

Fall 2009

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Bollero, M. R. (2009). The Effect of Musical Characteristics, Exposure, and Individual Difference Variables on String Student Musical Preference: Implications for Introducing Western Art Music. *Inquiry: The University of Arkansas Undergraduate Research Journal*, 10(1). Retrieved from <https://scholarworks.uark.edu/inquiry/vol10/iss1/4>

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THE EFFECT OF MUSICAL CHARACTERISTICS, EXPOSURE, AND INDIVIDUAL DIFFERENCE VARIABLES ON STRING STUDENT MUSICAL PREFERENCE: IMPLICATIONS FOR INTRODUCING WESTERN ART MUSIC

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Abstract

This study explores the influences of various musical, environmental, and personal factors on string students' preferences for selections of Western Art Music. The purpose of this study was to provide insight into the formation of music preferences by young string students in order to allow teachers to introduce Western Art music most effectively. Participants (n = 498) from northwest Arkansas public school string programs were given the String Student Music Preference Questionnaire (SSMPQ) developed by the author. Part One of the SSMPQ measured preference for six one-minute selections of Western Art music by Beethoven, Berlioz, Mahler, Saint-Saëns, and Schoenberg. In Part Two, the researcher collected data on participants' age, gender, musical experience, social influence and listening habits. It was determined that the musical examples with characteristics similar to popular music were most preferred. These characteristics included: fast tempo, steady rhythm, stable dynamics, identifiable instrumentation, and moderate complexity. Age, social influences, and listening habits did not significantly affect preference, while the gender and the live attendance portion of the musical experience variables significantly influenced participant preference.

Introduction

The introduction of Western Art music to beginning string students has become problematic due to the style's declining popularity. Starting in second grade, students may begin to show a preference toward popular styles (i.e., rock, pop, and rap) over Western Art music (Greer, Dorow, & Randall, 1974). In this study, Western Art music, often called "classical" music, refers to music of the Common Practice Period of Western musical composition. Preferences continue to center around popular styles and students may become less open to new music throughout junior high, until they reach adolescence in high school (Jin, 1999). It has even been suggested that junior high is the least opportune time to introduce new music to students due to their lack of open-mindedness about musical styles (Leblanc, Sims, Sivola, & Obert, 1996). However, most students begin instrumental study in junior high when they are required to encounter possibly unfamiliar Western Art music. The problem that arises, therefore, is how to introduce unfamiliar and unpopular music to students who are least open to experiencing and enjoying other musical styles.

There has been little research on beginning string students' music preferences. Most existing research has attempted to

define the relationships between music preference and musical characteristics (e.g., tempo), experience based variables (e.g., familiarity), or listener characteristics (e.g., age and social influences). Few have tied all of these factors together into a cohesive picture. Researchers often focus on the liking or disliking of single musical stimuli, which rarely presents a complete understanding of how preferences form and how teachers may influence preference formation in order to more effectively introduce new music. The purpose of this study was to explore string student musical preference through relationships between musical, exposure-related, and individual characteristics in order to give educators the knowledge and tools necessary to introduce Western Art music in a way that effectively generates student interest and lays a path for positive encounters with Western Art music in the future. More specifically, the current study was guided by three research questions:

1. What characteristics of Western Art music do sixth through twelfth grade strings students prefer?
2. How are student music preferences for each example influenced by fixed-factor variables?
3. What relationships, if any, exist between preference, interest, and familiarity?

The difference between the terms musical preference and musical taste as used in this study can be found in Price's (1986) glossary of terms dealing with affective response studies in music. Price defined preference as "an act of choosing, esteeming, or giving advantage to one thing over another" (p. 154). This contrasts with musical taste, which Price defines as "a person's overall attitude toward collective musical phenomena" (p. 154). In this study, preference is defined as a students' indicated liking for a single musical stimuli, whereas taste is the students' pre-formed attitude toward a larger body of music, such as the Western Art music genre.

Literature Review

Previous music preference research can be divided into three primary categories. The first focuses on how musical characteristics, such as tempo or melody, influence preference. The music educator can easily manipulate musical characteristics in ways that positively influence students' musical choices. Leblanc, in multiple studies, found that faster tempi are clearly preferred over slower tempi (Leblanc, 1981;

Leblanc and McCrary, 1983). In addition, Montgomery (1988) found that faster perceived tempi are also preferred over tempi that sound slower. Students prefer rhythmic activity and clarity, along with pattern-based rhythms, according to Prince (1972). Fung (1996) found that dynamic variation and loud volume appeal to students. Music of moderate complexity, or music that is not overwhelmingly complex but also not too simple, appeals to students, according to Acevedo-Hernandez (2006). Students also prefer styles with instrumentations that are familiar (Jin, 1999).

