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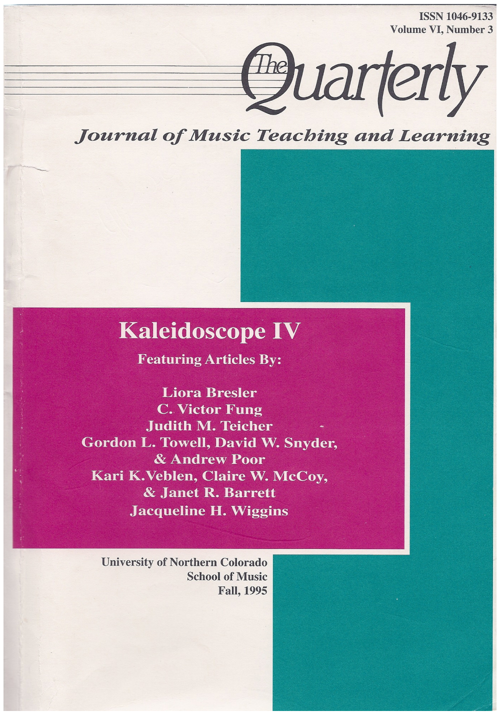

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Music Preference As A Function Of Musical Characteristics

By C. Victor Fung
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Music preference is a listening response that has been defined differently by a number of researchers. According to Schulten (1987), the word "preference" is derived from the Latin "praefero," meaning one thing being favored over another. The word also implies an act in time which includes moments of the past, present and future simultaneously; in other words, it constitutes a historical moment.

Finnäs (1989) defined music preferences as affective reactions "to a piece of music or to a certain style of music that reflect the degree of liking or disliking for that music, and are not necessarily based on cognitive analysis or aesthetic reflection regarding the music" (p. 2). Dewey (1939) saw liking as a form of valuation, which involved observable and identifiable modes of behavior. Dewey also stated that "valuations are empirically observable patterns of behavior and may be studied as such" (p. 51). Abeles (1980), however, delimited preference as a more immediate and specific choice within a set of possibilities in contrast to taste, which implied a relatively long-term value or commitment. According to LeBlanc (1984), music preference is "an operational construct [not necessarily a cognitive behavior or aesthetic behavior] which represents a demonstrated level of liking specific musical stimuli" (p. 1). LeBlanc's definition of preference seems most appropriate for empirical studies because empirical studies are framed by operational definitions.

> The understanding of students' music preferences may provide valuable insights and implications for the sequencing of music learning and curriculum design.

LeBlanc (1980, 1987) developed an interactive music preference model for music listening. According to him, "music preference decisions are based upon the interaction of input information and the characteristics of the listener, with input information consisting of the musical stimulus and the listener's cultural environment" (1987, p. 139). Thus, musical characteristics are variables that can influence the listener's preference decisions.

The study of music preference has raised tremendous interest among music educators. Broadening students' music preference is often a long-term goal for music educators (Hicken, 1992; LeBlanc, 1983; Radocy & Boyle, 1988; Reimer, 1965; Shehan, 1986). Music educators often try to lead students away from preferences for narrow musical styles and attempt to expand students' musical horizons. In order to broaden students'

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music preferences, some suggest that educators should start with what students like or prefer, then gradually guide their interests to extend their preferences to a wider variety of musical styles (e.g., LeBlanc, 1983; Shehan, 1986). The understanding of students' music preferences may provide valuable insights and implications for the sequencing of music learning and curriculum design.

Both qualitative and quantitative evidence suggests that preference can be an important mediating agent in the process of music education. Although music preference may well be different from aesthetic judgment (Kant 1790/1987), liking for certain musics may be a bridge for the development of a musical novice into a musically educated individual who is capable of aesthetic judgment. From the standpoint of motivation for music learning, Asmus (1989) found that affect for music was one of the five factors that significantly explained motivations in music learning. Therefore, music preference may be a springboard for further music learning.

Musical Characteristics

Most researchers concerned with music preference and musical characteristics have investigated one or two selected musical characteristics. Fung (1992, in press), Hedden (1974), Rentz (1994), and Zenatti (1993) were exceptions who examined a range of musical characteristics in relation to preference. In Fung's (1992) study, salient and distinct melody, rhythm, texture, and timbre were identified as characteristics related to graduate music students' (*N*=45) preferences for traditional music from eight geographic regions: Africa, China, India, Indonesia, Japan, Korea, Middle East, and Thailand. In addition, rhythmic regularity, complexity, similarity to Western music, melodic clarity, phrasing regularity, tonal centeredness, tempo, consonance, and brightness in timbre explained a range of 13 percent to 35 percent of the variance in preference, with the least for brightness in timbre and the most for rhythmic regularity. These relationships were significantly positive. No significant relationships, however, were found between preference and loudness, pitch level, or pitch redundancy.

In another of Fung's (in press) studies, traditional instrumental music from Africa (Congo, Malawi, and Nigeria), Asia (China, Japan, and Korea), and Latin America (Cuba, Mexico, and Peru) was used. Results showed that both undergraduate music majors (*n*=180) and undergraduate nonmusic majors (*n*=269) preferred excerpts that were characterized as fast, loud, tonal centered, having many different pitches, consonant, moderately embellished, smooth sounding, and having bright timbre. Music majors preferred excerpts with complex texture while nonmusic majors preferred moderately complex texture.

In a study of musicians (*n*=30) and nonmusicians (*n*=30) in which electronically generated tones (sine, square, and synthesized string) were used, Hedden (1974) found a significant effect for loudness (10 dB and 30 dB) but non-significant effects for pitch level and timbre. There was, however, a significant interaction effect between timbre and loudness. Subjects preferred sine tones and string tones with a lower intensity level (10 dB), but preferred square tones with higher intensity level (30 dB). There was also a significant interaction effect between pitch level and loudness level for nonmusic majors. Higher pitches (350 Hz and 700 Hz) were preferred at the softer level (10 dB).

