiarity, lyric language, and task type could be more useful than enforcing silence or promoting classical music as universally superior. None of these suggestions is demonstrated as an average treatment effect here; they are hypotheses distilled from participants' own explanations.

LIMITATIONS

The limitations of this pilot are central to its honest interpretation and are stated emphatically. First, $N = 4$ precludes inferential statistics, reliable effect-size estimation, and generalisation beyond the participating individuals. The comprehension scores must not be read as evidence that pop or classical music "improves" or "harms" comprehension on average. Second, each participant experienced only one music condition and there was no silent control, so relative standing versus no music cannot be assessed, nor can within-person genre contrasts. Third, the sample was drawn from a single programme at a single Malaysian institution; transfer to undergraduates, non-musicians, or other cultural settings is unknown. Fourth, remote Google Meet administration left audio equipment, ambient noise, and home environments only partly controlled despite pilot-refined instructions. Fifth, the reading task was a single short chemistry-history passage; other genres of text or longer study sessions might yield different subjective patterns. Sixth, thematic analysis of a small interview corpus is inherently interpretive; although quotations are authentic, theme boundaries reflect analytic judgement.

These constraints are not merely caveats appended to an otherwise confirmatory study; they define the work's genre. The appropriate use of the findings is to inform the design of larger, pre-registered studies—ideally within-subjects designs that cross music features (lyrics present/absent, familiar/unfamiliar, high/low arousal) with task types (dense reading, problem solving, creative writing) and that compare music students with non-music peers under silent as well as musical conditions [5], [6], [16].

Directions for future research

Future work should recruit adequately powered samples, include silent baselines, and manipulate lyric intelligibility and structural salience directly rather than relying on broad genre labels. Comparing musicians and non-musicians on the same protocol would test whether analytical listening uniquely elevates distraction from classical climaxes. Eye-tracking or secondary-task measures could complement self-report [16], and longer ecologically valid study sessions would speak more directly to everyday revision. Until such evidence exists, the present themes should be treated as plausible mechanisms, not settled effects.

CONCLUSION

This exploratory pilot examined classical and pop background music during a reading-comprehension task among four UiTM postgraduate music students. Descriptive comprehension scores (classical: 7 and 3; pop: 5 and 8 out of 10) were dispersed and did not support a uniform genre advantage. Thematic analysis of questionnaires and individual interviews indicated that understood-language lyrics, high-arousal pop production features, and—for a classically trained listener—structurally engaging climaxes were commonly experienced as disruptive during dense factual reading, whereas familiar instrumental or non-understood-language music and calmer stylistic choices were more often described as compatible with concentration, especially when matched to task type and personal habit.

The study's value lies in transparent small-sample inquiry and in the specificity of music students' accounts, not in generalisable causal claims. Instrumental and slow-to-moderate music without semantically accessible lyrics emerged, in participants' own words, as generally kinder to reading concentration than lyric-forward pop; yet even classical music could distract when it invited analysis or peaked in intensity. These observations generate clear hypotheses for larger controlled studies and offer provisional, personalisable prompts for students reflecting on their own auditory study environments.

ACKNOWLEDGEMENTS

The authors thank the postgraduate music students who generously volunteered their time for the pilot and main sessions. This study received ethical approval from the Universiti Teknologi MARA Research Ethics Committee (reference number: CCA/MZ/5/2022(EXM01)). The research was made possible by the generous HICoE funding KPT.BP(S).400-2/4/4 Jld.2(14) from the Ministry of Higher Education, Malaysia.

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