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Aural Skills in Developing Musicians: Uncovering Disparities in Secondary Music Learning

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AURAL SKILLS IN DEVELOPING MUSICIANS: UNCOVERING DISPARITIES IN
SECONDARY MUSIC LEARNING

By

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of the Requirements for
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Abstract

This study was conducted to evaluate the scope of aural skills development occurring in secondary music classrooms. The researcher hypothesized that several disparities would exist, namely regarding melodic, harmonic, and rhythmic dictation. Participants took a survey in which they were asked to recall from a prescribed list, aural skills learned while in high school. They were also asked to provide demographic information including high school attended, current college major, and the number of collegiate aural skills courses completed to date. A number of subjective questions were asked as well, such as desired skills prior to collegiate study, and how aural skills study has affected ensemble performance, positively or negatively. Analysis of the collected data indicated that disparities exist in all areas, but particularly in the development of the following skills: melodic dictation, harmonic dictation, and modal scale identification.

Introduction

The understanding of art in its many forms comes with detailed practice. Experienced visual artists have learned over time how to create visuals in various media that can convey light and shadow, texture, depth, and distance, among other things. Visual artists spend a lot of time with their sense of sight to be able to create an image that the mind can believe to be real. Music as an art form is unique in that it must be heard to be experienced; written notation of a piece of music cannot stand on its own in the same way a painting can hang on a wall in a museum. Just as the visual artist spends countless hours in the studio with their eyes, so it should be for the musical artist and their ears.

Overwhelmingly in the secondary music classroom, it appears this is not the case. Ear training, or the development of aural skills as it is more formally known, seems to be the one aspect of music study that falls short among developing musicians in public schools. It is common at the college level that “in the same freshman class, it is possible to find students who have had two or more years of rather formalized ear-training and music reading instruction as well as a large number who have never had any aural training at all” (Domek, 1979, pg. 54). I discovered similar circumstances among my peers as I progressed through the University of South Carolina’s aural skills program at the School of Music in 2017 and 2018, nearly 40 years after Domek. My classmates would often complain about how difficult it was to be able to hear in the music precisely what their professors were trying to teach, and some would even state that they never did anything of the sort in their high school band or chorus class. Having received introductory training in aural skills at the secondary level, I was spellbound. Aural skills should be a primary focus of music educators, seeing as how the art of music is experienced by listening

to it. I had a hard time believing that this concept was not a reality in many secondary music classrooms.

To clarify, musicians use aural skills to hear and analytically identify various aspects of music without written musical notation in front of them. Such musical aspects include tonality, intervals, rhythm, meter, chords, and melody. In addition to identification, students with aural skills training should be able to dictate melodies and rhythms as well as sight sing unknown melodies with relative ease and accuracy. Having these skills “allows us to understand the language we use in our careers on a musical and aesthetic level, and converse with other musicians both about and through music” (Cleland, 2015, pg. xi). By practicing the identification and application of the sounds heard in music, young musicians can begin to have a deeper understanding of the music they play, even to the point of being able to conceptualize how it sounds in their heads without hearing it out loud, a process for which Edwin Gordon coined the term “audiation” (GIML, 2021).

Being able to discriminate between the sounds that make up the music we hear can mean the difference between a decent secondary ensemble and an outstanding secondary ensemble. All music educators should strive to provide the instruction necessary to allow their students to perform at an outstanding caliber. Young musicians can begin to take ownership for their repertoire because of their ability to interpret it aurally, and can independently make decisions about how they should play and sing based on what they hear. Aural skills are necessary for creating a well-rounded, independent musician, and should be considered a top priority for learning in the secondary music classroom.

Based on my initial experience in college with my peers in the aural skills program at the UofSC School of Music, I was compelled to investigate the music literacy education that a number of university students received from their high school ensembles, not just students studying at the UofSC School of Music. The goal of this investigation was to discover disparities in development of a number of aural skills taught at the secondary level. All skills provided in the survey are skills that can and should be developed prior to collegiate study, and are included in the UofSC School of Music's aural skills curriculum.

Literature Review

Music education typically begins in the elementary music classroom. Ideally, the development of aural skills should begin here for young music students. There are a number of methods that can be used to teach elementary music, but one that lends itself well to the cultivation of aural skills is Edwin Gordon's Music Learning Theory. Music Learning Theory is centered around how students listen to music as well as their ability to audiate it, that is, hear the music in their mind without first hearing it out loud. Gordon espoused the concept of sound before sight; "children should learn musical skills in much the same order they learn language skills: they should hear and perform before they read and write" (Bluestine, 2000, pg. 11).