Zenatti (1993) used original piano music, music by various classical and twentieth-century composers, and a paired comparison technique to investigate children's (*N*=539) preferences for consonant/dissonant, tonal/atonal, and metrical/nonmetrical excerpts. The children's ages ranged from five to ten. As age increased, preferences for consonant, tonal, and metrical excerpts also increased, while preferences for dissonant, atonal, and nonmetrical excerpts decreased. This suggested that after about age five, the environment and the acculturation process might have accounted for the difference.

Using *a cappella* choral folk, popular, and art music recorded by the King's Singers, Rentz (1994) found that harmony and rhythm (in comparison to melody, style, lyrics, and phrasing) were the most influential elements to determine high school choral students' (*N*=242) preference ratings. Even when researchers (Boyle, Hosterman, & Ramsey,

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1981) did not use auditory stimuli to investigate preference and musical characteristics, there was still a conclusion that melody, mood, rhythm, and lyrics were among the most important self-reported factors that were related to popular music preferences of fifth graders through college students (N=397). These studies (Boyle et al., 1981; Fung, 1992, in press; Hedden, 1974; Rentz, 1994; Zenatti, 1993) provided evidence that musical characteristics are important in explaining students' musical preferences and that some musical characteristics may be more important than others in explaining preferences.

The musical characteristics that have been selected in other music preference studies include rhythm and tempo, timbre, loudness, melodic redundancy, consonance, and complexity. These musical characteristics have been defined differently in different studies, but they can be categorized into two large groups:

1. objectively defined characteristics, such as Hertz for pitch level, and
2. perceived characteristics via the use of rating scales.

For the second category, some ratings of the musical characteristics were determined by a panel of experts, and some were from the same subjects who also rated for preference. The following literature review concerns studies of music preferences for these specific musical characteristics.

Rhythm and Tempo

In a study of upper elementary students (grades four to six) (N=242), Webster and Hamilton (1981) used four instrumental excerpts from each of the following styles: classical, rock, folk-country, and jazz. Three professional music educators had 100 percent agreement on whether or not each excerpt had marked rhythmic quality. Marked rhythmic quality was defined as strong recurring pulse which was readily detectable and unchanging throughout the excerpt. Preferences were recorded using five-point Likert scales, and results showed that subjects significantly preferred excerpts with marked, regular rhythmic pulses across all styles.

Using 16 musical excerpts of European tonal music composed between 1700 and 1900, Hare (1975) utilized multidimensional scaling techniques for college students and found that carefree playfulness was the most significant dimension. This dimension was highly correlated with the slow-fast scale (r=.95), the passive-active scale (r=.94), and the staccato-legato scale (r=.85). This dimension was also the single best predictor of judgments of similarity and preference. The findings also suggested that tempo (slow-fast) was a dominant aspect of perceptual judgments.

Although no statistical test of significance was reported, Getz (1966) suggested that seventh graders identified fast tempo as the most frequent reason for liking string ensemble excerpts. There was consistent agreement in results in a series of studies by LeBlanc and others (LeBlanc, 1981; LeBlanc & Cote, 1983; LeBlanc & McCrary, 1983; LeBlanc, Colman, McCrary, Sherrill, & Malin, 1988; Sims, 1987) that faster tempi were preferred by students from the third grade to the college level. Tempi of excerpts in these studies were determined by panels of experts. These studies used excerpts of jazz, country, and art music. For details of each study, see the Appendix.. Percentages of variance (r^2) explained by tempo were given where appropriate. LeBlanc and Cote (1983) found that extremely little variance was explained when the tempi were moderate; however, 4 percent of the variance was explained for fast tempo excerpts. In contrast, LeBlanc and McCrary (1983) found that tempo explained 61 percent of the variance in preference.

Yarbrough's (1987) study involved comparison between musicians (n=100) and nonmusicians (n=300). The study also involved $\pm$18 percent tempo alterations of two

slower pieces (by Mozart and Chopin) and two faster pieces (by Mozart and Chopin). The tempi (slow/fast) of the pieces were judged by music faculty members. Results indicated that both musicians and nonmusicians significantly preferred the slower alteration of the fast excerpts. Furthermore, nonmusicians significantly preferred the faster alteration of the slow excerpts, while musicians' results were non-significant in the preferences for the slow excerpts.

Timbre

Some researchers have examined differences between the preferences for instrumental and vocal timbres. Findings have been consistent across studies using Western music excerpts (Darrow, Haack, & Kuribayashi, 1987; LeBlanc, 1981; LeBlanc & Cote, 1983) and non-Western musical excerpts (Darrow et al., 1987; Fung, 1994; Shehan, 1981) in that instrumental timbre was generally preferred over vocal timbre. This was the case for students in the fourth through seventh grades and among college nonmusic majors. There was an exception of current popular style, for which vocal timbre was preferred by fourth and seventh graders (Shehan, 1981). Another exception was found in Fung's (1992) study of graduate music students' preferences for non-Western musics, in which there was no significant difference between the preferences for instrumental and vocal excerpts. This may be due to the use of graduate music students as subjects, who may be able to focus on the judgments for preference across a broad range of timbre (i.e., both vocal and instrumental).

