

Effects Of Music Listening On Coping Strategies And Multiple Intelligence In Music-Experienced And Music-Nonexperience Adolescents

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ABSTRACT

The focus of this research was to see how music listening impacts coping strategies and multiple intelligences in both music-experienced and music-non-experienced adolescents. The standardised psychometric tools like Children's Coping Strategies Checklist-Revision (CCSC-R1) and Multiple Intelligence Profiling Questionnaire (MIPQ) were utilised. It was also planned to see if there was any gender difference in adolescent coping skills and multiple intelligence. Multivariate analysis of variance (MANOVA) —I was used with five sub-dimensions of coping strategies as the dependent variable and group as well as gender as the independent factors. MANOVA—II was used with seven sub-dimensions of multiple intelligence as the dependent variable and group and gender as the independent factors. Results showed that Music-experienced adolescents outperformed music-unexperienced adolescents in the linguistic, spatial, and bodily-kinesthetic subdomains of multiple intelligence. Similarly, music-experienced adolescents outperformed music-non-experienced adolescents in the subdomains of Coping Strategies, Problem Focused Coping, Positive Cognitive Restructuring, and Distraction Strategies. Gender differences were observed only in the domains of problem-focused coping and positive cognitive restructuring. This justifies the known impact of music listening on multiple intelligences and coping strategies in young adolescents.

Keyword: coping strategy, adolescent, multiple intelligence, gender, music listening

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India, among all developing countries, is playing a critical role in the adoption and successful implementation of the SDGs (Khalid et al., 2021). Goal 4 is specifically aimed at ensuring that all children receive a high-quality education. The emphasis of education is on the development of relevant skills and the abolition of gender disparities. The new policy was developed with SDG-4 goals in mind, while keeping

India's traditions and value systems in mind. The new national education policy has restructured the curricular pedagogy with holistic education in mind, ensuring that critical thinking, linguistic, and numerical skills are well developed (Sarkar, & Singh, 2020).

Gardner's theory claims that a holistic approach to education serves children the most, and that teachers should use a range of approaches, exercises, and activities to reach students who lack linguistic and logical abilities, according to a study. Gardner's concept of multiple intelligences

can help students in the classroom enhance their "creativity" (Cuadrado, 2019).

The issue of gender variations in intelligence is still being debated. Some studies claim that there is a modest but significant difference, while others claim that there is none at all (Nasser, Singhal, & Abouchdid, 2008). Because both genders are believed to have distinct social duties, they tend to develop psychologically distinct personalities in order to conform to those roles (Wood & Eagly, 2002). The difference can also be determined by grade level.

The difference can also be determined by grade level. This was revealed in a study in which males from eighth grade evaluated themselves higher in visual-spatial than females, while a substantial difference in musical, logical-mathematical, bodily-kinesthetic, and naturalistic domains was detected in ninth graders (Kaur, 2014). As previously said, when it comes to gender differences, males and females have no differences in terms of linguistic, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, and naturalistic elements in one of the research (Ahanbor, & Sadighi, 2014). In contrast, a study that employed self-reported measures of several intelligences revealed that females, as well as males, rank themselves higher in most intelligences than males (Zare-ee et al, 2016).

Multiple intelligence theory, on the other hand, is linked to multi-sensory learning, which teaches children to learn through activities that have more than one meaning (Smith, 2002). Students who have a high level of musical intelligence learn best in lecture halls where there is a strong auditory component. Learning music requires logical, mathematical, and linguistic intelligence, but it can also help develop musical intelligence (Sadiku & Musa, 2021).

Music is an important part of our society, culture, and behaviour. Music listening is a complex task that requires sensory, physiological, behavioural, and cognitive processing. Music has a wide range of social and psychological effects on people at various stages of development (McPherson & McCormick, 2006; North & Hargreaves, 2008). Listening to music has

a physiological effect by stimulating dopamine receptors and regulating stress hormones (Menon & Levitin, 2005). Because of its effect on the hypothalamic-pituitary-adrenal axis, music participation is associated with lower levels of subjective stress (HPA axis) (Nilsson, 2009).