In order for a child to have well-developed audiation skills, the child must have repeated exposure to as many different meters and tonalities as possible. The child need not have a deep understanding of the meters and tonalities they hear, but "the more music you've heard and the larger your vocabulary of patterns in various tonalities and meters, the better you can audiate" (Bluestine, 2000, pg. 14). With Music Learning Theory, children are invited to move their bodies in a variety of ways to internalize and in turn express the sounds they hear. "By breathing,

moving, rhythm chanting, singing, and playing instruments we develop audiation skills that allow us to give meaning to the combinations of rhythm patterns and tonal patterns that make music a unique form of human communication” (Valerio, n.d.). Furthermore, emphasis is placed on sound before sight using Music Learning Theory. Long before students are ever given a visual representation of music, students develop an aural understanding of rhythm and tonal patterns in various meters and tonalities. Deemphasizing music notation in music learning at the elementary level teaches young students to rely on their ears to discriminate between different sounds they hear in music class. Overall, Music Learning Theory provides a foundational aural framework for music learning that allows students to rapidly expand their skill sets once they reach a secondary music classroom. But if young students are not given this framework in elementary school, how then are they to begin developing aural skills and the ability to audiate?

Another chance to begin developing aural skills is in the middle school ensemble. It is quite common for students to begin music study in 6th grade with widely different skill sets from their peers. The goal of an effective middle school music educator should be to ensure that each of their students has the same skill sets by the time they move on to high school, regardless of where each student started when first entering the middle school program. A number of strategies can be used in the middle school music classroom to begin the development of aural skills in young musicians.

For many in the chorus classroom, middle school is the first opportunity to learn how to sight read music. Effective middle school educators teach notation and solfege using moveable tonic to begin the process of learning to sight read. In order to first begin teaching sight-reading, it is acceptable to use an instrument such as the piano to aid in establishing and maintaining

tonality. In a study done by Jane M. Kuenhe, “Regarding the piano, 39.47% [of teachers] used the piano initially, but gradually stopped using it as students became more proficient”, indicating that the piano is a useful tool in guiding young students in their journey to develop aural skills (Kuenhe, 2007, pg. 124). Over time, students should discover that they are capable of accurately maintaining the tonality of an exercise on their own, a skill that can be transferred to other fine arts disciplines as well.

Singing does not need to be limited to the chorus classroom; it has proven to be useful in instrumental classrooms as well to improve intonation and increase active listening in the ensemble (Robinson, 1996, pg. 17). Among a group of wind band instructors that participated in a recent study, “Participants most commonly modeled musical ideas with their voices, sang as a large group, and sang tuning pitches” (McNeil, 2021, pg. 65-66). The same can be said for four educators from a different study, in which “singing was used in every classroom” and “the teachers would sing to their students and they would have them sing back” (St. Denis, 2018, pg. 73). Regardless of the instrumentation of the ensemble, singing can be used to enhance learning and increase the students’ aural understanding of repertoire learned in the classroom.

Students can develop aural skills through improvisation. St. Denis discusses how various teachers incorporate improvisation into their band classes:

“Teachers built students up throughout the year improvising with specific guidelines that became broader as time went on. Several teachers had students buzz on mouthpieces to help build tone. Analogies helped students to visualize what their tone should sound like. Some teachers also used background music when students were playing, whether that was through a backing track that was

teacher-made, or the teacher was accompanying them on the piano. Students were given an aural context in which they were playing or improvising over.”

(St. Denis, 2018, pg. 74).

Once this foundation is truly established in the middle school classroom, these skills can be further developed in high school. Effective music educators should still employ some of the previously mentioned techniques, but they can be extended beyond what students already know.

An effective way to further develop aural skills understanding is through the use of repertoire in the classroom. Dunmire writes that “students studying theory and aural skills through repertoire will gain a more holistic understanding of music and these skills will have practical meaning for the student” (Dunmire, 2016, pg. 3). Many music educators believe that studying music theory and aural skills needs to be done separately from repertoire rehearsal, and setting time aside to do such things when a performance is looming in the immediate future can be overwhelming. When theory and aural skills are integrated directly into repertoire rehearsal, it requires “students to apply the concepts to performance thereby holding student’s interests and promoting understanding of the material” (Dunmire, 2016, pg. 7).

In the choral classroom, aural skills can be implemented into an effective warm up sequence. Eric Wilkinson writes, “Daily rhythm work with your choir will heighten their sight-reading and musicianship skills in boundless ways. Make a habit of dedicating time to rhythm reading during the fundamentals portion of rehearsals, especially with beginning singers. This practice will assist in training your singers to read the music as opposed to singing everything by rote memory.... Daily practice singing tonal patterns on solfege will train your students’ ears and assist them in learning to identify solfege visually” (Wilkinson, 2019, pg. 27 and pg. 42). In

general, music literacy skills should be developed in ways directly applicable to repertoire to be rehearsed later in class. Repertoire can and should be chosen to appropriately challenge young students to learn new skills and apply them to their performances. Such skills should be practiced every day, and students can reap the rewards of their hard work. “As the students’ sight-reading skills improved, so did their confidence, and they were willing to work even harder towards the next goal. Then when they achieved the next goal, their confidence bloomed once again, and they became even hungrier to work on the next skill level” (Wilkinson, 2017, pg. 99). A culture of learning and self-improvement can work wonders for developing a highly skilled secondary ensemble.