Gordon (1984) developed a standardized test (*Instrument Timbre Preference Test*) to measure students' preferences for band instrumental timbres. There has been some research on the test's validity and reliability (Colwell, 1989; Gordon, 1986; Lehman, 1989; Schmidt & Lewis, 1988) with mixed results. It must be noted that all timbres used were synthesized timbres. Using this test, Gordon (1991) found that fourth grade students (N=258) preferred woodwind timbres (flute, clarinet, saxophone and French horn, and the double reeds) over brass timbres (trumpet and cornet, trombone, baritone, French horn, and tuba and Sousaphone). This finding was in line with Byo's (1991) results in which the pictures, names, and verbal descriptions of band instruments were presented to third graders (N=76). Gordon (1991) found no significant bi-serial correlations between gender and preference for any of the timbres. This was in contrast to Byo's (1991) *Chi square* analysis, in which a significant gender effect was found. Nevertheless, results suggested that woodwind timbres, rather than brass timbres, may be more appealing to young children.

In examining the cross-cultural effects on instrumental timbre preference, Cutietta and Foustalieraki (1990) used an identical duple four-measure phrase performed on band instruments (trumpet, clarinet, and bassoon) and non-band instruments (violin, guitar, and piano) to examine the preferences of fourth graders in the United States and in Greece. Results showed that fourth graders in the United States (n=230) significantly preferred the timbres of band instruments, while fourth graders in Greece (n=198) significantly preferred the timbres of non-band instruments.

Using an operant listening device for oboe-flute duet music, Geringer and Madsen (1981) requested the performers to play the same excerpt with both good and poor tone quality. The tone qualities were also judged by a panel of music faculty. Results showed that both college music majors (n=45) and nonmusic majors (n=45) preferred good tone quality when both good and poor tone quality examples were presented. In addition, poor oboe tone quality seemed to be more acceptable than poor flute tone quality.

When preferences for male and female vocal timbres were compared, LeBlanc and Sherrill (1986) found that upper elementary students (N=127) of both genders significantly preferred male singers. The researchers also found that students generally preferred singers who performed with a relatively low level of vibrato. The Appendix includes a summary of findings for timbre preferences.

Loudness

Researchers have dealt with loudness level, both objectively using the decibel scale and subjectively using a perceptual soft-loud scale. Martindale and Moore (1990) found that intensity level (20 dB, 40 dB, 60 dB, 80

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dB, and 100 dB) had significant effects on college psychology students' (N=41) preferences for pure tones. Results showed that subjects preferred relatively softer tones, and the relationship between intensity level and preferences was linear. Intensity level accounted for 57 percent of the variance, but only 38 percent was explained by intensity when excluding the 100 dB stimuli in the analysis.

Using music listening examples instead of pure tones, Cullari and Semanchick (1989) found that college students tended to prefer higher loudness levels if they liked the music. In that study, college students (N=15) were asked to adjust the loudness level (0 to 9) while listening to ten excerpts of soft rock, classical, and contemporary music. A similar conclusion was drawn by Fucci, Harris, Petrosino, and Banks (1993), using a rock musical example presented in nine decibel levels (10 dB, 20 dB, 30 dB, 40 dB, 50 dB, 60 dB, 70 dB, 80 dB, and 90 dB). College students who liked rock music (n=20) estimated significantly lower loudness levels than college students who disliked rock music (n=20). Results were consistent for all nine decibel levels.

In a sample of 180 adults ranging in age from 18 to 90 years, Smith (1989) used six excerpts (two each from classical, big band, and Broadway) to determine loudness level preferences. All stimuli were presented at a mean intensity level of 68 dB, and subjects were able to increase the intensity level by up to 12 dB for four frequency bands (110 Hz, 330 Hz, 1000 Hz, and 3000 Hz) using a graphic equalizer. Results showed that younger subjects (age 18-53) preferred higher loudness levels than did older subjects (age 54-90). Contrary to what might be expected, older subjects with deteriorated hearing abilities did not compensate by increasing the loudness level.

Instead of using auditory stimulus, Stefani, Feijoo, Paikin, and Couget (1987) used a questionnaire technique with 173 sixteen-year old students in Latin America (53 percent males, 47 percent females). Preference for loud music was determined by a 64-item test. Each item consisted of a statement about listening to loud music, and subjects responded to each statement using an 11-point scale (1=extremely unfavorable; 11=extremely favorable). Results showed no gender difference in preference for loud music. Subjects who listened to loud music more frequently, however, preferred loud music (p<.01). In addition, the general trend of the sample showed neutral or favorable attitudes towards loud music. A summary of findings for loudness preferences is presented in the Appendix.

Melodic Redundancy

McMullen (1974) examined the effect of melodic redundancy on preference. All stimuli consisted of 48-pitch melodies in which all elements were held constant except the number of different pitches and melodic redundancy. The melodies had three redundancy levels: low (7.5-9.5 percent redundancy), intermediate (27.7-31.9 percent redundancy), and high (57.5-58.5 percent redundancy). The determination of the percentage of redundancy was based on Shannon and Weaver (cited in McMullen, 1974). Melodies of all three redundancy levels were generated in five pitches (pentatonic), seven pitches (diatonic), and twelve pitches (chromatic). Subjects were fourth (n=22), eighth (n=22), and twelfth (n=22) graders, but their results were not analyzed separately. Preferences were indicated by seven-point Likert scales. McMullen found that students preferred low or intermediate levels of redundancy over a high redundancy level, and an intermediate number of different pitches (i.e., pentatonic or diatonic) in a melody was preferred over a greater or lesser number of different pitches.