Music preferences are also used to form social relationships and as a criterion for social matching on the Internet (Rentfrow & Gosling, 2006). There is evidence that social indicators are associated with music preferences (Tarrant, North, & Hargreaves, 2002), as these social characteristics may help them reflect and express their identities. Music can make you feel excited, awake, energetic, calm, melancholy, or nostalgic (Lonsdale & North, 2011; Saarikallio & Erkkilä, 2007). The researchers came to the conclusion that adolescence described how being involved in music made them feel better, and that through music therapy, one would be better able to perceive risks and provide support and empowerment (McFerran & Saarikallio, 2013).

Schlegel (2001) concluded from a study of ethnographic data from around 140 different cultures that the period of adolescence is marked by stressful events and cumulative growth in almost all cultures. Numerous studies have demonstrated that coping deficits can lead to psychopathology (Auerbach et al., 2011). Coping skills are one of the necessary skill sets for an adolescent to develop in order to maintain a healthy psychological well-being. Adolescents go through constant physical, neurological, psychological, and social changes during this time period. Secondary sexual characteristics are beginning to emerge at this point (Santrock, 2007).

When confronted with age-specific stressors, adolescents typically use adaptive coping strategies (e.g., seeking support, information, or attempting to negotiate issues with the concerned individual) and rarely resort to withdrawal (Compas et al., 2001; Gelhaar et al., 2007; Skinner et al., 2003). Coping strategies can vary depending on the stressor at hand. When dealing with an academic or peer stressor, for example, an adolescent will seek more support (Seiffge-Krenke et al.,

2009), whereas withdrawal will be used when dealing with stress from the parental domain (Sentse et al., 2010). There are some studies that look at gender differences. It has been observed that females exhibit a higher rate of support-seeking behaviour than males (Gelhaar et al., 2007; Skinner et al., 2003). Adolescence females have a mixed pattern of coping that includes high levels of support-seeking, avoidance, and withdrawal (Seiffge-Krenke & Stemmler, 2002). Females also face significantly more stress, particularly in peer relationships (Noakes & Rinaldi, 2006; Wasburn-Ormachena et al., 2004), romantic relationships (Nieder & Seiffge-Krenke, 2001) and parental relationships (Laursen et al., 1998). The outcomes are indefinite in the academic domain (Compas et al., 1998). Seiffge-Krenke (2012) tested the impact of gender and region on the perception of stress and coping styles among adolescents when attempting to capture a global picture. Therefore, in the present study, gender differences will be taken into account. It will be interesting to see the impact of music intervention on the skills and abilities of adolescents and preteens.

Hypotheses

After reviewing the literature, the following hypotheses were formulated for the present study:

- i There will be significant gender differences in dimensions of multiple intelligence.
- ii There will be significant gender differences in terms of coping styles.
- iii The experimental group will employ coping strategies more efficiently compared to the control group.
- iv The experimental group will rate themselves higher in multiple intelligence dimensions compared to the control group.

METHODS

Sample

The current study included 390 adolescents from Vishwakarma Institutes schools in

Pune, India. The study included 48 percent boys and 52 percent girls. They were all from English medium schools and ranged in age from 11 to 14 years (Mean age = 12 years). The students chosen for this study ranged in age from sixth to ninth grade. Adolescents were exposed to music in 51% of cases (music-experienced adolescents) and in 49% of cases (non-music-experienced adolescents). All of the students came from middle-class or upper-middle-class families.

