Investigating the Perceptions of Background Music on Concentration Levels

When Performing Task among Introverted and Extroverted Students in CUHKSZ

Cellinie 122040006

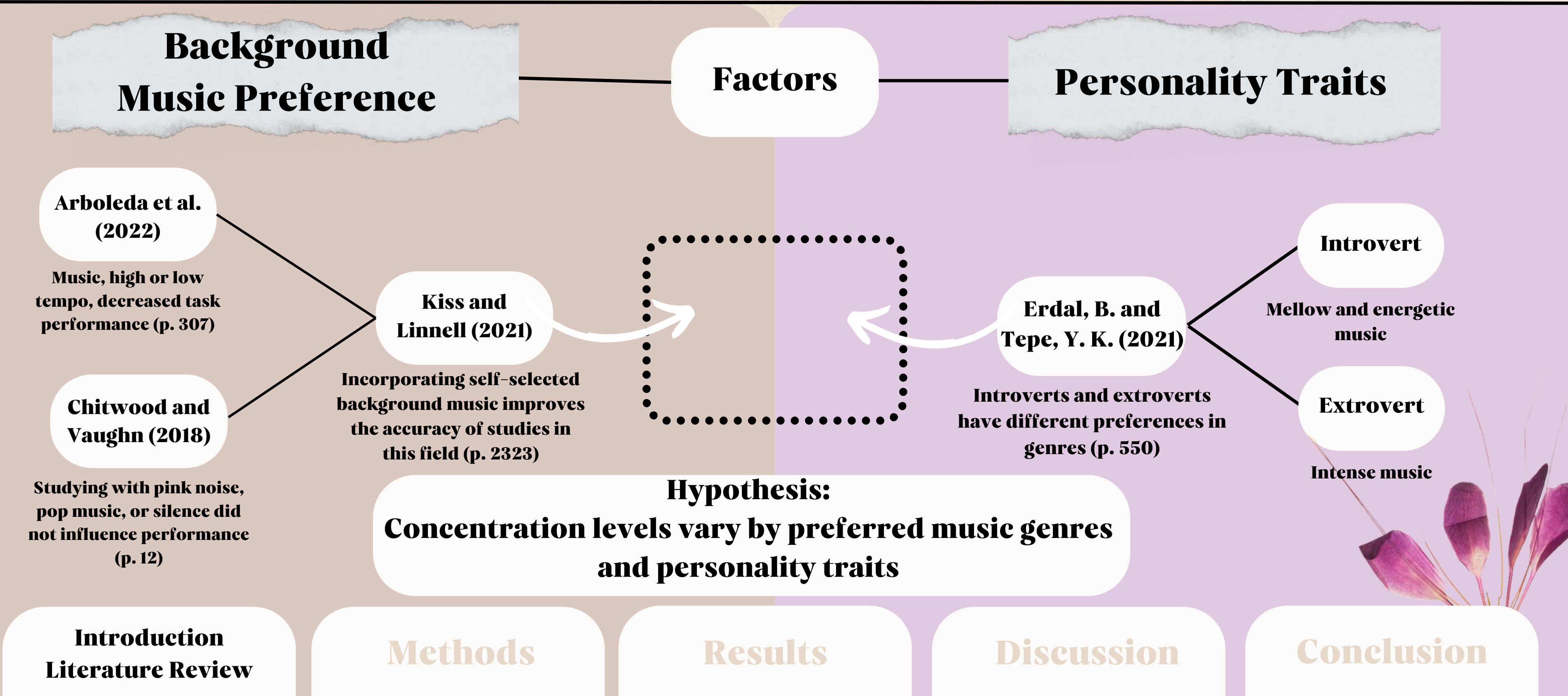# Table of Contents

While many students believe that listening to music improves concentration, some perceive it as a distraction

Background Music Preference

Factors

Personality Traits

Arboleda et al. (2022)

Music, high or low tempo, decreased task performance (p. 307)

Kiss and Linnell (2021)

Incorporating self-selected background music improves the accuracy of studies in this field (p. 2323)

Chitwood and Vaughn (2018)

Studying with pink noise, pop music, or silence did not influence performance (p. 12)

Erdal, B. and Tepe, Y. K. (2021)