Consonance

Arguments on the definition of consonance have been suggested by philosophers, mathematicians, and musicians throughout the centuries. Davies and Barclay (1977) reported consistent findings that the octave, perfect fifth, and perfect fourth were perceived as the most consonant intervals and that seconds and sevenths were the most dissonant intervals. Two studies have examined the relationship between consonance and preference utilizing electronic sine tones (Gibson, 1987; Martindale & Moore, 1990). Gibson (1987) used a 300-point scale on the computer screen to measure nonmusician

adults' (ages 18-59) preferences for all chromatic harmonic intervals within an octave (from minor second to an octave). As a parallel to Davies and Barclay's (1977) report, Gibson identified harmonic intervals from the most dissonant to the most consonant as follows: m2, M2, M7, m7, TT, m3, M3, m6, M6, P4, P5, and P8. Results showed that the preference ratings from the least preferred to the most preferred was as follows: M7, m2, M2, m7, TT, P8, m6, M6, M3, m3, P4, and P5. This indicated subjects' relative preference for consonance.

Unlike Gibson (1987), Martindale and Moore (1990) asked subjects (college psychology students, *N*=41) to rate both preferences and consonance on a seven-point Likert scale. In addition, Martindale and Moore used A=440 Hz as a fixed lower note on all 17 harmonic tone pairs, and the second tone had a range of A=440 Hz to A=880 Hz. Subjects' mean rating for consonance was in the following order (from most dissonant to most consonant, with A=440 Hz as the lower note): A=460, A=453, A=447, A#=466, A#=481, B=494, G#=825, C=523, D#=740, D#=616, A=880, F=698, F#=733, D=587, C#=554, E=659, and A=440. Results showed that the relationship between preference and self-perceived consonance level was U-shaped. That is to say, there were higher preference ratings for the most and the least consonant intervals. Consonance, however, explained only 1 percent of the variance in preference for electronic tones. The Appendix summarizes the findings for consonance preferences.

Complexity

The significance of complexity in music perception was reflected in Eastlund's (1992) findings based on multidimensional scaling. Complexity or amount of information was one of the three primary dimensions in perceptual judgments for Western-art excerpts written between 1762 and 1896. Walker (1981) developed a theory of psychological complexity and preference which suggested that psychological events nearest optimum levels of complexity were most preferred. Accordingly, the relationship between musical complexity and preference would be expected to reveal an inverted-U curve. The highest point on the curve reveals the point of optimal complexity level that subjects prefer the most. Berlyne (1971) interpreted this relationship in terms of Wundt's curve. Complexity, however, could be defined in various dimensions such as rhythmic complexity, melodic complexity, harmonic complexity, and textural complexity. Therefore, one must be cautious concerning the operational definitions when reading studies of complexity.

Radocy (1982) defined complexity in a very broad sense. Complex music might include elaborate rhythm, ornate melodies, lack of obvious formal structure, and/or rich instrumentation. In Radocy's study, college musicians (*n*=36) and nonmusicians (*n*=31) rated complexity using a five-point scale, and both groups had a very similar ranking (Spearman rank order r=.93) of complexity for 15 instrumental Western-art musical excerpts. The inverted-U theory was supported by Radocy's (1982) findings in which a strong quadratic function (inverted-U relationship) between perceived complexity and preference was found in both the musician and nonmusician groups. This quadratic function explained 20 percent and 23 percent of the variance for musicians and nonmusicians, respectively.

Burke and Gridley (1990) asked seven music professors to rank ten recorded piano pieces for complexity. The researchers selected four excerpts for investigation: the least complex, the most complex, and two pieces in between. Results also showed inverted-U relationships between complexity and preferences of both musicians (*n*=20) and nonmusicians (*n*=20). Heyduk (1975) also found the inverted-U function, although complexity was defined as the number of different chords and the amount of syncopation used in four original 30-second piano compositions. The simplest composition used only two chords and no syncopation; the most complex composition used 12 different chords and had different syncopations in both hands. Subjects in that study were 80 undergraduate psychology students and 40 paid undergraduate students.

Using the simplest and the most complex excerpts in Heyduk's (1975) study, Arkes, Rettig, and Scougale (1986) found that female

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undergraduates (*N*=40) preferred the complex excerpt when a concurrent (sensorimotor) task was simple. The concurrent (sensorimotor) task was a button-pushing task to turn off eight randomly lighting bulbs. The simple task was that in which the positions of the buttons corresponded to the positions of the light bulbs. The complex task was that in which the positions of the buttons did not correspond to the positions of the light bulbs. Using electronically generated tones, Steck and Machotka (1975) generated 16 ten-second melodies with 16 complexity levels. Each melody consisted of sinusoidal tones randomly selected from six frequencies (335, 398, 447, 562, 631, and 708 Hz). Complexity was operationally defined as duration of tones in seconds. The lesser the duration, the higher the complexity level. With 60 undergraduate nonmusicians, results of Steck and Machotka (1975) showed that the asymmetry of the inverted-U function (i.e., the location of the optimal point) varied across individuals.

Based on Vitz's (1966) sound sequence with six levels of uncertainty, Crozier (1974) asked college music majors (*n*=24) and nonmusic majors (*n*=24) to rate for simple-complex, uninteresting-interesting, displeasing-pleasing, and ugly-beautiful with seven-point scales. Results showed that complexity, a linear positive component, accounted for 99.14 percent of the uncertainty sum of squares. The plot of uncertainty level by complexity rating also showed a slight positive acceleration in the curve. A significant quadratic (inverted-U) function ($p<.001$) was found in both displeasing-pleasing and ugly-beautiful ratings by uncertainty level. In addition, there were significant interaction effects between groups (music majors and nonmusic majors) and both ratings ($p<.05$), indicating that music majors had optimal points of the inverted-U function that were more complex or higher in uncertainty level than those of nonmusic majors. Despite the fact that a significant linear function was found for the uninteresting-interesting rating, another of Crozier's (1974) studies involving a factor analysis found an inverted-U function ($p<.001$) for factor one and uncertainty level. This factor accounted for 48.34 percent of the variance. This factor also had loadings in the .90s for the following rating scales: awful-nice, bad-good, displeasing-pleasing, remote-intimate, ugly-beautiful, unmusical-musical, and light-heavy. Therefore, Crozier's (1974) results generally supported that preference (as reflected in ratings such as awful-nice, bad-good, displeasing-pleasing, ugly-beautiful, and unmusical-musical) had an inverted-U function with complexity, which had a strong linear relationship with uncertainty level. Results also showed that music majors were able to tolerate higher preference ratings than nonmusic majors for sound sequences that were higher in complexity and uncertainty level. This finding was congruent with Fung's (in press) findings reported above.