Tools of Measurement

a) Children's Coping Strategies Checklist-Revised

Ayers et al. (1996) created the Children's Coping Strategies Checklist-Revised (CCSC-R) to assess children's coping efforts in stressful situations. This version takes into account five coping subdomains: Problem-Focused Coping, Positive Cognitive Reframing, Distraction Strategies, Avoidance Strategies, and Support Seeking Strategies. Ayers et al. (1996) established the psychometric properties of the CCSC by studying American children aged 9 to 14 years (till adolescents). This tool has also been globally standardised, with Cronbach alpha values ranging from 0.70 to 0.77.

b) Multiple Intelligence Profiling Questionnaire

Tirri and Nokelainen (2011) developed the Multiple Intelligence Profiling Questionnaire VII (MIPQ-VII), which is a five-point Likert scale. It is a self-assessment questionnaire based on Howard Gardner's Multiple Intelligence Theory (1993). The scale includes 28 items that measure seven dimensions: (1) Linguistic, (2) Logical-Mathematical, (3) Musical, (4) Spatial, (5) Bodily-kinesthetic, (6) Interpersonal, and (7) Intrapersonal. Linguistic =.62, Logical-Mathematical =.76, Musical =.83, Spatial =.53, Bodily-Kinesthetic =.71, Interpersonal =.81, and Intrapersonal =.72 were the estimated internal consistency (coefficient alpha) for the preadolescent sub-population (n = 183). The results of the correlation analysis between the scales, gender, and age revealed that: (1) males in both samples

rated themselves higher in Logical-Mathematical abilities than females; and (2) females rated themselves higher in Linguistic abilities than males.

c) Music Intervention

The School of Music at Vishwakarma University in India created a soundtrack to be used as an intervention for schoolchildren aged 9 to 14. For this study, a total of 50 pieces of music were chosen. The music experts composed the song with the children's preference for Bollywood in mind, fusing it with Western music and adding a touch of classical Indian music. This song was edited and modified in accordance with industry best practises. The music experts and performers also provided commentary on the tempo, composition, flow, meaning, and theme. The tune was validated by leading music experts after it was composed.

Procedure

In the pilot studies, the results showed that students were using music as a constructive coping tool especially at the beginning of the pandemic and that the music provided a positive mood for students to engage in academics. For the study purpose, the data on preferred music pieces and styles was collected from the students. A wide variety of musical pieces, styles and genres were chosen from all over the world at the same time. The Vishwakarma School of Music was approached, where Dr. Ruchira Kedar provided inputs like the background, historical and artistic contents and pointers on how to make uninitiated listeners appreciate music more. A collaborative activity was also undertaken with Dr. Enrique Camara, and Dr. Alicia Peñalba from the University of Valladolid, Spain to find music pieces similar to preferences given by the students. Western music pieces were also integrated to measure and understand the response of the students during the listening and guidance process in music. After the tunes were finalized, the teachers were given training on the administration of the music during the classes. The music intervention was integrated in the student's academic framework. The Coping Mechanism and the Multiple Intelligence Profiling

Questionnaire were again administered to the students by using the Vishwakarma Online Learning Platform (VOLP). Feedback was also taken from the parents.

DATA ANALYSIS AND RESULTS

Descriptive Statistics

In this final study, two major domains, multiple intelligence and coping strategies were considered. The multiple intelligence domain consists of seven subdomains, i.e., linguistic, mathematical-logical, musical, spatial, bodily-kinesthetic, interpersonal, and intrapersonal. The coping strategies consisted of five sub-domains, i.e., problem-focused coping, positive cognitive restructuring, distraction strategies, avoidance strategies, and support-seeking strategies. The descriptive details of the variable are shown in Table 1 and Table 2. All tables are shown in Appendix - A.

Multi-Variate Analysis (MANOVA) – I

To evaluate the group and gender differences in multiple intelligence, MANOVA was employed with seven sub-dimensions of multiple intelligence as dependent variables in the group as well as gender as independent variables. The assumptions underlying the MANOVA were evaluated (Tabachnik & Fidell, 2007).