Introverts and extroverts have different preferences in genres (p. 550)

Introvert

Mellow and energetic music

Extrovert

Intense music

Hypothesis:
Concentration levels vary by preferred music genres and personality traits

Introduction Literature Review

Methods

Results

Discussion

Conclusion

The study aims to connect the dots between preferred music genres on personality traits and concentration levels

Significance of Research

Personalized strategies for optimizing work conditions and well-being based on personality traits

Research Questions

1. Investigating whether concentration levels vary by personality traits and music genres
2. Examining the best music genres in both categories for better concentration
3. Investigating the factors contributing to concentration when using preferred genres

Mixed Method

Quantitative survey

- Likert-scale questions with descriptive analysis and ordinal regression

Qualitative survey

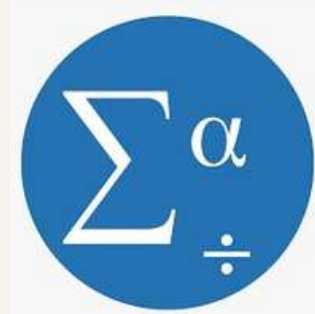- Open-ended questions with thematic analysis and in vivo coding

Tools

Microsoft Forms **Microsoft Excel** **IBM SPSS**

41 Participants

- Stratified random sampling of students from CUHKSZ

Introduction
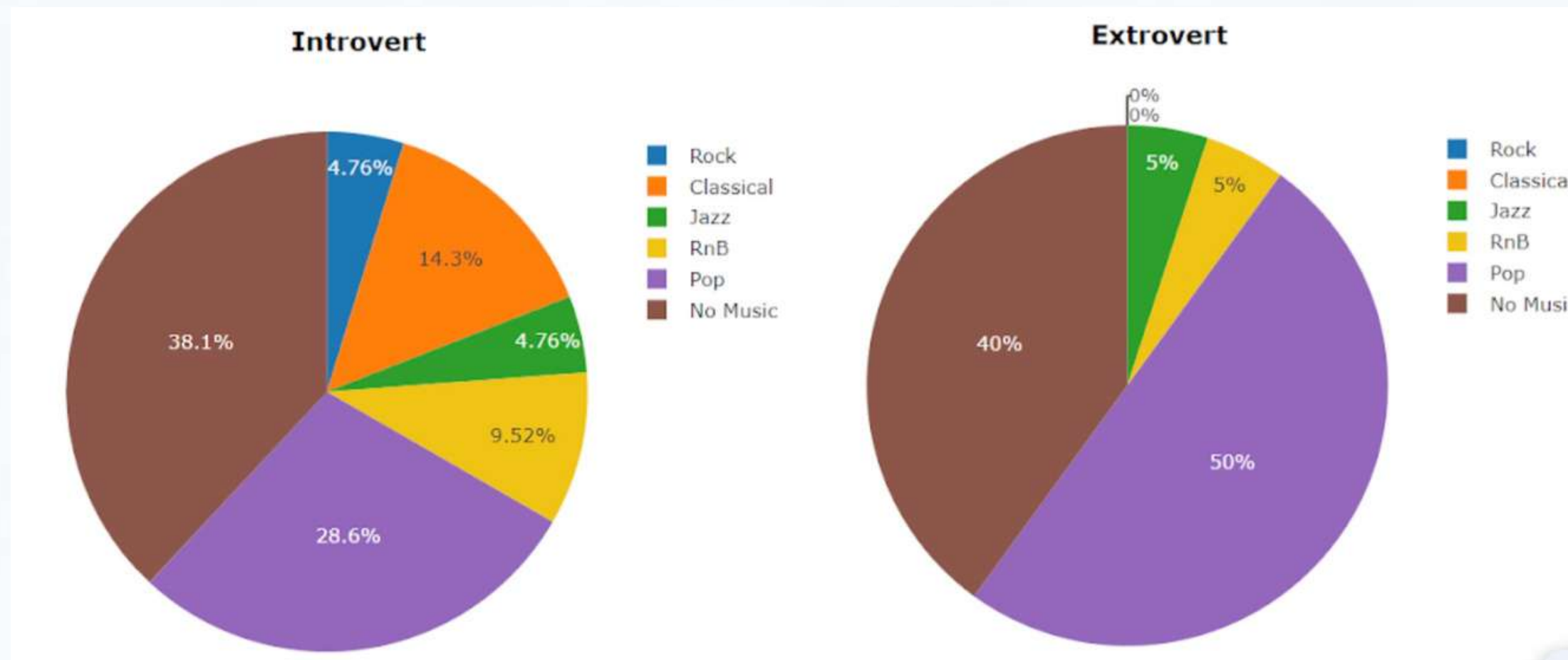Literature Review

Methods

Results

Discussion

Conclusion

Personality-Genre Preferences on Concentration

Intro or extro * Genres Crosstabulation

Count

		Genres						Total
		Rock	Classical	Jazz	RnB	Pop	No Music	
Intro or extro	introvert	1	3	1	2	6	8	21
	extrovert	0	0	1	1	10	8	20
Total		1	3	2	3	16	16	41

Introduction
Literature Review

Methods

Results

Discussion

Conclusion

Ordinal Regression: Prediction of Concentration Levels

Introvert

		Estimate
Threshold	[Concentration_level = 3,00]	-59.285
	[Concentration_level = 4,00]	-21.118
Location	[Genres_of_music=1,00]	-40.212
	[Genres_of_music=2,00]	-21.811
	[Genres_of_music=3,00]	-40.212
	[Genres_of_music=4,00]	-59.285
	[Genres_of_music=5,00]	-22.728
	[Genres_of_music=6,00]	0[a]

Link function: Logit.

Introverts concentrate best with No Music, followed by Classical and Pop

Genres of Music	Estimates	Exponential Value
Rock	-40.212	3.436×10^{-18}
Classical	-21.811	3.37×10^{-10}
Jazz	-41.212	1.26×10^{-18}
RnB	-59.285	1.79×10^{-26}
Pop	-22.728	1.347×10^{-10}

The odds of "Genres of Music" is exponential value times the odds of "No Music"
Hierarchy:
No Music-Classical-Pop-Jazz-Rock-RnB

Ordinal Regression: Prediction on Concentration Levels