The second type of research on music preference deals with exposure-related variables, such as familiarity and training. These variables are concerned with how often and in what environment the student encounters the selected music. Familiarity has a significant impact on preference, and students most often prefer music that sounds familiar (Getz, 1966; Hargreaves, 1984; Jin, 1999). Training, which can be viewed as a more in-depth extension of familiarity, can raise preference through rehearsals, guided listening, and other lessons (Droe, 2005; Baltagi, 2006). Teachers' attitudes toward the music they introduce also have an impact on preference and listening choice (Droe, 2005).

The third and final category of music preference research involves variables that are defined by the listener him or herself. These listener-related variables, such as musical training or age, may have profound effects on preference, but music educators often have little or no control over them. Rather than manipulating these variables, the educator can only consider them when introducing music to the student. Musical experience provides better vocabulary for listening to and describing musical preferences, according to Bundra (1993). Hargreaves, Comber, and Colley (1995) found that students with experience in ensembles that play less popular music, such as jazz or Western Art music, often show higher preferences for those genres. In general, students below 3rd grade are very open to different types of music, but above 3rd grade, students are much more resistant to new music (Greer, Dorow, & Randall, 1974). Openness is most limited in the junior high years (grades six through eight), though it does increase again in high school (Acevedo-Hernandez, 2006; Jin, 1999). Peer influence or teacher influence can have a strong effect on student preference, according to Alpert (1982) and Jin (1999). Females tend to have higher music preferences in general and higher preferences for Western Art music (Hargreaves, Comber, & Colley, 1995; Jin, 1999), along with higher preferences for music of slower tempi (Osborn, 1999).

Methods

Students ($n = 498$) in grades six through twelve from public schools in the Northwest Arkansas region participated in the study. This was essentially a convenience sample. Schools were selected based on proximity and the ability of the researcher to visit the teachers' classrooms at their convenience. All students were string players and a variety of teachers were used to determine if teaching style, or any

other variable influenced by the teacher, contributed to his or her students' listening habits. Student participation was based on the teacher's willingness to allow his or her classes to be surveyed. Students' participation was voluntary and no penalty was enacted against them for electing not to participate. IRB approval was granted on October 17, 2008.

Instrument and Procedure

The *String Student Music Preference Questionnaire* (SSMPQ) was created for this study (see Appendix). Items were designed to measure student preferences for a variety of musical examples and to determine if these examples were related in any way to a variety of personal factors, such as musical experience or family and friends' musical preferences. Throughout the SSMPQ, the term "classical" was substituted for the term "Western Art" for ease of understanding, due to the age of the students being surveyed. Cronbach's Alpha was used to evaluate the reliability of the scaled response items on the SSMPQ. A calculated Cronbach's Alpha of .82 was considered highly reliable and robust enough for subsequent analysis.

Part One of the SSMPQ measured student preference for six different examples of Western Art music (see Appendix). Part One was divided into six identical sections, one for each musical example. For each section, students circled the number that most closely represented their preference for the example on a 1 (Dislike very much) to 5 (Like very much) Likert-type scale. Students indicated their familiarity with each example by indicating 'Yes' or 'No' when asked if they had ever heard the piece of music before. Students were also asked if the example made them want to listen to more classical music, which was also answered with 'Yes' or 'No'. This question was used to emphasize the students' overall preference for the example and explore if preference for a single example is related to desire to further explore classical music. The last question in each section of Part One, which was free response in nature, allowed students to supply any reasons why they did or did not enjoy the selection.

Six musical examples were chosen to examine student music preferences (see Table 1). *Beethoven Symphony V, Movement IV* was chosen due its quick tempo, likely unfamiliarity with young students, and moderate complexity. This dynamically stable excerpt includes clear melodies, predictable harmonic patterns, and motivic rhythms. Strings and brass are featured prominently.

Beethoven Symphony VII, Movement II was chosen due to its slow tempo, likely unfamiliarity with participants, and moderate complexity. It features clear melody and rhythm with a slight decrescendo to the conclusion of the example.

Berlioz's Symphonie Fantastique, Witches Sabbath was chosen due to the familiarity of the 'Dies Irae' theme, its fast tempo, loud dynamics, and moderate complexity. The very active harmonic movement and exciting figures in the strings make the excerpt sound fast and active, though the tempo is moderate.

Table 1. Characteristics of the examples on the SSMPQ.