Especially at the high school level, “students need to know why they are learning something.... Teaching, for example, a dominant 7th chord out of context of a blues style, or not relating to the tonic tonality, really does [not] make sense, particularly to a contemporary musician, who knows a dominant 7th chord as just a ‘7th chord’, as they automatically lower the 7th note. If a student understands the notes they are performing are within a hierarchy of pitches within a tonal centre, then this understanding can be transferred” (Barlow, 2016, pg. 26). Students are more likely to be engaged in a lesson if they are provided the “why” of their learning; rarely do students successfully learn new material just for the sake of learning it. They must be provided with a reason.

Should a student decide to study music at the collegiate level, years of simple aural skills training developed progressively should prepare them for next-level learning. No such shock should exist upon beginning collegiate music study so long as the student received the proper training. This progression seems logical, so why does it fail to happen? For many educators, a

lack of a clear method for teaching aural skills seems to be present. Research conducted by Beckman suggests that “overall, it seems that most of the academic research is retained in the aural skills textbooks that pervade the market, but there is a larger gap between the academic research and the actual strategies implemented by the teachers” (Beckman, 2011, pg. 94).

Research-based methods for teaching aural skills exist with well-planned curricula published in textbooks, but this survey conducted among aural skills professors at two different universities suggests that such methods are not being used when teaching.

In a study of wind band conductors, McNeil looked to determine whether the attitudes of wind band conductors towards aural skills integration in the classroom affected their actual integration of the skill study into their rehearsals. McNeil writes:

“I obtained the Pearson product-moment correlation coefficient to determine if there was a relationship between general attitudes regarding aural skills and how often conductors integrated aural skills training in the wind band rehearsal. The independent variable was obtained by calculating the subscale mean of the general attitudes and the dependent variable was the subscale mean for reported frequency of diverse aural skills strategies in the wind band rehearsal. There was a significant positive correlation between general attitudes and how often conductors integrated aural skills training in the wind band rehearsal ($r = .52, p < .001$).”

If it is true that a positive attitude toward aural skills integration in the secondary ensemble will increase the likelihood that such skills are actually included in daily rehearsal, then the opposite can be considered true as well. If a secondary music educator has doubts about their ability to

teach aural skills, or if they fail to see the importance of the skill development that could occur in the classroom, then they are going to be less likely to teach aural skills during their rehearsals.

The goal of any secondary ensemble should not be to produce a hoard of music majors; this is unrealistic. Aural skills are an integral framework for becoming an intelligent musician, and when students have a detailed aural concept of the music that they sing or play, they are more likely to play it well, and they should also enjoy it more.

Methodology

Population

The sample population consisted of 85 University of South Carolina students, all either enrolled or previously enrolled in an ensemble at the School of Music, as is the case with Carolina Band members, who are not currently meeting to rehearse for marching band. These students represent 65 high schools across 14 states. The survey requested information regarding which ensemble the participant was a member of in high school, which serves as a strong, though not certain, indicator of which ensemble the participant is enrolled in at the university. 47 music majors and 38 non-music majors were surveyed. Specific data regarding the sample population can be found in Table 1, Table 2, and Table 3.

Table 1

High School Demographic Information

HS Attended	City/State	Number Attended
Andrew Jackson High School	Kershaw, SC	1
Ashbrook High School	Gastonia, NC	1
Ben Lippen School	Columbia, SC	2
Blue Ridge High School	Greer, SC	1