Extrovert

		Estimate
Threshold	[Concentration_level = 3,00]	-21.847
	[Concentration_level = 4,00]	-19.074
Location	[Genres_of_music=3,00]	-40.573
	[Genres_of_music=4,00]	1.048E-9
	[Genres_of_music=5,00]	-20.460
	[Genres_of_music=6,00]	0[a]

Link function: Logit.

Extroverts concentrate best in silence (no music) and with RnB music

Genres of Music	Estimates	Exponential Value
Rock	-	-
Classical	-	-
Jazz	-40.573	2.39 x 10^(-18)
RnB	1.048 x 10^(-9)	1.000000001
Pop	-20.460	1.3 x 10^(-9)

The odds of Genres of Music is exponential value times the odds of No Music
Hierarchy:
RnB-No Music-Pop-Jazz
no result in rock and classical

Thematic Analysis: Factors Contributing to Concentration

	Introvert	Extrovert
Rock	• Hectic and intense • More focused	
Classical	• Productive	
	• Sidetrack, lose focus, and procrastinate	• Lack of focus
Jazz	• Less boredom	• Enjoyable and efficient
		• Lack of concentration
RnB	• More motivated	• More focus
	• Hard to concentrate	
Pop	• More focus • More entertaining • Concentrate better	• Concentrate better • More focused and organized • Great and fun • Energized
No Music		• Optimum concentration

Common themes:

People who listen to music for concentration prefer enjoyability to perform their task with a sense of motivation

Comparison

Genres of Music	Introvert (exponential value)	Extrovert (exponential value)	Better Suited Personality
Rock	3.436×10^{-18}	-	Introvert
Classical	3.37×10^{-10}	-	Introvert
Jazz	1.26×10^{-18}	2.39×10^{-18}	Extrovert
RnB	1.79×10^{-26}	1.000000001	Extrovert
Pop	1.347×10^{-10}	1.3×10^{-9}	Extrovert

Distribution

Introverted participants demonstrated a more balanced distribution among various music genres compared to extroverts

Introvert

No Music was on top of the list for introverts, aligning with its perceived calming and focus-enhancing properties

Extrovert

Extroverts concentrate best in silence and with RnB

Introduction
Literature Review

Methods

Results

Discussion

Conclusion

Eysenck, H. J. (1963)

Implications

Aghajani, M. (2019)

Theory of Personality
(p. 1033)

Background music has the potential to be used as an effective aid for performance where the music is prepared with the participant's favorite (p. 24)

Introvert

Extrovert

Higher natural base level of excitation

Lower base arousal

Do not need to seek out stimulating environment

Choose environments that provide more stimulation

Hypothesis is accepted!