	Tempo	Rhythm	Melody	Mood/Modality	Harmony	Dynamics	Complexity	Instrumentation
Beethoven V	Fast	Stable	Simple	G Major	Predictable	Stable	Moderate	Full Symphony
Beethoven VII	Slow	Stable	Simple	A minor	Predictable	Stable	Moderate	Strings and Winds
Berlioz	Fast	Stable	Simple	A minor	Unpredictable	Loud then Soft	Moderate	Full Symphony with Brass featured
Mahler	Slow	Unstable	Simple	F Major	Unpredictable	Large Crescendo	Moderate	Strings and Harp
Saint-Saëns	Fast	Stable	Simple	G minor/Bb Major	Predictable	Stable	Low	Strings, Piano and Xylophone
Schoenberg	Slow	Unstable	Complex	Unclear	Unpredictable	Large Crescendo	High	Strings

Mahler Symphony V Movement IV was chosen for its slow tempo, moderate complexity, and unfamiliarity. The example begins quietly but crescendos continuously until the climax and cadence at the end. This example includes a clear but very slow melody and flexible rhythms that vary throughout.

Saint-Saëns' Carnival of the Animals, Fossils was chosen for its use of the familiar "Twinkle Twinkle Little Star" melody, its quick tempo, and relatively low complexity. This lighthearted example features the piano and xylophone as solo instruments, accompanied by rapid string movements, clear melodies, rhythmic motifs, and stable dynamics.

Schoenberg's Verklärte Nacht, Movement IV was chosen for its unfamiliarity, slow tempo, and high complexity. This excerpt features a smaller ensemble than the other examples and much less clear rhythm and melodic lines, along with large variations in dynamics.

Each example was numbered according to the previous list and the website <http://www.randomizer.org/form.htm> was used to generate random numbers 1 through 6. Three Compact Discs were copied with three different random orders to ensure that example order did not affect preference.

Part Two of the SSMPQ was concerned with other relevant personal information about the student that might influence his or her classical music preferences (see Appendix). The data collected from this section was compared with the students' preferences to see if any of these factors, which may or may not be manipulated by the educator, are important in forming each student's musical preferences. Questions probed current grade in school (since Greer, Dorow, & Randall (1974) found that age influenced students' preferences for classical music), gender, and string instrument currently being studied (violin, viola, cello, or bass) as well as additional instruments that they played. Students were also asked to indicate if they had studied privately and, if so, for how many years. Each respondent was then asked to list any other ensembles that he or she plays with. It may be possible that private lessons and extra-curricular performance habits contribute to musical experience and interest, which can be linked to preferences for classical music (Hargreaves, Comber, & Colley, 1995; Jin, 1999).

The next questions probed family members that play musical instruments, as well as minutes spent listening to popular and classical genres and whether or not they listened to classical music outside of school. The latter item was used to differentiate students who have a serious interest in the genre from those who rarely listen to classical music outside of their orchestra classroom. Students were also asked if their friends listen to classical music outside of school, since there may be a strong correlation between individual and peer preferences (Jin, 1999). The final questions probed whether anyone in the students' household listens to classical music (a factor, according to Jin, 1999) and whether they had ever attended a live performance of classical music, an experience that may influence student preference and interest.

The SSMPQ was given in the student's orchestra classrooms and each teacher agreed to allow the use of his or her class time for giving the SSMPQ. After a brief introduction and the statement that participation was not required, the researcher handed out the SSMPQ and ensured that each student had a writing utensil. Once the students were ready to take the survey, the first musical example was played. Students were asked to wait to fill in the questions regarding each example until that example had finished playing in order to ensure that the students' attention remained on the music rather than answering the questions. Students were given between 30 seconds and one minute to answer each section and were asked to put their pencils down upon completion of the section. The survey proceeded in this manner through each of the six examples. Each example was played only once. After completion of the listening section, students were asked to fill out the second part of the SSMPQ and then return their papers. Once all of the students had completed the SSMPQ, the researcher provided a quick word of thanks to the teacher and participants.

Results

To answer research question 1, means and standard deviations were calculated. On the 5-point Likert-type scale (range 1-5, with 5 being "Like very much"), the most preferred example was Saint-Saëns' Carnival of the Animals, *Fossils* movement (M = 4.07, SD = 1.073) followed by Beethoven V, fourth movement, (M = 3.72, SD = .985), Beethoven VII, second movement (M = 3.62, SD = 1.176), Berlioz (M = 3.49, SD = 1.114), Schoenberg's *Verklärte Nacht*, fourth movement (M = 3.27, SD = 1.221), and Mahler V, fourth movement (M = 3.15, SD = 1.112). The participants also indicated their familiarity with each example. Students were most familiar with Beethoven VII (19.7% were familiar), followed by Beethoven V (13.9%), Schoenberg (13.9%), Saint-Saëns (13.5%), Berlioz (11.2%), Mahler (9.8%). Participants were asked if the example inspired them to listen to more music that is similar. Participants were most inspired to listen to music in the style of Saint-Saëns (65.9% answered Yes) followed by Beethoven V (56.0%), Beethoven VII (55.2%), Berlioz (51.6%), Schoenberg (46.2%), and Mahler (41.8%).

