M J R M E

MISSOURI JOURNAL OF RESEARCH IN MUSIC EDUCATION

NUMBER 42
2005

PUBLISHED BY THE
MISSOURI MUSIC EDUCATORS ASSOCIATION

BUSINESS OFFICE

Missouri Music Educators Association
3140-K East Raynell
Springfield, MO 65804

EDITORIAL OFFICE

Conservatory of Music
University of Missouri-Kansas City
4949 Cherry
Kansas City, MO 64110-2229

Missouri Journal of Research in Music Education

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Number 42 **2005**

FEATURE ARTICLES

MISSOURI STUDENT ABSTRACTS

Missouri Journal of Research in Music Education, No. 42, 2005, 3-17

An Analysis of Dynamics and Expression Using a Two-Dimensional Grid and Likert-type Scales

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The purpose of this study was to explore the relationship between dynamics and expression. A group of music and nonmusic majors (N = 214) listened to 8 orchestral excerpts. Two methods of measurement were used: a Two-Dimensional Grid and a Likert-type rating scale. Data were collected and analyzed using a 4-way ANOVA with repeated measures. Significant differences were found between the methods of measurement, the ratings of expression and dynamics, and the 8 excerpts. Significant two-way interactions were found for the methods of measurement and the excerpts, the methods of measurement and the ratings, and the excerpts and the ratings. A significant three-way interaction was found between the methods of measurement, excerpts, and ratings. The mean correlation between changes of dynamics and changes of expression ratings was .36

It is generally believed that listeners associate music and emotion. Music has been regarded as expressive of emotion, and descriptions include physical aspects (motion, force), tension and release, personality characteristics, beauty, events, objects, musical conventions, religious belief and social conditions (Gabrielsson & Juslin, 2003). Juslin (2003) defined expression as a set of perceptual qualities that reflect psychophysical relationships between *objective* properties of the music, and *subjective* impressions of the listener.

Although numerous writers agree that music can express emotion, the underlying processes are not known. Berlyne 1971) proposed that when music is heard, the listener

considers factors such as complexity, familiarity, and novelty of the music. The degree to which the music sounds familiar determines whether the music is experienced as pleasurable or distressing. The self-gratifying value is low when the music isnew to a listener, and develops with increasing familiarity and will decrease again when the music is totally known. This process can be graphed with an inverted U-shaped curve. According to Berlyne, the listener seeks arousal, but to an optimal degree. The more complex the music, the more stimulation will be experienced.

Some believe that the product of the complexities of music's composition is the reason for emotional reaction to music. Meyer (1956) proposed that there are certain elements in music, such as a change of melodic line or a rhythm that create expectations about the future development of the music. The music stimulates or inhibits tendencies and this satisfies the conditions for the arousal of affect. An important implication of Meyer's theory is that any conscious insight in this process reduces the emotional effect of music.

Researchers have isolated particular elements of music's complexities in attempts to find relationships and possible contributions to emotional response. Investigations have examined melody (Delzell, Rohwer, & Ballard, 1999; Pfordresher, 2003), harmony (Koelsch & Mulder, 2002), texture (Misenhelter & Price, 2001), tempo (Britten, 2000; Geringer, Madsen, & Duke, 1993; Husain, Thompson, & Schellenberg, 2002; Johnson, 2003), and pitch (Brattico, Näätänen, & Tervaniemi, 2002; Geringer & Worthy, 1999; McCoy, 1997; Price, 2000). External factors have also been viewed including familiarity (Brattico, Näätänen, & Tervaniemi, 2002), interpretation (Sloboda & Lehmann, 2001; Timmers, 2003), and performance variables (Gabrielsson, 1999; Geringer & Madsen, 1998; Johnson, 1996; Woody, 2003).