Introduction
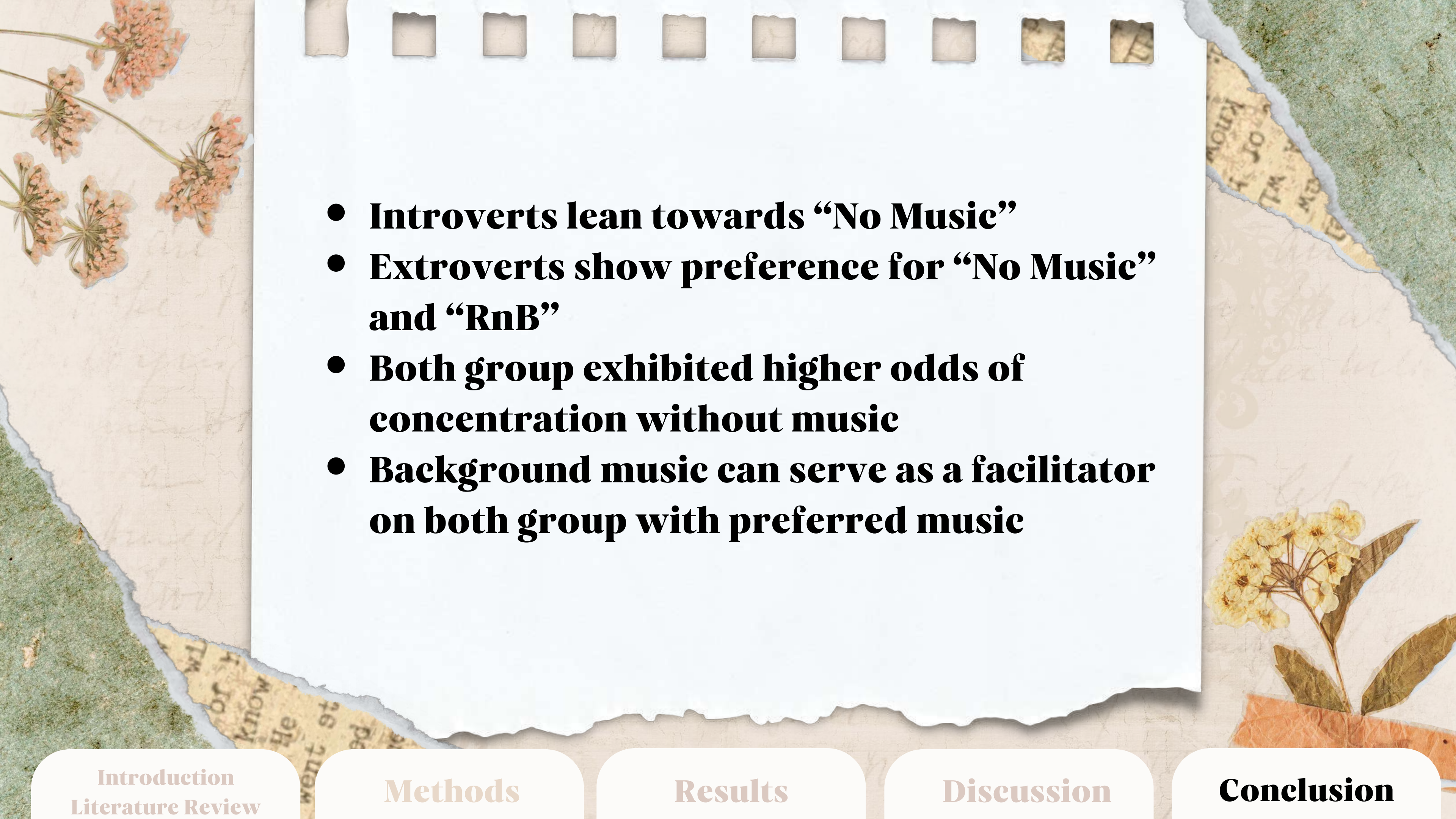Literature Review

Methods

Results

Discussion

Conclusion

Limitations

- Small sample size
- Disproportionate representation of participant preferences among music genres