The characteristics shared by the most preferred examples (Saint-Saëns, Beethoven V, and Beethoven VII) include stable rhythm, simple melody, predictable harmony, stable dynamics, and low to moderate complexity. The Berlioz, Schoenberg, and Mahler examples were characterized by unpredictable harmony, large dynamic variations, and moderate to high complexity. Though tempo preferences were less clear due to the observation that Beethoven VII (slow) was ranked higher than Berlioz (fast), participants seemed to prefer excerpts with faster tempi. Instrumentation varied between each piece so patterns were difficult to distinguish. Mood/modality also varied greatly from piece to piece, so no patterns were evident. Figure 1 captures these outcomes schematically.

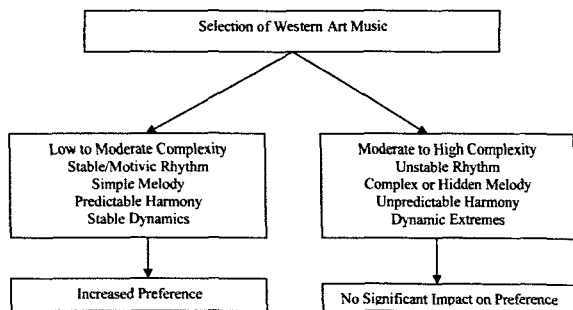


Figure 1: Model of the Impact of Musical Characteristics on Preference

In order to answer research question 2 and determine what variables may influence music preference for each of the six pieces selected for the SSMPQ, a series of one-way ANOVAs (Analysis of Variance) tests were conducted. A Bonferroni adjustment was made due to the number of ANOVA calculations conducted in the study in order to reduce the likelihood of Type I error. The alpha level used was .004, which was calculated by dividing alpha (.05) by the number of independent variables included in the test (14). Partial eta squared (η^2) was used to determine the effect size for each variable in order to discuss practical as well as statistical significance. The preference for each example was compared with the following fourteen independent variables: grade (6-12), gender, instrument, number of additional instruments played, years of private lessons (0-9), number of other ensembles in which the student is involved, number of instrument players in the students' household, minutes of popular music listened to each day, number of minutes of Western Art music listened to each day, listening to Western Art music outside of school (Yes/No), friends listening to Western Art music, household members listening to Western Art music, attendance at a live performance, and teacher.

Participant preference for the Beethoven V, fourth movement excerpt was significantly ($\alpha < .001$) influenced by live performance attendance, though the effect size ($\eta^2 = .049$) was minimal. No variables had a significant impact on the participant's preference for the Beethoven VII, second movement excerpt. Gender affected participant preference for

the Witches Sabbath movement from Berlioz's *Symphonic Fantastique* ($\alpha < .001$), though once again the effect size was minimal ($\eta^2 = .041$). Participant preference for Mahler V, fourth movement, was influenced by gender ($\alpha < .01$, $\eta^2 = .040$). Age, gender, musical experience, listening habits, and social variables did not impact participant preference for the Fossils movement of Saint-Saëns' *Carnival of the Animals*. Participant preference for Schoenberg's *Verklärte Nacht* was affected by gender ($\alpha < .001$, $\eta^2 = .045$). In all instances where gender was a significant factor, females showed stronger preference for the musical example than males.

Research question 3 was addressed by determining what relationships, if any, existed between preference, interest, and familiarity. A correlational analysis was used. For the purposes of this study, alpha was set at .05 and moderate ($r=0.4$ to 0.7) and strong ($r=0.7$ to 1.0) were considered meaningful, even though some correlations were significant at lower levels. The preference for each example was checked against the familiarity and interest for that example.

Significant relationships were found between example preference and familiarity for all but the Mahler (Beethoven V, $r = .120$; Beethoven VII, $r = .256$; Berlioz, $r = .167$; Saint-Saëns, $r = .132$; Schoenberg, $r = .271$). None of these fell in the moderate range of relationships. Moderate and significant correlations were found between each example's preference and interest (Beethoven V, $r = .601$; Beethoven VII, $r = .682$; Berlioz, $r = .636$; Mahler, $r = .641$; Saint-Saëns, $r = .577$; Schoenberg, $r = .681$). Significant relationships were found between each example's familiarity and interest, but none fell in the moderate or strong range (Beethoven V, $r = .129$; Beethoven VII, $r = .232$; Berlioz, $r = .093$; Mahler, $r = .091$; Saint-Saëns, $r = .120$; Schoenberg, $r = .200$).