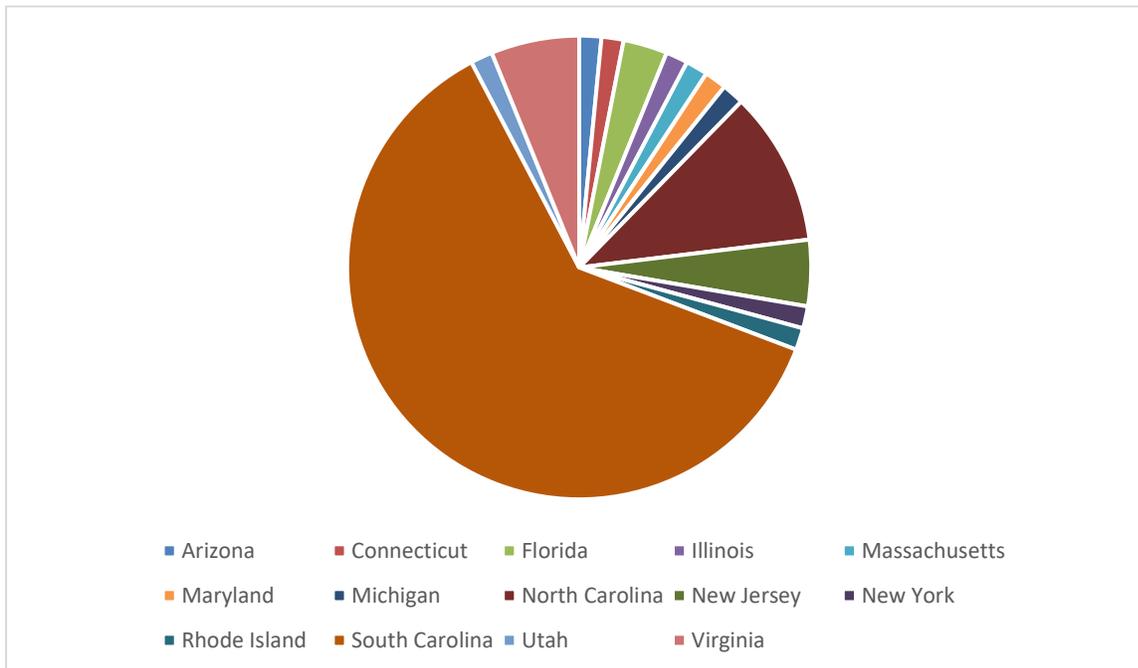
Blythewood High School	Blythewood, SC	2
Boca Raton Community High School	Boca Raton, FL	1
Boiling Springs High School	Boiling Springs, SC	2
Brevard High School	Brevard, NC	1
Carolina Forest High School	Myrtle Beach, SC	1
Chapin High School	Chapin, SC	2
Cuthbertson High School	Waxhaw, NC	1
Dorman High School	Spartanburg, SC	1
Dutch Fork High School	Irmo, SC	2
DW Daniel High School	Central, SC	2
Eastside High School	Greenville, SC	1
Enloe High School	Raleigh, NC	1
Gilbert High School	Gilbert, SC	1
Glenbrook South High School	Glenview, IL	1
Goose Creek High School	Goose Creek, SC	3
Governor's School for Arts and Humanities	Greenville, SC	4
Governor's School for Science and Mathematics	Hartsville, SC	1
Hanahan High School	Hanahan, SC	1
Harnett Central High School	Angier, NC	1
Hartsville High School	Hartsville, SC	1
Heathwood Hall Episcopal School	Columbia, SC	2
Holland Christian High School	Holland, MI	1
Homeschooled	Columbia, SC	1
Hunterdon Central Regional High School	Flemington, NJ	1
Irmo High School	Irmo, SC	2
James W. Robinson Secondary School	Fairfax, VA	1
Lakeland Christian School	Lakeland, FL	1
Latta High School	Latta, SC	1
Laurens District 55 High School	Laurens, SC	1
Ledyard High School	Ledyard, CT	1
Lexington High School	Lexington, SC	2

Lincoln High School	Lincoln, RI	1
Loris High School	Loris, SC	1
Lugoff-Elgin High School	Lugoff, SC	2
May River High School	Bluffton, SC	1
Nation Ford High School	Fort Mill, SC	1
North Augusta High School	North Augusta, SC	1
North Point High School	Waldorf, MD	1
Northridge High School	Layton, UT	1
Oliver Ames High School	Easton, MA	1
Park View High School	Sterling, VA	1
Piscataway High School	Piscataway, NJ	1
Prince of Peace Educational Center (Homeschooled)	Columbia, SC	1
Providence High School	Charlotte, NC	1
Ridgeview High School	Columbia, SC	3
River Bluff High School	Lexington, SC	2
Riverside High School/Greenville Fine Arts Center	Greenville, SC	1
Salem High School	Virginia Beach, VA	1
Sandra Day O'Connor High School	Phoenix, AZ	1
South Brunswick High School	Monmouth Junction, NJ	1
South Point High School	Rock Hill, SC	1
Stratford High School	Goose Creek, SC	1
Summerville High School	Summerville, SC	1
Trinity Collegiate School	Darling, SC	1
W.T. Woodson High School	Fairfax, VA	1
Walhalla High School	Walhalla, SC	1
Wando High School	Mount Pleasant, SC	3
Weddington High School	Matthews, NC	1
Westhampton Beach Senior High School	Westhampton Beach, NY	1

White Knoll High School	Lexington, SC	2
Woodruff High School	Woodruff, SC	1

Table 2

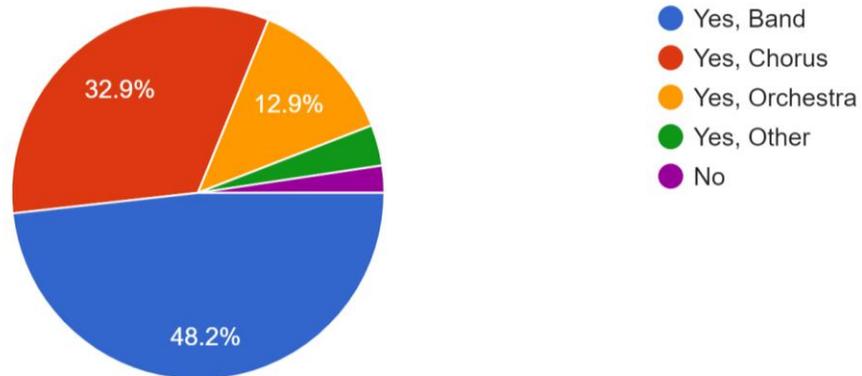
Participant State Representation



In total, one student responded from Arizona, one student responded from Connecticut, two students responded from Florida, one student responded from Illinois, one student responded from Massachusetts, one student responded from Maryland, one student responded from Michigan, 7 students responded from North Carolina, 3 students responded from New Jersey, one student responded from New York, one student responded from Rhode Island, 40 students responded from South Carolina, one student responded from Utah, and 4 students responded from Virginia.