Based on Table 3, it can be observed that a significant difference between music experienced and non-experienced adolescents was found in linguistic, spatial, and bodily-kinesthetic intelligence sub-domains. A two-way ANOVA was conducted that examined the effect of group and gender on the linguistic intelligence sub-domain. The main effects of group on the linguistic intelligence sub-domain revealed ($F(1, 386) = 7.92, p < .01$) that adolescents with music experience ($M = 3.62, SD = 0.78$) scored significantly higher in linguistic intelligence than adolescents who had no music experience ($M = 3.39, SD = 0.86$). However, no gender differences in these were observed. Similarly, while examining the effect of group and gender on the spatial intelligence sub-domain.

A simple main effects analysis of group on the spatial intelligence sub-domain revealed ($F(1, 386) = 6.89, p < .01$) that adolescents with music experience ($M = 3.65, SD = 0.71$) significantly outperformed music-non-experienced adolescents ($M = 3.44, SD = 0.79$), but there were no gender differences.

Again, two-way ANOVA was conducted that examined the effect of group and gender on the Bodily-Kinesthetic intelligence sub-domain. The main effects analysis of group on Bodily-Kinesthetic intelligence sub-domain showed ($F(1, 386) = 12.21, p < .01$) that adolescents with music experience ($M = 3.58, SD = 0.75$) were significantly scoring higher in Bodily-Kinesthetic intelligence than music non-experienced adolescents ($M = 3.28, SD = 0.91$). There were no differences in gender observed in the Bodily-Kinesthetic intelligence sub-domain.

Accordingly, the need for interaction effects to be discussed was also ruled out, as the second main effect of gender is found insignificant in almost all the subdomains, and taking judgement based on only one main effect will not be suitable and will be very misleading (Gray & Kinnear, 2012).

Multi-Variate Analysis (MANOVA) – II

To evaluate the group and gender differences in coping strategies among adolescents. MANOVA was employed with five sub-dimensions of coping strategies as the dependent variable and group with gender as the independent variable. The assumptions underlying the MANOVA were evaluated (Tabachnik & Fidell, 2007). The application of Bartlett's test of sphericity to the pooled within-cell correlation matrix yielded a test statistic of 1327.471 ($df = 14, p < .01$), thus justifying the use of MANOVA. The assumptions of normality were evaluated by examining the residuals and their trended and detrended normal probability plots (Field, 2013). All such assumptions were found to be satisfactory. The actual application of MANOVA showed the Wilks' (λ) [$\lambda = 0.941, F(5, 382) = 4.75, p < .01$]. Thus, the results indicate that the obtained vector of means of difference scores in gender significantly departs from the null vector.

On interaction among groups, wherever Wilks' Λ is insignificant, no further univariate analysis is reported. As Wilks' Λ in above MANOVA is significant, multiple univariate analyses were performed to identify the specific subdomain of coping strategies on which the gender effect differs. The summary of this univariate analysis has been presented in Table 4 and Table 5.

Based on Table 4 in Appendix - A, it can be observed that a significant difference between experienced and non-experienced music adolescents was found in Problem Focused Coping, Positive Cognitive Restructuring, Distraction Strategies, and Gender Differences were observed in Problem Focused Coping and Positive Cognitive Restructuring.

A two-way ANOVA was conducted to examine the effect of group and gender on the problem-focused coping sub-domain. The main effects analysis of group on Problem Focused Coping sub-domain showed ($F(1, 386) = 4.20, p < .05$) that adolescents with music experience ($M = 33.03, SD = 7.52$) were significantly scoring higher in Problem Focused Coping than music non-experienced adolescents ($M = 31.51, SD = 8.02$).