Discussion

The results of this study support previous findings (Leblanc, 1981; Leblanc and McCrary, 1983) concerning the relationship between tempo and preference. Though no correlations were used to determine the extent of these relationships, mean preferences show a clear bias toward faster tempi. The two most highly rated pieces were Saint-Saëns' *Carnival of the Animals*, *Fossils* (half note equals 116 bpm), and Beethoven V, fourth movement (half note equals 98 bpm), which were both faster selections. The two slowest selections, Schoenberg's *Verklärte Nacht*, fourth movement (quarter note equals 60 bpm) and Mahler V, fourth movement (quarter note equals 15 bpm), were the two least preferred examples. This trend was not followed by the two examples whose scores fell in the middle. Beethoven VII, second movement is slower (quarter note equals 63 bpm) than Berlioz's *Symphonic Fantastique*, *Witches Sabbath* (quarter note equals 168). This finding may be explained by other variables, such as the differences in complexity, melody, and instrumentation between these two excerpts.

The preference results of the SSMPQ do provide some information on the importance of melody. The more

popular examples, including the Saint-Saëns, Beethoven V, and Beethoven VII selections, all feature prominent and clear melodies. The less favored examples had less obvious melodies, such as the lack of a clear melody in the Schoenberg selection. However, the Mahler and Berlioz examples both had clear melodies that served as the focal point for the example. Possible reasons for their lower preference ratings, in terms of melody, could be due to the position of the melody in the Berlioz example in the brass section, and the observation that the melody in the Mahler example is very slow to develop.

A dearth of research on the impact of mood or modality on preference provides little information on how these variables might be related. The results of the SSMPQ also give very little insight into the impact of mood or modality. The keys of the excerpts were often unclear and a variety of modulations occur that do little to establish a tonal focus. The three more preferred examples (Saint-Saëns, Beethoven V, and Beethoven VII) are in different tonalities (G minor/Bb Major, G Major, and A Minor, respectively), so no clear pattern can be determined.

The importance of rhythm, much like melody, can be seen in the preference results of the SSMPQ. The examples with higher preference ratings (Saint-Saëns, Beethoven V, and Beethoven VII) have clear and simple rhythmic structures, while the less preferred examples (Berlioz, Schoenberg, and Mahler) have less clear or slower rhythmic structures. The use of rhythmic motives, which are found in the three most preferred examples, may also play a large role in catching student attention and making the rhythm more easily perceptible. The Saint-Saëns example features a repeating rhythmic figure consisting of four eighth notes followed by a quarter note (Figure 2). This motif repeats throughout the example. The rhythmic structure of the Mahler example is, on the other hand, very slow to develop and no obvious patterns occur in the selection (Figure 3). These findings match those of previous researchers, who have reported that clear, pattern-based rhythms were preferred (Prince, 1972).

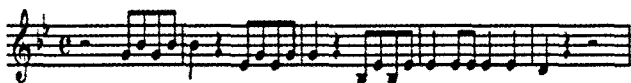


Figure 2: Example of Rhythmic Motif in Saint-Saens, Carnival of the Animals, Fossils



Figure 3: Example of Rhythm in Mahler V, Fourth Movement

An analysis of the preference ratings of the six examples on the SSMPQ shows a clear preference toward harmonically predictable music. The three highest rated examples (Saint-Saëns, Beethoven V, and Beethoven VII) all shared predictable harmonic features, while the three less preferred examples (Berlioz, Schoenberg, and Mahler) had less straightforward harmonic patterns. The harmonic patterns of the Saint-Saëns and Beethoven examples were more conventional and thus more easily comprehended in a single listening than the more complex harmonic movement of the Berlioz, Schoenberg, and Mahler examples. An example of this can be seen when contrasting the Saint-Saëns example with the Berlioz example. In the Saint-Saëns example, the harmony is clearly stated through string pizzicatos and percussion chords. However, the constant movement and scalar passages included in the strings, along with the use of heavy chromaticism, gives an impression of harmonic instability and complexity.

Many examples selected for the SSMPQ included a wide range of dynamic variations. Two of the examples that received the highest ratings (Saint-Saëns and Beethoven V) showed little dynamic activity in comparison with two of the less favored examples (Mahler and Schoenberg). The observation that the more dynamically stable excerpts were more highly preferred than the dynamically varied excerpts may suggest that the use of a variety of dynamics is less important than previously considered (Fung, 1996). However, multiple other variables could have affected preference for the examples. Beethoven V and Saint-Saëns, both dynamically stable and highly rated, were fast, loud, and exciting examples, which contrasted with the dynamically varied but slower Mahler and Schoenberg examples. It is also possible that the brevity of the musical examples emphasized other elements rather than dynamics.