Table 3

Secondary Ensemble Participation



In total, 41 participants were enrolled in band, 28 participants were enrolled in chorus, 11 participants were enrolled in orchestra, 3 participants were enrolled in another ensemble, and two participants were not enrolled in an ensemble in high school.

Method

In preparation for survey distribution, possible survey questions were first drafted and then developed to eliminate possible surveyor bias. Once complete, the survey was then distributed to each of the chorus and band ensembles, a number of strings education students, and two Musical Greek fraternities on campus: Sigma Alpha Iota and Phi Mu Alpha. This distribution took place over the course of one month, cutting off about one week following the final distribution email sent. The researcher then began to analyze collected data.

Survey Design

Each of 11 questions were included in the survey in the following order:

- 1.) Did you participate in an ensemble or other musical group before attending high school?

- 2.) Did you take private lessons for an instrument or voice before attending college?
- 3.) Where did you attend high school? State name of school and location.
- 4.) Did you participate in an ensemble in high school? If yes, which?
- 5.) Did you take AP Music Theory in high school?
- 6.) What components of aural skills do you remember learning and practicing in your high school ensemble? Select all that apply. If none, select “None of the above”.

- Sight Singing
- Solfege
- Scale Degrees
- Takadimi or another rhythm syllable system
- Interval identification: ascending and descending
- Interval identification: pitches played simultaneously
- Melodic Dictation
- Harmonic Dictation
- Rhythmic Dictation
- Tonal Pattern Imitation (singing back what you hear)
- Chord Identification (major, minor, augmented, diminished)
- Scale Identification (major, natural minor, harmonic minor, melodic minor)
- Modal Scale Identification

- 7.) What is your major?
- 8.) If you are a music major/minor, how many semesters of music theory and aural skills have you received credit for to date?
- 9.) If you are a music major/minor, how prepared did you feel for aural skills classes at the collegiate level?
- 10.) If you are a music major/minor, what skills, if any, do you wish you had learned prior to engaging in aural skills study at the collegiate level? Select from the options below:

- Sight Singing
- Solfege

- Scale Degrees
- Takadimi or another rhythm syllable system
- Interval identification: ascending and descending
- Interval identification: pitches played simultaneously
- Melodic Dictation
- Harmonic Dictation
- Rhythmic Dictation
- Tonal Pattern Imitation (singing back what you hear)
- Chord Identification (major, minor, augmented, diminished)
- Scale Identification (major, natural minor, harmonic minor, melodic minor)
- Modal Scale Identification

11.) If you are a music major/minor, how has aural skills affected your musical performance abilities in an ensemble?

Questions vary between qualitative and quantitative in nature, both to satisfy the initial question of the thesis as well as some extended curiosities on the part of the researcher.

Results

The following data was chosen to be presented after careful deliberation over the amount of data collected. The data could have been compared and cross-referenced in a number of ways; what is presented is what has been deemed to be most relevant to the original questions asked by the researcher.

Table 4

Overall Skills Reported

Skill	Number of Students
Modal Scale ID	8
None of the Above	12
Harmonic Dictation	15
Melodic Dictation	19
Simultaneous Pitch Interval ID	25

Rhythm Syllable System	26
Rhythmic Dictation	27
Ascend/Descend Interval ID	28
Chord Identification	32
Solfege	37
Scale Degrees	38
Scale Identification	39
Tonal Pattern Imitation	41
Sight Singing	44

The following table is presented from least to most participants reporting each skill, including a “none of the above” option. Out of each of the skills listed, sight singing had the highest number of participants reported with 51.8%. Modal scale identification had the least number of participants reported: 9.4%.

Table 5

Average Number of Skills Reported Per High School Ensemble

Ensemble	Average (out of 13)
Band	3.71
Chorus	5.18
Orchestra	5.27
Other	5.33
Total	4.47