Similarly, while examining the effect of group and gender on the positive cognitive restructuring sub-domain. The main effects analysis of group on Positive Cognitive Restructuring sub-domain showed ($F(1, 386) = 4.83, p < .05$) that adolescents with music experience ($M = 32.84, SD = 7.22$) were significantly scoring higher in Positive Cognitive Restructuring than music non-experienced adolescents ($M = 31.18, SD = 8.14$). Again, a two-way ANOVA was conducted that examined the effect of group and gender on the distraction strategies sub-domain. Simple main effects analysis of the group on the Distraction Strategies sub-domain showed ($F(1, 386) = 4.51, p < .05$) that adolescents with music experience ($M = 23.89, SD = 5.30$) significantly scored higher in Distraction Strategies than music-non-experienced adolescents ($M = 22.63, SD = 5.89$).

As shown in Table 5 in Appendix - A, the main effects analysis of gender on the Problem Focused Coping sub-domain

showed ($F(1, 386) = 6.45, p < .01$) that adolescents' girls ($M = 33.20, SD = 7.74$) significantly scored higher in Problem Focused Coping than adolescents' boys ($M = 31.29, SD = 7.75$). Similarly, while examining the effect of gender on the positive cognitive restructuring sub-domain. The main effects analysis of gender on the Positive Cognitive Restructuring sub-domain revealed ($F(1, 386) = 4.15, p < .05$) that adolescent girls ($M = 32.75, SD = 7.57$) significantly outperformed adolescent boys ($M = 31.24, SD = 7.83$). The interaction effect was observed to be insignificant and was not reported.

To determine the size of the effect of all significant findings. The partial eta square was analysed, and almost all of the scores revealed that the effect size was small. (Lakens, 2013).

DISCUSSIONS

In the final study the we wanted to see whether there were any noticeable differences in the Coping styles and multiple intelligence factors in adolescents after they received the music intervention.

To measure the multiple intelligence, the Multiple Intelligence Profiling Questionnaire developed by Terri & Nokelainen (2011) was used. The group and gender differences in the seven dimensions were analysed by MANOVA. There were significant differences seen between both the groups [$\Lambda = 0.95, F(7,380) = 2.97, p < .01$] which proves our hypothesis that adolescents in the music experienced group will rate themselves higher compared than the music non-experienced adolescents. Schellenberg (2004, 2011) demonstrated in study that the Intelligence as whole did improve after exposing children to music for a certain duration. In terms of differences in the types of intelligence, the adolescence with music intelligence had a higher score in the domains of linguistic, Spatial and Bodily-Kinaesthetic Intelligence compared to adolescence with no music experience as mentioned in the result. There have been longitudinal studies providing evidences that music can alter brain morphology, although minutely there have been little changes seen in the auditory and motor

regions of the brain (Hyde et al., 2009; Habibi et al., 2018). There are multiple studies supporting the notion of integrating music modules as a part of school curriculum. A number of studies have pointed out that using music as a part of academic modules can increase the linguistic abilities (Sala & Gobet, 2017; Lunenburg, & Lunenburg, 2014). The study by Schellenberg and Weiss (2013) also supports the possibility of link between music and the cognitive abilities. A longitudinal study by dos santos-Luiz and colleagues (2016) also revealed that even after controlling socioeconomic status, motivation and intelligence, students who were enrolled in music performed better.

However, when it comes to gender differences among males and females there were no significant differences found when it comes to linguistic, logical-mathematical, spatial, bodily-kinaesthetic, interpersonal and naturalistic (Ahandor & Sadighi., 2014) as shown in Table 3. In the initial survey questionnaire questions like "what new thing have you learnt during the pandemic", around 65% people had responded that they had engaged in developing their cognitive skills by learning new language or upgrading computer skills, starting a new hobby like dance or music engagement which can also be linked to the current study.

The Children Coping Self Questionnaire (Revised) by Ayers et. al (1996) was used to study the coping patterns and strategies used by adolescents. In the first study the relationship between the five sub-domains i.e., problem-focused coping, positive cognitive restructuring, distraction strategies, avoidance strategies, and support-seeking strategies had been found significant in the pre and post music sessions. The current study focused on students who listened to music intervention and the control group consisted of students who hadn't been given the intervention.

