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Listening engagement styles, cognitive styles, and synesthetic experiences in response to music

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Introduction

Music listening engenders a variety of individual experiences that are based on the interaction of both emotional and cognitive processes. Empathizing and systemizing are two cognitive processes that are theorised to differ according to gender. Furthermore, increased systemizing has been linked to the presence of certain forms of synesthesia, however this link is yet to be examined in relation to music. The experience of listening to music, therefore, may depend on the specific engagement style, cognitive style, and potential synesthetic experiences of the listener. This study therefore investigated the association between listening engagement styles, cognitive styles, and synesthetic experiences in response to music, in a population of young adults.

Methods

The sample comprised of 310 individuals aged 18-34 (M = 20.03, Mdn = 19, SD = 3.06), with 237 identifying their gender as female (76.50%). Participants were asked to complete an online questionnaire that included demographics, the musicianship module of the MUSEBAQ (Chin, et al., 2018), the Music Engagement Test (MET; Greenberg & Rentfrow, 2015), the short version of the Music-Empathizing-Music-Systemizing Inventory (MEMS Inventory; Kreutz, et al., 2008), and items from the Synesthesia Battery (Eagleman, et al., 2007).

Results

A binary classification based on whether the participants had endorsed none (n = 193) or at least one of the synesthesia types (n = 109) was created. An all subsets logistic regression analysis was undertaken to predict the characteristic of having synesthetic experiences from a set of explanatory variables, including the MET Cognitive listening style score, the Music Systemizer (MS) average score, MUSEBAQ formal music training score and MUSEBAQ music making score. MET Cognitive was strongly correlated with MS, formal music training, and music making. Therefore, MET Cognitive was used as the primary explanatory variable. Additionally, given reported gender differences in empathizing and systemizing processes, an interaction with gender was also explored. For males, the MET Cognitive odds ratio was 0.99 (no effect), whereas for females the odds ratio was 1.1, meaning that an increase of one point on the MET cognitive increased the odds of reporting synesthetic experiences in response to music listening by 10%.

Discussion and Conclusion

This study provides a valuable first step in examining how listening engagement is influenced by cognitive listening styles and synesthetic experiences. Recognising future research is needed with larger, gender-balanced samples, this study presents novel evidence that for females, a strong cognitive listening engagement style is associated with an increase in the odds of reporting synesthetic experiences. This study, therefore, extends previous evidence of sex differences in relation to music listening at different levels of processing, including perception.

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