Table 6

Overall Feeling of Preparation for Collegiate Aural Skills

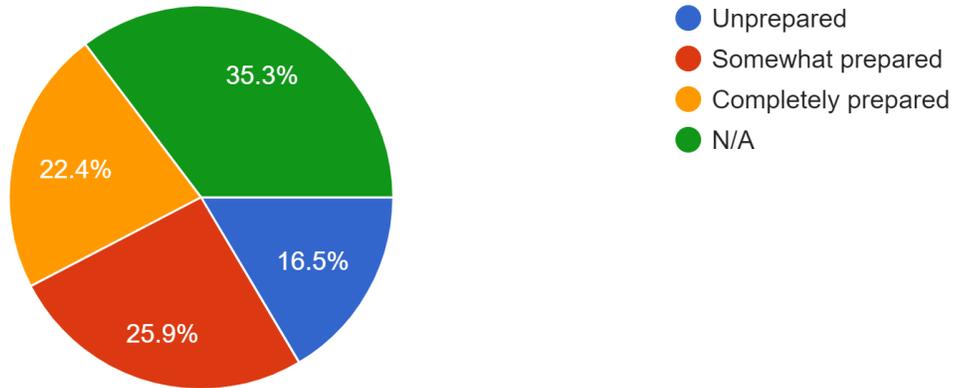
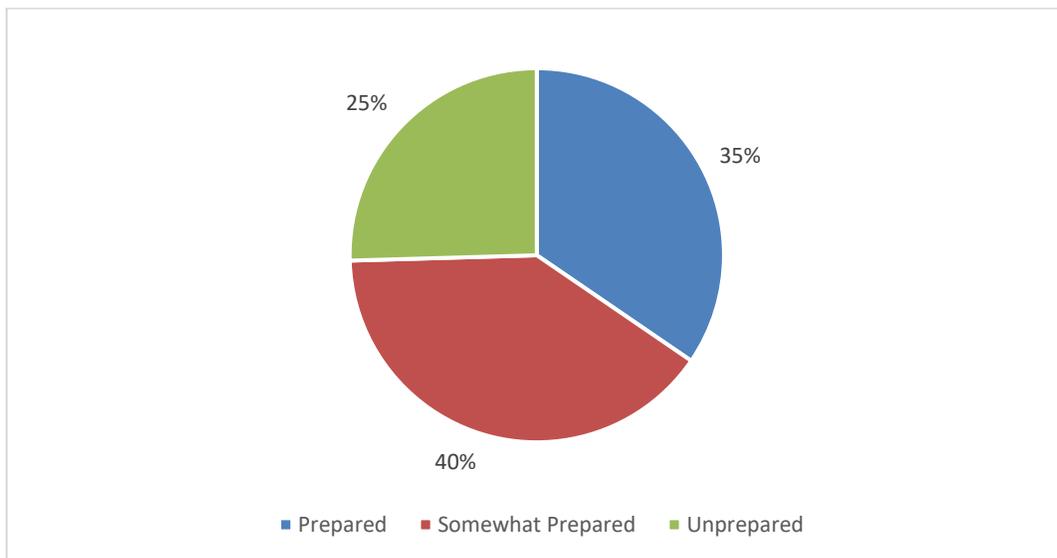


Table 7

Breakdown of Preparation in Music Majors and Minors



Out of 55 music majors and minors, 19 felt prepared, 22 felt somewhat prepared, and 14 felt unprepared for collegiate aural skills study based on their education in a high school ensemble.

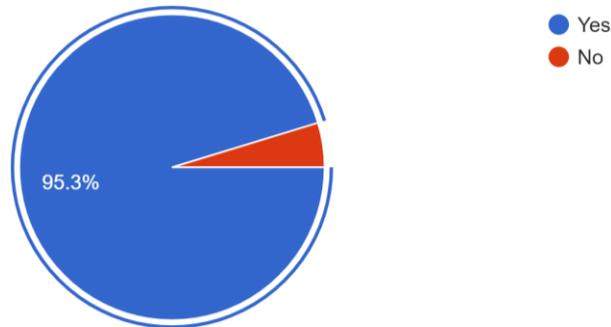
Table 8*Skills Participants Wished They Learned*

Skill	Number of Students
None of the Above	32
Rhythm Syllable System	29
Harmonic Dictation	29
Modal Scale Identification	29
Chord Identification	26
Sight Singing	24
Melodic Dictation	24
Ascend/Descend Interval ID	23
Simultaneous Pitch Interval ID	21
Solfege	20
Rhythmic Dictation	18
Scale Identification	18
Tonal Pattern Imitation	17
Scale Degrees	11

This table is organized from most desired to least desired skills, including a “none of the above” option. For this data collected, “none of the above” includes the non-music majors that participated in the survey as well as any music major participant who did not feel the need to have learned any of the above skills prior to engaging in collegiate aural skill study. Three skills tied for having the most participant reports: learning a rhythm syllable system such as takadimi, harmonic dictation, and modal scale identification, each with 34.1% of participants. The skill with the lowest percentage of participants is scale degrees, with 12.9%.

Table 9

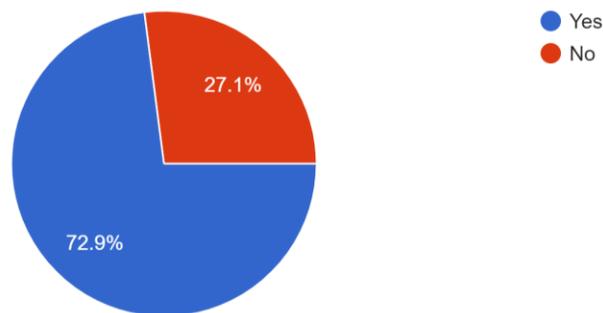
Pre- High School Ensemble Participation



Of the 85 participants, 81 (95.3%) answered that they had participated in an ensemble or other musical group before attending high school. 4 (4.7%) did not.