The results showed that significant differences between both the groups in the sub-domains of Problem-Focused coping, Positive Cognitive Restructuring and Distraction strategies. Studies by Saarikallio & Erkkilä (2007) have shown adolescent tend to make use of music as a medium to distance themselves from

stressful issues occurring in their personal and school lives. Adolescents tend to listen to music as means or attempts to control or regulate their affective states and one which is congruent with the person's emotional state which they want to amplify or change (McFerran et al., 2014; Thoma et al., 2012). Similar results were also found in the studies done by Miranda & Claes, (2009) which had established that music experience did help the adolescents in the better employment emotional and cognitive problem-solving skills. The adolescent who received the intervention scored high compared to the music non-experienced adults also reflects the fact that the music experienced children tend to try using a range of strategies to deal with the stressful situation (Aldwin, 2011).

There were gender differences seen in the analysis as hypothesized. The first difference was seen in the problem focused coping ($F(1, 386) = 6.45, p < .01$) as shown in Table- 5. It was seen that adolescent girls scored significantly high in Problem-Focused coping ($M = 33.20, SD = 7.74$) than adolescent boys ($M = 31.29, SD = 7.75$). Another domain, in which the girls outperformed boys was in the Positive-Restructuring domain ($F(1, 386) = 4.15, p < .05$). In the first study, we had also found that girls also make use of support-seeking strategies which have been supported by previous studies (Compas et al., 2001; Gelhaar et al., 2007). Eschenbeck, Kohlmann, and Lohaus, (2007) in their research had also stated that girls apply more than social support, avoidance coping, and problem-focused coping strategies. In the current study, no significant differences were found in with respect to gaining social support and avoidance strategies.

Based on all the studies, we can state that almost all the hypothesis has been accepted except a few cases which involved examining gender differences in some of sub-domains of coping strategies and multiple intelligence. There are certain unique findings pointing out improvement during the duration of the intervention.

CONCLUSIONS

From the above, it can be concluded that those who received the music intervention

did show a difference in terms of the application of coping strategies and the type of multiple intelligence factors. In terms of coping, girls were seen to apply problem-focused coping and positive cognitive restructuring much better than boys. When it came to intelligence factors, no significant gender differences were seen. Overall, the music intervention, is a highly promising and unique programme created. The above results show a significant effect on music intervention with coping strategies and multiple intelligence among adolescence. The obtained finding its application in the academic domain as well as psychotherapies. The specific adolescence issue wise, relaxing or activating mode of music could be the matter of further study. The music sessions can be implemented in the various academic institution and the same as music therapy can be used to take care of various psychological changes occurring at the important stage of adolescent.

REFERENCES

1. Ahanbor, Z., & Sadighi, F. (2014). The relationship between multiple intelligences, learning styles and gender. *Modern Journal of Language Teaching Methods*, 4(1), 176.
2. Aldwin, C. (2011). Stress and coping across the lifespan. In S. Folkman (Ed.), *The Oxford handbook of stress, health, and coping* (pp. 15–34). Oxford University Press.
3. Auerbach, R. P., Bigda-Peyton, J. S., Eberhart, N. K., Webb, C. A., & Ho, M. H. R. (2011). Conceptualizing the prospective relationship between social support, stress, and depressive symptoms among adolescents. *Journal of abnormal child psychology*, 39(4), 475-487.
4. Ayers, T. S., Sandier, I. N., West, S. G., & Roosa, M. W. (1996). A dispositional and situational assessment of children's coping: Testing alternative models of coping. *Journal of personality*, 64(4), 923-958.
5. Compas, B. E. (1998). An agenda for coping research and theory: Basic and