Dynamics was chosen as a specific element in the present study with which to investigate possible relationships with musical expression. Dynamics has been investigated in several recent studies (Burnsed, 1998, 2001; Geringer, 1992; Hong

2003; Skadsem, 1997; Woody, 1999). However, there are a limited number of studies directly linking dynamics and expression (Geringer, 1993;1995; Woody, 1999; Yarbrough, Speer & Parker, 1993). Geringer & Breen's (1975) study hypothesized that the greater the dynamic range the more musical expression will be judged by the listener.

Recent research by Carney (2003) found that perceived dynamics changes appeared to be related to perceived changes in musical expression. Results illustrated that the size of the relationship varied with different music examples, but generally was somewhat low. The highest correlation was .36 between ratings of dynamics and expression in one of the excerpts, yielding an effect size (r^2) of .13. The present study expanded the number of excerpts and the number of participants.

The present study also tested the use of the Two-Dimensional (2D) Grid (Russell, Weiss, & Mendelsohn, 1989) in music perception research. The 2D grid allows for sequenced responses over time as opposed to a Likert-type scale, which measures a single static response after music excerpts are completed. The 2D grid may require a greater level of listener attention on two aspects at once, and can be used across several points during an excerpt. It was thought that the use of the 2D grid may be useful because it allows the participants to both experience the excerpt in its entirety and rate segments in real time as they occurred. As a basis for comparison, Likert-type scale ratings were used by half of the participants.

Method

Graduate and undergraduate students ($N = 214$) enrolled in one of three large instrumental ensembles at a southern state university served as subjects. All three large instrumental ensembles rehearsed in the same room at various times during the semester.

Participants were chosen based on age level (college) and availability. Participants were randomly given prepared

response sheets that contained either 2D Grid or Likert-type rating scales prior to instructions. All participants received the same instructions prior to listening.

It was explained that the participants would listen to eight orchestral excerpts, each about 1 minute in duration. Table 1 displays the orchestral excerpts utilized for the present study. These excerpts were selected on the basis of similar familiarity and apparent changes in dynamic range. Three different presentation orders were used. The loudness level was preset to the same position for all groups.

Table 1
Listening Excerpts

Composer	Composition	Duration	Ensemble	Recording
(1) Berlioz	Mvt. 5 – *Symphonie Fantastique*, Op.14	1:00	Orch. Revolutionnaire et Romantique	434402-2
(2) Stravinsky	*Petrushka* (Opening)	0:50	Columbia Symphony Orchestra	MK42433
(3) Beethoven	*Symphony No. 5* Movement I	0:59	Vienna Philharmonia	421166-2
(4) Holst	"Jupiter" from *The Planets*	0:59	Orchestre symphonique de Montréal	417553-2
(5) Hindemith	"Marsch" from *Symphonic Metamorphosis*	1:05	Chicago Symphony Orchestra	289434397-2
(6) Stravinsky	*Le Sacre du printemps* (The Augurs of Spring)	1:02	Columbia Symphony Orchestra	MK42433
(7) Berlioz	Mvt. 4 – *Symphonie Fantastique*, Op.14	1:12	Orch. Revolutionnaire et Romantique	434402-2
(8) Debussy	"Fêtes" from *Nocturnes*	0:55	Cleveland Orchestra	D108521

All subjects were told that they were to rate change of expression and change of dynamics. It was then made clear

that they would be given no definition for expression or dynamics. This was a decision to allow the participants the opportunity to define these terms individually. Although no definition of dynamics was presented to the participants, it was explainled that change of dynamics meant a change in the range of musical dynamics as opposed to changing loudness levels of the audio mechanically.