Table 10

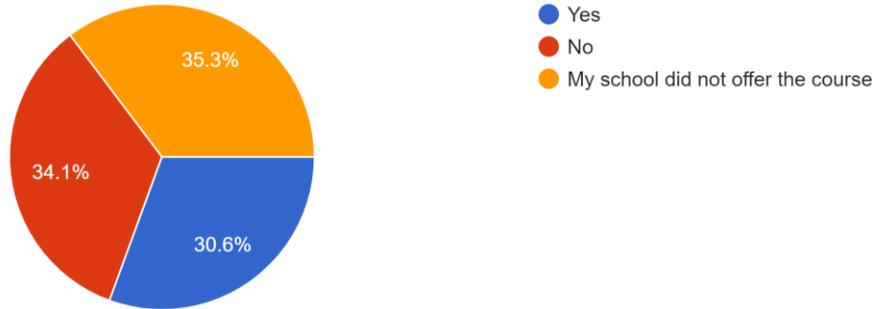
Participation in Private Music Lessons



Of the 85 participants, 62 (72.9%) took private lessons for an instrument or voice before attending college. 23 (27.1%) did not.

Table 11

Enrollment in AP Music Theory



Of the 85 participants, 26 (30.6%) enrolled in AP Music Theory at their high school. The other 59 participants (69.4%) did not enroll in the course, either by choice (34.1%) or because their school did not offer it (35.3%).

Table 12

Aural Skills Learned Compared to Other Sources of Music Instruction

Participant Number	Pre-High School Ensemble?	Private Lessons?	AP Music Theory?	Skills Learned
1	x	x	x	13
2	x	x	x	13
3	x	x	x	13
4	x	x	x	12
5	x	x		12
6	x			12
7	x	x		12
8	x	x	x	12
9	x	x	x	11
10	x			9
11	x	x		9

12	x	x	x	9
13		x	x	9
14	x	x		8
15	x	x	x	8
16	x	x		8
17	x		x	7
18	x	x	x	7
19	x	x		7
20	x			7
21	x	x		6
22	x	x	x	6
23	x	x		6
24	x	x		6
25	x			5
26	x	x		5
27	x	x	x	5
28	x	x		5
29	x	x	x	5
30	x			5
31	x	x	x	5
32	x			5
33	x	x		5
34	x	x		5
35		x	x	5
36	x	x	x	4
37	x	x		4
38	x			4
39	x	x		4
40	x	x		4
41	x	x		4
42		x	x	4

43	x	x	x	3
44	x	x		3
45	x			3
46	x	x		3
47	x	x	x	3
48	x			3
49	x	x		3
0	x	x		3
51	x	x		3
52	x	x	x	3
53	x			3
54	x	x		3
55	x	x	x	3
56	x	x		2
57	x			2
58	x			2
59	x	x		2
60	x	x		2
61	x		x	2
62	x	x		2
63	x			2
64	x			2
65	x	x		2
66	x			2
67	x	x		1
68	x	x	x	1
69	x	x		1
70	x	x		1
71	x	x		1
72	x	x		1
73	x	x		1

74				1
75	x			0
76	x	x	x	0
77	x	x		0
78	x			0
79	x	x		0
80	x			0
81	x	x		0
82	x	x		0
83	x			0
84	x			0
85	x	x	x	0

This table compiles data from Tables 9-11 in order to compare the number of skills learned to other factors that could contribute to aural skills learning. This was done in order to determine if there was a correlation between the type of instruction a participant received and the number of skills learned, and also to check the reliability of the participant's memory. To elaborate, it could have been possible that a participant filling out this survey could not recall precisely how and where they learned a particular skill, but they did recall learning it nonetheless and therefore chose to mark the skill on the survey. The data above is sorted from most to least skills learned; while all three participants who recalled learning all three skills participated in all three other modes of music learning provided, there does not appear to be a correlation for the rest of the participants. For example, participant 85 also participated in all three modes of music learning, but recalled learning none of the listed skills. This indicates that the participants were accurate in their recall.

Discussion

As data was collected and the process of analysis began, some limitations in analysis presented themselves. First, the relevancy of some questions in the survey was retroactively questioned. The researcher determined, for example, that while it is interesting to learn the various majors being studied by participants of the survey, the majors themselves did not prove to be relevant unless the participant was a music major or minor. Similarly, for students who are not music majors, the second half of the survey does not apply, making the data provided by Google Form less clear. This subsequently led to manual calculation of percentages of students for a number of questions, which creates the possibility for human error in data calculations.

An interesting limitation on data analysis lies with whether or not a school offered the AP Music Theory course. The researcher designed the question with the intention of learning three things: a) the participant took the course, b) the participant did not take the course, or c) the school the participant attended did not offer the course. For a couple of schools, there were conflicting answers, where one participant stated their school did not offer the course, but another participant from the same school took the course. These conflicts could be the result of a couple different things, though the most likely answer is that at the time one participant was in high school, AP Music Theory was not offered, but the course was added as an option by the time another participant would be able to take it. In order to more clearly understand these conflicts in reported answers, another question could have been added to the survey asking what year the participant graduated from high school. Inferences would still need to be made from this data collected, but it could have provided more insight into such conflicts of information.