- applied developmental issues. *International journal of behavioral development*, 22(2), 231-237.
6. Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: problems, progress, and potential in theory and research. *Psychological bulletin*, 127(1), 87.
 7. Cuadrado, F. (2019). Music and Talent: An experimental project for personal development and well-being through music. *International Journal of Music Education*, 37(1), 156-174.
 8. dos Santos-Luiz, C., Mónico, L. S., Almeida, L. S., & Coimbra, D. (2016). Exploring the long-term associations between adolescents' music training and academic achievement. *Musicae Scientiae*, 20(4), 512-527.
 9. Eschenbeck, H., Kohlmann, C. W., & Lohaus, A. (2007). Gender differences in coping strategies in children and adolescents. *Journal of individual differences*, 28(1), 18-26.
 10. Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Fourth edition. Sage: London.
 11. Gelhaar, T., Seiffge-Krenke, I., Borge, A., Cicognani, E., Cunha, M., Loncaric, D., ... & Metzke, C. W. (2007). Adolescent coping with everyday stressors: A seven-nation study of youth from central, eastern, southern, and northern Europe. *European journal of developmental psychology*, 4(2), 129-156.
 12. Gray, C. D., & Kinnear, P. R. (2012). *IBM SPSS statistics 19 made simple*. Psychology Press.
 13. Habibi, A., Damasio, A., Ilari, B., Elliott Sachs, M., & Damasio, H. (2018). Music training and child development: a review of recent findings from a longitudinal study. *Annals of the New York Academy of Sciences*, 1423(1), 73-81.
 14. Hyde, K. L., Lerch, J., Norton, A., Forgeard, M., Winner, E., Evans, A. C., & Schlaug, G. (2009). Musical training shapes structural brain development. *Journal of Neuroscience*, 29(10), 3019-3025.
 15. Kaur, M. (2014). Gender differences in Multiple Intelligences with respect to grade level. *American International Journal of Research in Humanities, Arts and Social Sciences*, 8(2), 117-120.
 16. Khalid, A. M., Sharma, S., & Dubey, A. K. (2021). Concerns of developing countries and the sustainable development goals: Case for India. *International Journal of Sustainable Development & World Ecology*, 28(4), 303-315.
 17. Lakens D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. *Frontiers in psychology*, 4, 863.
 18. Laursen, B. (1998). Closeness and conflict in adolescent peer relationships: Interdependence with friends and romantic partners. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 186-210). Cambridge University Press.
 19. Lonsdale, A. J., & North, A. C. (2011). Why do we listen to music? A uses and gratifications analysis. *British journal of psychology*, 102(1), 108-134.
 20. Lunenburg, F. C., & Lunenburg, M. R. (2014). Applying Multiple Intelligences in the Classroom: A Fresh Look at Teaching Writing. *International journal of scholarly academic intellectual diversity*, 16(1).
 21. McFerran, K. S., & Saarikallio, S. (2014). Depending on music to feel better: Being conscious of responsibility when appropriating the power of music. *The Arts in Psychotherapy*, 41(1), 89-97.
 22. McPherson, G. E., & McCormick, J. (2006). Self-efficacy and music performance. *Psychology of music*, 34(3), 322-336.
 23. Menon, V., & Levitin, D. J. (2005). The rewards of music listening: response and physiological connectivity of the mesolimbic system. *Neuroimage*, 28(1), 175-184.