Student preferences, measured by the SSMPQ, favored less complex examples upon initial listening. The Saint-Saëns example, which was the simplest and most straightforward, was the most highly preferred. The most complex example, Schoenberg's *Verklärte Nacht*, was the second-least preferred example. The moderately complex examples, which were Beethoven V, Beethoven VII, Berlioz, and Mahler, fell between these two examples (with the exception of the Mahler example). In this study, the lack of variation in the complexity of the examples allows only limited insight into this relationship, but these results follow the trends discussed by other researchers (Acevedo-Hernandez, 2006).

The responses of the participants in this study do not give clear indications of the importance of instrumentation. The Saint-Saëns example, which featured the xylophone and piano, was the most preferred example, over all of the traditional symphonic examples. The observation that string students preferred these instruments most seems to argue against previous research on instrumental preference, but other factors may have influenced the preference for the Saint-Saëns example (Jin, 1999). This discrepancy may be attributed to the

observation that the Saint-Saëns example differed from the other example on other dimensions and thus may have been of greater interest to the students. Other variables, such as the tempo and simplicity of this example, may explain its high ranking.

On the SSMPQ, the impact of musical experience on preference was assessed through multiple questions in Part Two. Students were asked, "What other instruments do you play?", "Do you take private lessons? If so, how many years have you been taking private lessons?", "Do you play in any other groups or ensembles (orchestras, choirs, rock bands, etc) outside of school?", and "Have you ever attended a live performance of classical music, such as symphony concert or recital?" These questions were included to address experience that the participants may have accrued through their participation in music outside of the classroom. Contrary to Hargreaves, Comber, and Colley's (1995) research, in this study the only significant impact of a musical experience was the influence of the attended live performance variable on preference for Beethoven V, fourth movement. However, only 4.9% of the variance was explained by this relationship. This result is interesting, however, and it suggests that experiencing a live performance may have a positive impact on preference for Western Art music.

The SSMPQ addressed age through a single question that asked students to list their grade. This question gave a rough estimate of both age and the number of years of participation in the school orchestra. The results of the SSMPQ showed that, for these examples, there was no significant impact of age on preference, which contrasted strongly with previous research (Acevedo-Hernandez, 2006; Jin, 1999). Though many studies have found that music preference often varies with age, the examples selected may have appealed to all of the ages included in this study equally. The limited scale and use of the self-report method may have also affected the results of the survey, and students may have rated multiple pieces similarly though they enjoyed each for different reasons.

The results of the SSMPQ suggest that gender has a very strong impact on preference, which supports previous research (Hargreaves, Comber, & Colley, 1995; Jin, 1999). Females ranked the Berlioz, Mahler, and Schoenberg examples significantly higher than males, although the practical significance (2) was quite low (4.1%, 4.0%, and 4.5%, respectively). Higher female preferences for the Mahler and Schoenberg examples, the two slowest, supported Osborn's (1999) claim that females prefer slow Western Art music more than males. However, the higher female preference for the Berlioz example cannot be explained in this way, since the Berlioz example was labeled as fast tempo.

Multiple questions on the SSMPQ addressed the possibility of the social influence on music preference. The questions "Does anyone else in your household play a musical instrument?", "Do your friends listen to classical music outside of school?", and "Does anyone in your household listen to

classical music?" were included to address the possibility of peer and family influence seen in Jin's (1999) study. Though the impact of social influence on preference has been significant in past studies, none of the examples in this study were affected by any of the social variables. A variety of causes could explain these results, including a lack of certainty about friend or family member listening preferences.

Participant preferences for the examples were not influenced by any of the listening habit variables, which were addressed by asking "About how many minutes per day do you spend listening to popular music (rock, country, rap, etc.)?" "About how many minutes per day do you spend listening to classical music?", and "Do you listen to classical music outside of school?" It would seem that students who listen to more Western Art music outside of the classroom would have a greater preference for the style when listening at other times. However, the term "classical," which was used to make the test more participant-friendly and comprehensible, may have included more sub-genres than expected. For example, many students may include popular instrumental soundtracks in the "classical" genre, though this sub-genre was not represented by any of the six examples on the SSMPQ. It is also possible that the style of "classical" music listened to by students outside of the classroom is very different from any of the six examples.

The results of correlational analyses on the data obtained from the SSMPQ revealed that the relationships between preference, interest, and familiarity were significant. Moderate relationships between preference and interest continue to support the idea that interest in Western Art music may be generated by enjoyable selections of music of the style. The weak preference/familiarity and familiarity/interest relationships were statistically significant, though practical significance is negligible, which suggests that familiarity contributed less to the formation of preferences for these examples than expected. However, previous studies continue to assert that the relationship between preference and familiarity is strong and important to the formation of musical tastes (Jin, 1999).

Implications for Practice

Participant responses to the SSMPQ demonstrate a variety of trends as far as student music preference is concerned. Though many trends found in previous research were not found to be significant in this study, a variety of important implications for the introduction of Western Art music to beginning string students can be identified.