The method of data collection is heavily reliant on accurate memory from the participants, which leaves sizeable room for error. Participants were asked to recall skills learned in high school, which could have been anywhere from one to five years prior or more depending on the participant. In addition, there are other outlets for learning aural skills, and it could be entirely possible that participants could not distinguish where they learned the skills listed in the survey, if any were learned at all. Questions asking about pre-high school ensemble participation, private lessons, and AP Music Theory enrollment were meant to provide insight to the possibility of learning more skills in these areas as opposed to a high school ensemble, though the researcher can merely make an inference regarding such skill development; no question existed in the survey that could explicitly point the researcher in the direction of other modes of music learning in regards to a participant's aural skills development.

The data collected in this study suggests that there is a general lack of aural skills development included in music literacy curricula at the high school level. 76% of participants learned six or fewer of the thirteen listed skills. 14% reported learning none of the skills listed. The researcher was particularly curious how the average number of skills learned in a band ensemble would compare to other ensembles; the majority of students commenting on the difficulty of the collegiate aural skills curriculum (thus sparking interest in the creation of this study) played a wind instrument of some kind. Consistent with this initial observation is the average number of skills reported by band students in this survey: 3.71. This is 0.76 points lower than the average of all participants, 1.47 points lower than chorus participants, and 1.56 points lower than orchestra participants. This observation suggests that while aural skills development

is lower than it should be across the board in secondary ensembles, particular attention needs to be paid to aural skills development in the secondary band ensemble.

Many music majors that participated in this study shared some insight to how studying aural skills has impacted their ability to perform in their respective ensembles at the collegiate level. The following are some answers to the question, “If you are a music major/minor, how has aural skills affected your musical performance abilities in an ensemble?”:

- *They help me better assess an ensemble. They also help me model better as I am more confident in my own singing abilities. Relying on an instrument can be inconvenient, so my aural skills definitely help me move quickly and more efficiently.*
- *It enhanced my ability by allowing me to more easily sight read my part especially when tuning to others.*
- *It makes me actually play the right rhythms and play more in tune. I grew as a violinist tenfold with these skills that I didn't have in high school.*
- *It's helped me to be able to better identify what I am doing wrong/right and what I need to do to fix things. I also think it made me a better listener and forced me to listen to other parts not just my own.*
- *It had definitely improved my ability to perform, as I have a better understanding of how my instrument blends with those around me.*

As this question was open-ended, some responses beyond the target answer were provided as well. Some of these responses are included here:

- *The course Aural Skills did not help me at all. But in general things such as solfege and takadimi has been helpful in picking up music more quickly.*

- *Not a lot. I don't find aural skills very useful.*

These two responses piqued the interest of the researcher, as it seems entirely possible that the participants have not developed a clear understanding of the purpose of the collegiate aural skills curriculum. The first response, for example, implies that though skills developed in the collegiate aural skills curriculum are helpful in practical settings, the purpose of the class itself has been lost on the participant. It may be that this reflects low esteem of learning for its own sake, or perhaps these students simply do not understand the purpose of course material. Students may look at the curriculum differently if they are explicitly told how such skills can be useful as well as why learning and developing aural skills can benefit them as musicians.

The following is another response that addressed topics beyond the target response for the survey question:

Without prior knowledge of reading music, it's quite easy to feel inadequate in these courses and in ensembles. Many people judge the validity of one's musicianship on whether or not they can read standard notation or know western music theory; and this can be very debilitating for seasoned musicians who just happen to lack that style of training. Especially if they're just starting in that new type of environment.

This response, though not aligned with the overall goals of this study, raises an important point that music educators should consider: the value assigned to a musician based on their skill sets. This response sparked an idea for further research; it is worth looking into the mental health and self-worth of pre-professional musicians based on the environment in which they study music at the collegiate level.

Implications

The general consensus among the participants of this survey is as follows: there is a desire for more aural skills to be learned prior to beginning collegiate aural skills study, particularly in the areas of sight singing, rhythm syllable systems such as takadimi, melodic and harmonic dictation, chord identification, and modal scale identification. Though these skills are most consistent with the music literacy provided in a music theory course, it is possible to teach them at a basic level over the course of four years in a secondary ensemble. Based on participant response, including the above-mentioned skills in secondary music literacy would allow students continuing their music study at the collegiate level to feel more prepared for the collegiate aural skills curriculum.

From the perspective of a secondary music educator, it may seem as though the goal of this study is to encourage secondary educators to design their rehearsal structure to prepare a host of music majors once their students graduate from high school. While changes made to music literacy curricula would certainly better prepare students for collegiate music study, that is not the goal of this study. Developing aural skills in young musicians equips them to analytically listen to the music they perform and create informed frameworks for how they listen to music. With developed aural skills, young musicians will be able to discriminate between various harmonic structures in their repertoire, determine the importance of the part they sing or play in relation to others in the ensemble, and they should be able to intelligently speak about what they hear in their repertoire. Giving students the opportunity to develop a well-trained ear increases the likelihood of these students becoming life-long musicians because they would possess the skills to do so.

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