Recommendations

- Equally representing each music genre of interest
- Incorporating major-based analysis

- Introverts lean towards "No Music"
- Extroverts show preference for "No Music" and "RnB"
- Both group exhibited higher odds of concentration without music
- Background music can serve as a facilitator on both group with preferred music

References

Aghajani, M. (2019). The effect of background music on reading comprehension regarding extroverts/introverts personality dimensions. *Contemporary Research in Education and English Language Teaching, 1*(2), 19-24. 10.33094/26410230.2019.12.19.24

Arboleda, A., Arroyo, C., Rodriguez, B., & Arce-Lopera, C. (2022). A stressful task is when to turn off the music: Effect of music on task performance mediated by cognitive effort. *Psychology of Music, 50*(1), 298-311. https://doi.org/10.1177/0305735621996027

Chitwood, M. R., & Vaughn, K. E. (2018). Cognitive performance and sounds: The effects of lyrical music and pink noise on performance. *Psychological Sciences, 1*, 9-14. https://www.researchgate.net/publication/329916144_Cognitive_Performance_and_Sounds_The_Effects_of_Lyrical_Music_and_Pink_Noise_on_Performance

Eysenck, H. J. (1963). The biological basis of personality. *Nature 199*, 1031–1034. https://doi.org/10.1038/1991031a0

Kiss, L., & Linnell, K. J. (2021). The effect of preferred background music on task-focus in sustained attention. *Psychological Research, 85*, 2313–2325. https://doi.org/10.1007/s00426-020-01400-6

McDonald, J. (2013). The effect of music preference on complex task performance. *Social Sciences, 7*(10), 1-25. https://digitalcommons.pepperdine.edu/cgi/viewcontent.cgi?article=1089&context=globaltides

Mohan, A., & Thomas, E. (2020). Effects of background music and the cultural preference to music on adolescents' task performance. *International Journal of Adolescence and Youth, 25*(1), 562-573. https://doi.org/10.1080/02673843.2019.1689368

Appendix

7. What genre of music do you usually listen to when performing tasks? *

○ Rock

○ Jazz

○ Pop

○ RnB

○ Classical

○ No Music

○ Other

8. I have my optimum concentration level when I listen to music while performing tasks. *

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Concentratio n levels	○	○	○	○	○

	Person ality	Concent ration_le vels_list..	Genres _of_Mu sic
1	1.00	5.00	2.00
2	1.00	5.00	6.00
3	1.00	4.00	2.00
4	1.00	3.00	4.00
5	1.00	5.00	6.00
6	1.00	4.00	5.00
7	1.00	4.00	5.00
8	1.00	5.00	6.00
9	1.00	5.00	6.00
10	1.00	5.00	6.00
11	1.00	4.00	1.00
12	1.00	4.00	5.00
13	1.00	5.00	6.00
14	1.00	5.00	6.00
15	1.00	5.00	6.00
16	1.00	5.00	5.00
17	1.00	4.00	5.00
18	1.00	4.00	2.00
19	1.00	4.00	4.00
20	1.00	4.00	3.00
21	1.00	4.00	5.00
22	2.00	4.00	5.00
23	2.00	3.00	5.00
24	2.00	5.00	6.00
25	2.00	5.00	4.00
26	2.00	3.00	3.00
27	2.00	4.00	5.00
28	2.00	4.00	5.00

28	2.00	4.00	5.00
29	2.00	5.00	6.00
30	2.00	3.00	5.00
31	2.00	5.00	6.00
32	2.00	5.00	6.00
33	2.00	5.00	5.00
34	2.00	5.00	6.00
35	2.00	5.00	6.00
36	2.00	4.00	5.00
37	2.00	4.00	5.00
38	2.00	5.00	6.00
39	2.00	5.00	6.00
40	2.00	5.00	5.00
41	2.00	4.00	5.00