The complete inverted-U function is not revealed in all cases. Some researchers have found that only simpler musical stimuli were preferred. Such findings could explain the falling portion of the inverted-U function. Russell (1982) used modern Jazz for college psychology students (*N*=132) and found a negative linear correlation between self-reported complexity, and pleasingness and interestingness. In other words, subjects liked excerpts that were relatively simple. Smith and Cuddy (1986) found a similar case that college music and nonmusic students (*N*=36) preferred less complex melodic contours. Complexity of the melodic contour was defined as the structure of the melody—ranging from diatonic to chromatic. Combining paired comparison techniques and multidimensional analysis for 15 jazz saxophone

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musical excerpts, Huber and Holbrook (1980) found that college business and music students (*N*=32) preferred simpler excerpts. Complexity of excerpts was determined by six self-reported scales:

1. predictable-unpredictable,
2. repetitive-shifting,
3. composed-improvised,
4. simple-complex,
5. stable-changeable, and
6. random-structured.

Despite the different kinds of relationships reported above, one study (Martindale & Moore, 1989) found non-significant relationships (neither quadratic nor linear) between college students' (*N*=42) preferences and self-reported complexity (on a 13-point simple-complex scale) for a sound sequence. The Appendix includes a summary of findings for complexity as related to musical preferences. The range of variance explained by complexity was from 0 percent to 58 percent.

Conclusions

With a wide range of age groups and for a wide range of musical styles, there are some consistent findings in preferences for certain musical characteristics. Some findings may have more limitations than others, but generally, the following musical characteristics were most preferred:

1. regular rhythmic pulse,
2. fast tempo,
3. instrumental timbre rather than vocal timbre (except for popular music, in which vocal timbre was preferred, and the non-significant difference in preference of sophisticated listeners such as graduate music students),
4. woodwind timbre rather than brass timbre (for young children),
5. bright timbre (for non-Western musical styles),
6. loud if the listener liked the music or was in the habit of listening to loud music,
7. more different pitches,
8. melodies in pentatonic or diatonic keys (tonal),
9. consonance, and
10. optimal complexity level in an inverted-U curve (optimal point varied depending on the listener's level of musical sophistication).

All of the musical characteristics mentioned have accounted for some variance in preference. Judging from the percentage of variance explained in individual studies, one may postulate that some musical characteristics tend to explain more variance than others. Among tempo, timbre, loudness, consonance, and complexity, tempo, loudness, and complexity have explained more than 50 percent of the variance in some studies (LeBlanc & McCrary, 1983; Martindale & Moore, 1990; Russell, 1982), while timbre (except timbre brightness) and consonance have explained less than three percent of the variance in others (LeBlanc, 1981; Martindale & Moore, 1990). Therefore, tempo, loudness, and complexity may be of greater importance in explaining variance of preferences.

For music educators, findings suggest that they may organize musical experiences for students based on some musical characteristics found in the music itself. Musical experiences structured by educators may motivate students toward further musical learning, expand students' music preference horizons, foster learning in the affective domain, and guide students to higher levels of aesthetic judgment. For early listening experiences, teachers may present musical examples consisting of the generally preferred musical characteristics (which were listed above). In addition, there is a need for music educators to recognize the importance of student background and the complexity of musical stimuli. More sophisticated musicians prefer relatively more complex stimuli.

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References

Abeles, H. F. (1980). Responses to music. In D. E. Hodges (Ed.), *Handbook of Music Psychology* (pp. 105-140). Lawrence, KS: National Association for Music Therapy.

Arkes, H. R., Rettig, L. E., & Scougale, J. D. (1986). The effect of concurrent task complexity and music experience on preference for simple and complex music. *Psychomusicology, 6*, 51-60.

Asmus, E. P. (1989). The effect of music teachers on students' motivation to achieve in music. *Canadian Journal of Research in Music Education, 30*, 14-21.

Berlyne, D. E. (1971). *Aesthetics and Psychobiology*. New York, NY: Appleton-Century-Crofts.

Boyle, J. D., Hosterman, G. L., & Ramsey, D. S. (1981). Factors influencing pop music preferences of young people. *Journal of Research in Music Education, 29*(1), 47-55.

Burke, M. J., & Gridley, M. C. (1990). Musical preferences as a function of stimulus complexity and listeners' sophistication. *Perceptual and Motor Skills, 71*(2), 687-690.

Byo, J. (1991). An assessment of musical instrument preferences of third-grade children. *Bulletin of the Council for Research in Music Education, 110*, 21-32.

Colwell, R. (1989). Review of the Instrumental Timbre Preference Test. In J. C. Conoley & J. J. Kramer (Eds.), *The Tenth Mental Measurements Yearbook* (pp. 377-379). Lincoln, NE: The Buros Institute of Mental Measurements.

Crozier, J. B. (1974). Verbal and exploratory responses to sound sequences varying in uncertainty level. In D. E. Berlyne (Ed.), *Studies in the New Experimental Aesthetics* (pp. 27-90). Washington, DC: Hemisphere Publishing Corporation.

