Previous research suggests that academic success, musical aptitude, and musical experience affect aural skills achievement (see Harrison, Asmus, & Serge, 1994). However, measurements of academic success are often limited to course grades or aptitude tests, and researchers seldom investigate musical experience beyond quantifying years of musical involvement. Findings from recent studies warrant the inclusion of memory tasks and a closer examination of previous musical exposure in the study of aural skills proficiency. Musicians have been found to perform better than nonmusicians in memory tasks, especially those with tonal stimuli (Talamini et al., 2017), and the mere exposure to music –specifically, the exposure to specific genres– can affect one’s performance of musical tasks (Honing & Ladinig, 2009). In this study, we examine aural skills experience as it relates to measures of tonal working memory and musical sophistication, and we explore aural skills proficiency as it relates to musical experience through genre preferences. Participants completed a number of tests measuring cognitive ability, musical sophistication, aural skills experience, and musical genre preferences. Variables collected include: working memory capacity for tone recall as measured by a tonal working memory task (ToneSpan); melodic memory and beat perception accuracy as measured by the Goldsmiths Musical Sophistication Index (Gold-MSI; Müllensiefen, et al., 2014); aural skills experience as measured by self-reported number of courses in aural skills and/or number of years of private instruction in melodic dictation, harmonic dictation, and sight-singing; and genre preferences as collected by the Short Test of Musical Preferences (Rentfrow & Gosling, 2003). Genre preferences were then scored for compatibility with common practice basic tonal patterns. Preliminary results (N = 76) reveal a significant and positive correlation between performance on the ToneSpan task and General musical sophistication from the Gold-MSI, r = .38. The participant range of aural skills experience is limited; however, primarily first-year music students and non-music students have participated at this point. Targeted data collection with more experienced music students is in process. This study suggests that tonal working memory is related to musical sophistication and aural skills experience, and genre preferences correlate with aural skills proficiency.

“here’s how this works… seeks to illuminate the inner workings of a finding” /

1. Pre-intro – early framework to allow understanding of the work
2. Establish effect convincingly and review evidence that it matters – REAL & IMPORTANT
3. Propose my potential mediators – brief overview for each and why it is reasonable candidate
4. How empirically evaluate whether my mediators explain why effect happens
5. Present research…

“which one is right?”

1. Pre-intro – early framework to allow understanding of the work
2. Why smart and reasonable people believe first approach
3. Why smart and reasonable people believe second approach
4. How empirically evaluate which is right
5. Present research…

Students pursuing a degree in music will find themselves learning to dictate melodies. Though the specific strategies and assessment methods incorporated by the instructor will vary, the melodic dictation task generally asks the students to hear a short melody and write it down accurately, given a limited number of play-throughs and a limited amount of technical information (such as the time signature, the clef, etc.). The ability to hold the melody accurately in their memory in between and after play-throughs is a valuable skill for completing the task. When viewed through the lens of cognitive science, the melodic dictation task begins to look like a complex assessment of tonal working memory capacity.

The relationship between musical sophistication and cognitive abilities has been the object of research for some time, and recent literature has focused on the particular cognitive abilities related to working memory tasks. Meinz and Hambrick (2010) found that variance in sight-reading ability was better explained by measures of working memory capacity (WMC) than either sight-reading experience or musical training, and Colley et. al (2017) similarly found that an individual’s WMC accounted for differences in the ability to tap along to expressive timing in music. However, other researchers have found musical training to contribute significantly to performance on working memory tasks. Slevc et. al (2016) found musical ability to predict better performance on both auditory and visual updating tasks, or tasks that involve the ability to both monitor information continuously and quickly add and remove information from the working memory. Swaminathan et. al (2017) similarly found evidence that supports musical aptitude as a contributing factor in predicting individual differences in intelligence between musicians and non-musicians. Talamini et. al (2017) conducted a meta-analysis to clarify whether musicians perform better than non-musicians in memory tasks, and their findings suggest that musicians do seem to have a large advantage with tonal stimuli in particular.

Whether musical ability provides an advantage in WMC or a highly functioning WMC provides an advantage in musical ability, research supports a relationship between the two assets. The object of this work is to explore potential mediators of this relationship, regardless of which presupposes which. One potential advantage that musicians have over non-musicians is that they are likely to explicitly learn and practice the art of melodic dictation, or in other words, they explicitly develop strategies to hold tonal information in their working memory while they simultaneously apply themselves to the task of writing it down in a specific language. Another potential advantage is found in what musicians implicitly learn through the music they engage with on a regular basis. It is common for people to listen to music on a daily basis, but musicians also actively play, read, and create music. Perhaps the type of music we engage with, and the way in which we engage with the music, influences our ability to work with tonal information in our working memory.

The present research first investigates the contribution of explicit aural skills learning on tonal WMC. We apply a linear regression model to identify whether musical sophistication and, more specifically, aural skills achievement are significant factors in participant success in the tonal working memory task. We also examine the strategies that musicians and non-musicians used to complete the tonal working memory task, and we specifically hypothesize that musicians will employ more helpful, and more explicitly musical, strategies than non-musicians. We then investigate the contribution of implicit aural skills learning through an exploration of potential relationships between aural skills achievement, tonal WMC, and genre preference.

We asked participants to report the strategies they used to complete this task in an open response format, and then compared the types of responses used by musicians and non-musicians (musicians = participants recruited from the School of Music).

We used a linear regression model to identify whether musical sophistication and aural skills achievement were significant factors in participant success in the tonal working memory task.

We explored potential correlations between aural skills achievement and genre preference.