It is clear from the results that students enjoy certain characteristics of Western Art music and that they are adept at detecting these differences, despite limited familiarity with the examples. Students tend to enjoy excerpts with faster tempi that they may perceive to be 'exciting' or 'upbeat'. Though females may have greater preferences for slower tempi, both genders and all ages included in this study preferred faster tempi. Excerpts that are chosen as introductory pieces to the

style of Western Art music could have clear, pronounced, and catchy melodies. Excerpts with clear and constant rhythmic structures, as well as developed rhythmic motifs, are more appealing than examples with unpredictable and unsteady rhythm.

Students tend to enjoy Western Art music that is harmonically predictable and straightforward. Large dynamic variance was not favored by students in this study, though excerpts with some amount of dynamic movement were highly preferred. Mildly complex works may be used to introduce Western Art music and the educator should ensure that the examples are straightforward and they capture attention easily without being overly simple. Teachers are encouraged to select pieces featuring large, symphonic instrumentations. Contrasts in instrumentation can also be appealing to students, especially if the students can identify the instruments involved.

It is important to relate these findings to the characteristics of the popular music that students spend the majority of their time hearing. Most of the characteristics of the preferred examples of Western Art music are also shared by modern popular music. Upbeat, fast, and exciting music is often featured on the radio and on television. Rhythms are constant, predictable, and clear, often with each musical section containing a motif that may be used throughout the song. Harmony is usually very simple, often utilizing a minimal number of chords and focusing instead on clear, catchy, and discernable melodies. Due to the use of compression, a technique that minimizes dynamic contrast in favor of overall volume, popular music usually includes minimal dynamic change.

The complexity of popular music may change drastically between genres, though the music heard most frequently on the radio is simple and catchy. One of the largest differences, and thus a difficult barrier to overcome for educators, is the gap created by the contrasting instrumentations of popular and Western Art music. Popular music seldom includes traditional orchestral instruments, though the music educator may easily be able to find interesting popular works that feature strings, winds, and brass. Therefore, popular music featuring traditional instruments can be used as transitional music when introducing the Western Art style.

The application of this information means many things for teachers. Most importantly, it shows that students' preferences vary greatly from piece to piece across the Western Art style, so it is important for teachers to select music that students will enjoy. Isolating pieces with characteristics that young students prefer could be the first step in preparing to introduce new music to students. These characteristics may also be taken into account when choosing music for rehearsal and performance.

One way teachers could gauge long term changes in preference would be to keep a record of student preferences for the pieces they have played. This would provide information that would be helpful to teachers when selecting music that students will most enjoy playing, which could result in a higher

retention rates.

In this study, few fixed-factor variables had effects on student music preferences for each example. The only significant influences on preference were live performance attendance and gender. The music educator has little control over the impact of gender. Being aware of the gender makeup of the students may be a helpful tool in determining the style and tempo of music chosen if the goal is high preference from the most students.

Live concert attendance, however, is something the educator can easily suggest and possibly even require of his or her students, though there is a possibility that the positive impacts of live concert attendance were due to the increase in familiarity that resulted from the event. However, live concerts may offer levels of excitement and intensity, along with visual stimulation, that audio recordings cannot equal. Using available technology, such as DVD recordings of concerts, could also help improve student openness toward Western Art music, though this has not been explored.

The lack of significant effects of other musical experience variables, age, and listening habit variables suggest that educators may introduce Western Art music to students of varying experience levels, ages, and musical tastes. The lack of any social impact on music preference also provides hope that students in the string classroom, who have already shown willingness to play instruments that are less popular, are more open to new styles of music. Encouraging these students to listen to Western Art music outside of the classroom and with friends could provide another entry point for the beginning string player.

Enhancing familiarity by teaching lessons, using discussions, or involving the students in listening can also be powerful ways to improve the preference for Western Art music. The strong correlations between preference and interest solidify the notion that people will become more interested in music they enjoy. Playing enjoyable Western Art music for students is very likely to increase interest in the style and have a positive influence on students' musical tastes. Combining the characteristics of preferred music from research question 1 with repeated exposure to Western Art music over time could make a significant impact on students' music preferences and openness to new styles.

Implications for Future Research

The incomplete picture of the function of music preference in the listening process provides many opportunities for future research in the areas of music characteristics, musical exposure, and listener variables. For example, many aspects of musical characteristics have not been explored fully. The areas in which study is most needed are harmony and mood/modality, though other areas are lacking in support as well. Characteristics that are easy to measure, such as tempo and dynamics, have been studied extensively, but more vaguely defined facets such as complexity and harmony are explored

much less often. The definition of harmony is somewhat open to interpretation, since harmony may also be related to complexity or mood/modality. Studies are needed to analyze the impact of harmony and the multiple aspects of harmonic function on student preference.