Cullari, S., & Semanchick, O. (1989). Music preference and perception of loudness. *Perceptual and Motor Skills, 68*(1), 186.

Cutietta, R. A., & Foustalieraki, M. (1990). Preference for selected band and non-band instrument timbres among students in the United States and Greece. *Bulletin of the Council for Research in Music Education, 105*, 72-80.

Darrow, A., Haack, P., & Kuribayashi, F. (1987). Descriptors and preferences for Eastern and Western musics by Japanese and American nonmusic majors. *Journal of Research in Music Education, 35*(4), 237-248.

Davies, J. B., & Barclay, G. (1977). Consonance-dissonance with simultaneous tones, and fusion of consecutive tones. *Psychology of Music, 5*(1), 19-22.

Dewey, J. (1939). *Theory of Valuation*. Chicago, IL: University of Chicago Press.

Eastlund, J. O. (1992). A multidimensional scaling analysis of musical style. *Journal of Research in Music Education, 40*(3), 204-215.

Finnäs, L. (1989). How can musical preferences be modified? *Bulletin of the Council for Research in Music Education, 102*, 1-58.

Fucci, D., Harris, D., Petrosino, L., & Banks, M. (1993). The effect of preference for rock music on magnitude-estimation scaling behavior in young adults. *Perceptual and Motor Skills, 76*, 1171-1176.

Fung, C. V. (1992). Musicians' preference and perception for world music. *Southeastern Journal of Music Education, 4*, 178-190.

Fung, C. V. (1994). Undergraduate nonmusic majors' world music preferences and multicultural attitudes. *Journal of Research in Music Education, 42*(1), 45-57.

Fung, C. V. (in press). Musicians' and non-musicians' preferences for world musics: Relation to musical characteristics and familiarity. *Journal of Research in Music Education.*

Geringer, J. M., & Madsen, C. K. (1981). Verbal and operant discrimination—preference for tone quality and intonation. *Psychology of Music, 9*(1), 26-30.

Getz, R. P. (1966). The effects of repetition on listening response. *Journal of Research in Music Education, 14*(3), 178-192.

Gibson, S. M. (1987). *Judgments of preference on simultaneous sounded bitonal frequencies in the monaural and dichotic conditions.* Paper presented at the annual meeting of the Western Psychological Association in Long Beach, CA.

Gordon, E. E. (1984). *Instrument Timbre Preference Test.* Chicago, IL: GIA.

Gordon, E. E. (1986). Final results of a two-year longitudinal predictive validity study of the Instrument Timbre Preference Test and the Music Aptitude Profile. *Bulletin of the Council for Research in Music Education, 89*, 8-17.

Gordon, E. E. (1991). A study of the characteristics of the Instrument Timbre Preference Test. *Bulletin of the Council for Research in Music Education, 110*, 33-51.

Hare, F. G. (1975). *The identification of dimensions underlying verbal and exploratory responses to music through multidimensional scaling*. Unpublished doctoral dissertation, University of Toronto, Canada.

Hedden, S. K. (1974). Preferences for single tone stimuli. *Journal of Research in Music Education, 22*(2), 136-142.

Heyduk, R. G. (1975). Rated preference for musical compositions as it relates to complexity and exposure frequency. *Perception and Psychophysics, 7*(1), 84-91.

Hicken, L. W. (1992). Relationship among selected listener characteristics and musical preference (Doctoral dissertation, Indiana University, 1991). *Dissertation Abstracts International, 53*, 1089A.

Huber, J., & Holbrook, M. B. (1980). The determinants of esthetic value and growth. *Advances in Consumer Research, 7*, 121-126.

Kant, I. (1987). *Critique of Judgment* (W. S. Pluhar, Trans.). Indianapolis, IN: Hackett Publishing. (Original work published 1790)

LeBlanc, A. (1980). Outline of a proposed model

of sources of variation in musical taste. *Bulletin of the Council for Research in Music Education, 61,* 29-34.

LeBlanc, A. (1981). Effects of style, tempo, and performing medium on children's music preference. *Journal of Research in Music Education, 29*(2), 143-156.

LeBlanc, A. (1983). Broaden students' music preference. *Music Educators Journal, 69*(7), 47-48.

LeBlanc, A. (1984). Selecting a response mode in music preference research. *Contributions to Music Education, 11,* 1-14.

LeBlanc, A. (1987). The development of music preference in children. In J. C. Peery, I. W. Peery, & T. W. Draper (Eds.), *Music and Child Development* (pp. 137-157). New York: Springer-Verlag.

LeBlanc, A., Colman, J, McCrary, J., Sherrill, C., & Malin, S. (1988). Tempo preferences of different age music listeners. *Journal of Research in Music Education, 36*(3), 156-168.

LeBlanc, A., & Cote, R. (1983). Effects of tempo and performing medium on children's music preference. *Journal of Research in Music Education, 31*(1), 57-66.

LeBlanc, A., & McCrary, J. (1983). Effect of tempo on children's music preference. *Journal of Research in Music Education, 31*(4), 283-294.

LeBlanc, A., & Sherrill, C. (1986). Effect of vocal vibrato and performer's sex on children's music preference. *Journal of Research in Music Education, 34*(4), 222-237.

Lehman, P. R. (1989). Review of the Instrumental Timbre Preference Test. In J. C. Conoley & J. J. Kramer (Eds.), *The Tenth Mental Measurements Yearbook* (pp. 379-380). Lincoln, NE: The Buros Institute of Mental Measurements.

Martindale, C., & Moore, K. (1989). Relationship of musical preference to collative, ecological, and psychophysical variables. *Music Perception, 6*(4), 431-446.

Martindale, C., & Moore, K. (1990). Intensity, dissonance, and preference for pure tones. *Empirical Studies of the Arts, 8*(2), 125-134.