24. Miranda, D., & Claes, M. (2009). Music listening, coping, peer affiliation and depression in adolescence. *Psychology of music*, 37(2), 215-233.
25. Nasser, R., Singhal, S., & Abouchdid, K. (2008). Gender differences on self-estimates of multiple intelligences: A comparison between Indian and Lebanese youth. *Journal of Social Sciences*, 16(3), 235-243.
26. Nieder, T., & Seiffge-Krenke, I. N. G. E. (2001). Coping with stress in different phases of romantic development. *Journal of adolescence*, 24(3), 297-311.
27. Nilsson, U. (2009). The effect of music intervention in stress response to cardiac surgery in a randomized clinical trial. *Heart & Lung*, 38(3), 201-207.
28. Noakes, M. A., & Rinaldi, C. M. (2006). Age and gender differences in peer conflict. *Journal of youth and adolescence*, 35(6), 881-891.
29. North, A., & Hargreaves, D. (2008). *The social and applied psychology of music*. Oxford University Press, Oxford.
30. Rentfrow, P. J., & Gosling, S. D. (2006). Message in a ballad: The role of music preferences in interpersonal perception. *Psychological science*, 17(3), 236-242.
31. Saarikallio, S., & Erkkilä, J. (2007). The role of music in adolescents' mood regulation. *Psychology of music*, 35(1), 88-109.
32. Sadiku, M. N., & Musa, S. M. (2021). Musical Intelligence. In *A Primer on Multiple Intelligences* (pp. 237-247). Springer, Cham.
33. Sala, G., & Gobet, F. (2017). When the music's over. Does music skill transfer to children's and young adolescents' cognitive and academic skills? A meta-analysis. *Educational Research Review*, 20, 55-67.
34. Santrock, J. W. (2007). *A topical approach to life-span development*. McGraw-Hill Companies.
35. Sarkar, R., & Singh, D. K. (2020). Role of National Education Policy 2020 in Shaping the Destiny of India. *EDUCATION IN THE 21ST CENTURY: EMERGING ISSUES AND THE WAY FORWARD*, 79.
36. Schellenberg, E. G. (2004). Music lessons enhance IQ. *Psychological science*, 15(8), 511-514.
37. Schellenberg, E. G. (2011). Examining the association between music lessons and intelligence. *British journal of psychology*, 102(3), 283-302.
38. Schellenberg, E. G., and Weiss, M. W. (2013). "Music and cognitive abilities," in *The Psychology of Music*, eds D. Deutsch (Amsterdam: Elsevier), 499-550.
39. Schlegel, A. (2001). The global spread of adolescent culture. In L. J. Crockett & R. K. Silbereisen (Eds.), *Negotiating adolescence in times of social change* (pp. 63-86). New York, NY: Cambridge University Press.
40. Seiffge-Krenke, I., & Stemmler, M. (2002). Factors contributing to gender differences in depressive symptoms: A test of three developmental models. *Journal of youth and adolescence*, 31(6), 405-417.
41. Seiffge-Krenke, I., Persike, M., Chau, C., Hendry, L. B., Kloepp, M., Terzini-Hollar, M., ... & Regusch, L. (2012). Differences in agency? How adolescents from 18 countries perceive and cope with their futures. *International journal of Behavioral development*, 36(4), 258-270.
42. Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: a review and critique of category systems for classifying ways of coping. *Psychological bulletin*, 129(2), 216.
43. Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon.
44. Tarrant, M., North, A. C., & Hargreaves, D. J. (2002). Youth identity and music. *Musical identities*, 13, 134-150.
45. Thoma, M. V., Ryf, S., Mohiyeddini, C., Ehlert, U., & Nater, U. M. (2012). Emotion regulation through listening to music in everyday situations. *Cognition & emotion*, 26(3), 550-560.

46. Tirri, K., & Nokelainen, P. (2011). Multiple intelligences profiling questionnaire. In *Measuring multiple intelligences and moral sensitivities in education (1-13)*. Sense Publishers.
47. Washburn-Ormachea, J. M., Hillman, S. B., & Sawilowsky, S. S. (2004). Gender and gender-role orientation differences on adolescents' coping with peer stressors. *Journal of Youth and Adolescence*, 33(1), 31-40.
48. Wood, W., & Eagly, A. H. (2002). A cross-cultural analysis of the behavior of women and men: implications for the origins of sex differences. *Psychological bulletin*, 128(5), 699.
49. Zare-ee, A., Don, Z. M., & Tohidian, I. (2016). Gender differences in students' ratings of university teachers in the Iranian education system. *Learning and Teaching in Higher Education: Gulf Perspectives*.