A distinct lack of research on the effects of mood/modality on student preference is also evident. Preferences for certain modalities may have significant impacts on an individual's preference for a musical example. Students may prefer selections with certain modal characteristics, but it is also possible that modality makes up only a small part of how students determine the mood of a work. Examining the relationship between modality and mood and isolating examples of music with enjoyable moods would provide important information to aid in the educator's music selection process.

Melody has also received very little attention from researchers. To better discuss the importance of melody in music preference formation, studies could be carried out that isolate melodic characteristics. Determining what characteristics students prefer in melodies would be an effective first attempt at understanding preference for melody. Once the importance of melodic elements has been assessed, researchers could isolate musical works that contain these types of melodies and provide information on how to select repertoire with melodies that are enjoyable for students.

The majority of preference studies have been conducted with the preference of each example in mind. The inclusion of a rating system for each variable, such as a Likert-type scale for tempo, complexity, etc., could give more definitive and clear results on how each characteristic contributes to overall preference.

There is a tendency for researchers who focus on style preferences to include a small number of examples to represent the whole of classical or Western Art music. However, students' ideas of classical music are often very broad, occasionally including modern soundtracks or any music whose instrumentation is traditional. Carrying out a study that includes more popular and familiar types of Western Art music, such as movie soundtracks, could help provide insight into how students form preferences for the style.

Familiarity, training, and teacher effects have received considerable attention from researchers. Long-term studies of familiarity, rather than short, intense exposures, should be conducted to see how familiarity with similar music could improve preference for a style.

Studying the effects of live performance could also yield interesting results for researchers. The live performance environment may have an impact on student preferences for Western Art music. The possibility that familiarity is the cause of any preference gains from live performance attendance should be addressed. The study of live performance attendance may also define familiarity's role in the possible benefits of

concert attendance. The effects of audio only, audio and visual, and live performances should be studied in order to understand how preferences may be shaped by different media.

The impact of individual characteristics has also been studied thoroughly by researchers. However, more research on social factors would help to clarify the social position music and how the opinions of others contribute to the individual's music preference. Studying the impacts of society on music preference across many cultures would be an interesting way to compare how culture defines and influences preference.

The results dealing with gender in this study should be further explored. Qualitative research to determine why females tend to have greater preferences for Western Art music and music with slower tempi should be carried out. The unexplained reason for the significant difference between male and female preference for the Berlioz example could also be further explored. This could help educators understand how students listen to music and how the social pressures placed on adolescents can impact music preference.

Longitudinal studies that focus on how preferences change over time with advancing participant age could also yield important results. Determining how students who are exposed to Western Art music early in the classroom develop preferences for the style could have a major influence on the methods teachers use to introduce Western Art music.

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- Mentor Comments**
- Joshua A. Russell describes the originality and practical implications of Michael Bollero's work as follows:
- Michael recently concluded his research in which he explores the musical preference of secondary (grades 6-12) string students. The purpose of this research was to examine what facets of Western Art music are most appealing to students and what music sparks the most interest. The application of this research would help public school orchestra directors select music that would be liked by young string students, leading to improved motivation and finally greater interest. This is an important study for the field of string music education that could have pragmatic implications for practice.*
- This work was based on a large body of literature on musical preference and interest in music. Michael's research, however, was original in that it was the first of its kind to focus on the population of orchestral string students in K-12 schools. This is an important addition to the literature that could have an impact on future research and practice.*
- Michael's work is worthy of publication because it is original, meaningful, well documented and reported, and could improve musical instruction in string music classrooms. The University of Arkansas should be proud to have such burgeoning research talent in an undergraduate student.*

Appendix: The String Student Music Preference Questionnaire

Complete each section by circling the appropriate response:

Example 1:

How much do you like this example?

1	2	3	4	5
Dislike very much			Like very much	

Have you heard this piece of music before?

No Yes

Does this example make you want to listen to more classical music or music like this?

No Yes

List any aspects or parts of the music that you really liked:

What grade are you in right now? _____

Are you: Male Female (circle one)

What instrument do you play (circle one)?

Violin Viola Cello Bass

What other instruments do you play?

Do you take private lessons? If so, how many years have you been taking private lessons?

Do you play in any other groups or ensembles (orchestras, choirs, rock bands, etc) outside of school? Please list:

Does anyone else in your household play a musical instrument?

No Yes If so, who? _____

About how many minutes per day do you spend listening to popular music (rock, country, rap, etc.)?

About how many minutes per day do you spend listening to classical music?

No or Yes

Do your friends listen to classical music outside of school?

No or Yes

Does anyone in your household listen to classical music?

Have you ever attended a live performance of classical music, such as symphony concert or recital?

No or Yes