McMullen, P. T. (1974). Influence of number of different pitches and melodic redundancy on preference responses. *Journal of Research in Music Education, 22*(3), 198-204.

Radocy, R. E. (1982). Preference for classical music: A test for the hedgehog. *Psychology of Music, Special Issue,* 91-95.

Radocy, R. E., & Boyle, J. D. (1988). *Psychological Foundations of Musical Behavior.* Springfield, IL: Charles C. Thomas.

Reimer, B. (1965). Effects of music education: Implications from a review of research. *Journal of Research in Music Education, 13*(3), 147-158.

Rentz, E. (1994). Music opinions and preferences of high school students in select and nonselect choruses. *Bulletin of the Council for Research in Music Education, 121,* 16-28.

Russell, P. A. (1982). Relationship between judgments of the complexity, pleasingness and interestingness of music. *Current Psychological Research, 2,* 195-202.

Schmidt, C. P., & Lewis, B. E. (1988). A validation study of the Instrument Timbre Preference Test. *Psychology of Music, 16*(2), 143-155.

Schulten, M. L. (1987). Musical preference: A new approach to investigate its structure and development. *Bulletin of the Council for Research in Music Education, 91,* 160-165.

Shehan, P. K. (1981). Student preferences for ethnic music styles. *Contributions to Music Education, 9,* 21-28.

Shehan, P. K. (1986). Towards tolerance and taste: Preferences for world musics. *British Journal of Music Education, 3*(2), 153-163.

Sims, W. L. (1987). Effect of tempo on music preference of preschool through fourth-grade children. In C. K. Madsen & C. A. Prickett (Eds.), *Applications of Research in Music Behavior* (pp. 15-25). Tuscaloosa, AL: University of Alabama Press.

Smith, D. S. (1989). Preferences for differentiated frequency loudness levels in older adult music listening. *Journal of Music Therapy, 26*(1), 18-29.

Smith, K. C., & Cuddy, L. L. (1986). The pleasingness of melodic sequences: Contrasting effects of repetition and rule-familiarity. *Psychology of Music, 14,* 17-32.

Steck, L., & Machotka, P. (1975). Preference for musical complexity: Effects of context. *Journal of Experimental Psychology: Human Perception and Performance, 104*(2), 170-174.

Stefani, D., Feijoo, N. R., Paikin, M. L. S., & Couget, L. C. (1987). Un grupo de adolescentes y su actitud hacia la musica puesta a todo volumen [The attitude towards loud music in a group of adolescents]. *Acta psiquiátrica y psicológica de América Latina, 33,* 153-156.

Vitz, P. C. (1966). Affect as a function of stimulus variation. *Journal of Experimental Psychology, 71,* 74-79.

Walker, E. L. (1981). Hedgehog theory and music education. In Music Educators National Conference, *Documentary Report of the Ann Arbor Symposium* (pp. 317-332). Reston, VA: Music Educators National Conference.

Webster, P. R., & Hamilton, R. A. (1981). Effects of peer influence, rhythmic quality, and violin timbre on the musical preferences of fourth, fifth, and sixth grade children. *Contributions to Music Education, 9,* 10-20.

Yarbrough, C. (1987). The effect of musical excerpts on tempo discriminations and preferences of musicians and non-musicians. In C. K. Madsen & C. A. Prickett (Eds.), *Applications of Research in Music Behavior* (pp. 175-189). Tuscaloosa, AL: University of Alabama Press.

Zenatti, A. (1993). Children's musical cognition and taste. In T. J. Tighe & W. J. Dowling (Eds.), *Psychology and Music* (pp. 177-196). Hillsdale, NJ: Lawrence Erlbaum Associates.

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Appendix
Summary of Findings

Grade	N or n	Study	Preferred	*M	**r^2	Styles
Rhythm and Tempo						
Preschool to 4	247	Sims (1987)	Faster	3		Mozart & Beethoven
Age 5-10	539	Zenatti (1993)	Metrical	P		piano, classical, & 20th century
3-college	926	LeBlanc et al. (1988)	Faster	7		instrumental jazz
4-6	242	Webster & Hamilton (1981)	Marked regular pulses	5		instrumental classical, rock, folk-country, jazz
5	107	LeBlanc (1981)	Faster	7	.04	rock/pop, country, older jazz, newer jazz, art music
5-6	354	LeBlanc & Cote (1983)	Faster	7	.00 to .04	traditional jazz
5-6	163	LeBlanc & McCrary (1983)	Faster	7	.61	instrumental jazz
7	339	Getz (1966)	Faster	9		string ensemble
10, college, & community	400	Yarbrough (1987)	Faster	P		Mozart & Chopin
Nonmusic majors	269	Fung (in press)	Faster	7		African, Asian, Latin-American
Music majors	180	Fung (in press)	Faster	7		African, Asian, Latin-American
Graduate music majors	45	Fung (1992)	Regular rhythm, regular phrasing & faster	7 7 7	.35 .19 .18	African, Chinese, Indian, Indonesian, Japanese, Korean, Middle Eastern, & Thai

Appendix (continued)

Grade	N or n	Study	Preferred	*M	**r^2	Styles
Timbre						
3	76	Byo (1991)	Woodwind	R		pictures, names, & verbal descriptions of band instruments
4 (U.S.)	230	Cutietta & Fousta-lieraki (1990)	Band instru.	P		duple 4-meas. phrase
4 (Greece)	198	Cutietta & Fousta-lieraki (1990)	Non-band instr.	P		duple 4-meas. phrase
4	258	Gordon (1991)	Woodwind	P		melody with synthesized timbres
4	80	Shehan (1981)	Instru.	7		Western classical, African, Indian, Indonesian, Japanese
			Vocal	7		current popular
4, 5, 6	127	LeBlanc & Sherrill (1986)	Male voice	7		Western vocal
5	107	LeBlanc (1981)	Instru.	7	.02	rock/pop, country, older jazz, newer jazz, art music
5-6	354	LeBlanc & Cote (1983)	Instru.	7	.01	traditional jazz
7	87	Shehan (1981)	Instru.	7		Western classical, African, Indian, Indonesian, Japanese
			Vocal	7		current popular
Nonmusic majors	487	Darrow et al. (1987)	Instru.	7		Western & Japanese

Appendix (continued)

Grade	N or n	Study	Preferred	*M	**r^2	Styles
Timbre (cont.)						
Nonmusic majors	50	Fung (1994)	Instru.	7		African, Chinese, Indian, Indonesian, Japanese, Korean, Middle Eastern, Thai
Nonmusic majors	30	Hedden (1974)	Softer sine, string	7		sine, square, string tones
College	90	Geringer & Madsen (1981)	Good tone quality & poor oboe quality	O		oboe-flute duet
Nonmusic majors	269	Fung (in press)	Brighter timbre	7		African, Asian, Latin-American
Music majors	180	Fung (in press)	Brighter timbre	7		African, Asian, Latin-American
Music majors	30	Hedden (1974)	Softer sine, string	7		sine, square, string tones
Graduate music majors	45	Fung (1992)	Both instr. & vocal Brighter timbre	7 7	 .13	African, Chinese, Indian, Indonesian, Japanese, Korean, Middle Eastern, & Thai
Loudness						
Age 16	173	Stefani et al. (1987)	Louder if used to	11		not applicable
College	15	Cullari & Semanchick (1989)	Louder if liked	7	.23	contemporary, classical, soft rock
College	41	Martindale & Moore (1990)	Softer	7	.57 or .38	pure tones
College	40	Fucci et al. (1993)	Louder if liked	D		rock
Nonmusic majors	30	Hedden (1974)	Softer sine, string Louder square	7		sine, square, string tones

Appendix (continued)

Grade	N or n	Study	Preferred	*M	**r^2	Styles
Loudness (cont.)						
Nonmusic majors	269	Fung (in press)	Louder	7		African, Asian, Latin-American
Music majors	30	Hedden (1974)	Softer sine, string Louder square	7		sine, square, string tones
Music majors	180	Fung (in press)	Louder	7		African, Asian, Latin-American
Graduate music majors	45	Fung (1992)	Non-sign.	7		African, Chinese, Indian, Indonesian, Japanese, Korean, Middle Eastern, Thai
Adults (age 18-90)	180	Smith (1989)	Louder for younger subjects Softer for older subjects	O O		classical, big band, Broadway classical, big band, Broadway
Consonance						
Age 5-10	549	Zenatti (1993)	Consonance	P		piano, classical, & 20th century
College	41	Martindale & Moore (1990)	Most cons. & most disson.	7	.01	A=440 to A=880
Adults (age 18-59)	18	Gibson (1987)	P5 P4 m3 M3 m6 M6	C		m2 M2 m3 M3 P4 TT P5 m6 M6 m7 M7 P8
Nonmusic majors	269	Fung (in press)	Consonance	7		African, Asian, Latin-American
Music majors	180	Fung (in press)	Consonance	7		African, Asian, Latin-American
Graduate music majors	45	Fung (1992)	Consonance	7	.14	African, Chinese, Indian, Indone sian, Japanese, Korean, Middle Eastern, Thai

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Appendix (continued)

Grade	N or n	Study	Preferred	*M	**r^2	Styles
Complexity						
College	40	Arkes et al. (1986)	Complex, with simple concurrent task	P		piano
College	120	Heyduk (1975)	Optimal complex.	13		piano
College	32	Huber & Holbrook (1980)	Simple	P		jazz saxophone
College	42	Martindale & Moore (1989)	NA	13	.00	sound sequence
College	132	Russell (1982)	Simple	5	.58 for interestingness .07 for pleasingness	modern jazz
College	36	Smith & Cuddy (1989)	Simple	6		7-tone sequence
College	60	Steck & Machotka (1975)	Optimal complex.	7		computer tones
College	48	Crozier (1974)	Optimal complex.	7		sound sequences
Nonmusic majors	20	Burke & Gridley (1990)	Optimal complex.	7		piano
Nonmusic majors	31	Radocy (1982)	Optimal complex.	5	.23	instrumental Western-art
Nonmusic majors	269	Fung (in press)	Optimal complex.	7		African, Asian, Latin-American
Music majors	180	Fung (in press)	Complex	7		African, Asian, Latin-American
Music majors	20	Burke & Gridley (1990)	Optimal complex.	7		piano

Appendix (continued)

Grade	N or n	Study	Preferred	*M	**r^2	Styles
Complexity (cont.)						
Music majors	36	Radocy (1982)	Optimal complex.	5	.20	instrumental Western-art
Graduate music majors	45	Fung (1992)	Complex	7	.24	African, Chinese, Indian, Indonesian, Japanese, Korean, Middle Eastern, Thai

*M=Measurement used for preference:
- 3=three-point pictographic scale;
- 5=five-point Likert scale;
- 6=six-point Likert scale;
- 7=seven-point Likert scale;
- 9=nine-point Likert scale;
- 11=eleven-point Likert scale;
- 13=thirteen-point Likert scale;
- C=cursor on computer screen and scored in 300 possible units;
- D=dichotomy extremes (only include subjects responding to the two extremes on a five-point scale: Definitely Like-Definitely Dislike);
- O=operant music listening recorder;
- P=paired comparison;
- R=rank order;

**r^2 is given where possible

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