The participants were instructed on how to use the 2D Grid (Russell et al., 1989). The 2D Grid (see Figure 1) is composed of 81 equal sized boxes arranged in a 9x9 pattern. The X-axis (or horizontal axis) represented change of expression. The bottom, leftmost box was labeled "very little change" while

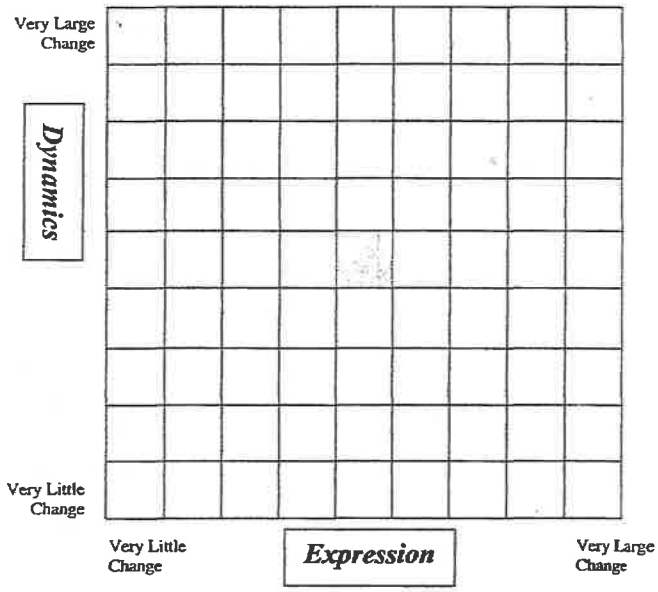

FIGURE 1.
Two-dimensional grid measuring expression and dynamic change.

the most extreme right box on the bottom was labeled "very large change". The Y-axis (or vertical axis) represented change of dynamics. The bottom level was marked "very little change" and the top was marked as "very large change."

The following instructions were read to participants:

> Each of the eight excerpts will be approximately 1 minute in length. Furthermore, each excerpt will have three sections, roughly 20 seconds each. Each minute-long excerpt will be played in its entirety with a pause between each of the eight excerpts. During each excerpt, three sequential numbers will be announced during each performance signaling the three sections of each excerpt. At these announced numbered sections, the 2D grid listener will be asked to mark the 2D Grid within one of the 81 equal sized boxes with the announced number. This mark will represent both the change of expression and change of dynamics for that section of the excerpt, for example, from the beginning of the excerpt to the announced number (the first section), from number to number (the second section), or from number to the end of the excerpt (the third section). Specifically, Excerpt 1 has the number 1 announced to signify the first section, the number 2 to announce the second section, and the number 3 for the third section. The second excerpt uses numbers 4 through 6 and the sequence continues for each of the eight excerpts so that each 2D grid has the numbers 1 through 24 within its boxes.

Participants were asked to mark the corresponding number on the 2D Grid to indicate their perception at that time of both the change of expression and change of dynamics. It was explained that any number of the ratings could be in the same box and that the numbers did not have to be in any order on the 2D Grid. The participants were also instructed on how to use the Likert-type scale. There were two Likert-type scales for each of the eight excerpts, one representing change of expression and the other, change of dynamics. The range for each was 1 to 9 with 1 representing "very little change" and 9 denoting "very large change." Participants using this form were instructed to listen to each excerpt in its entirety and then rate both change of expression and change of dynamics by circling the appropriate number.

Results

The means of the participants' dynamics and expression ratings per excerpt were calculated. The ratings of the excerpt from the first movement of Beethoven's *Symphony No. 5* yielded the highest mean (M = 6.69). The lowest rated mean (M = 4.34) was for the excerpt from Stravinsky's *Petrushka*. Likert-type scale means were higher than the 2D Grid means, except for the *Petrushka* excerpt. Table 2 displays the means for each excerpt.

Data were analyzed using a 4-way ANOVA with repeated measures. There were two between subject variables, the 2D grid or Likert-type rating scales (method of measurement), and the three orders of performance. There were two within subject measures, the eight orchestral excerpts and the ratings of change of expression and change of dynamics. An alpha level of .01 was used for hypothesis testing.

Table 2
Means for Excerpts and Correlations between Dynamics and Expression Ratings

Composer	Piece	r	r^2	p	Grid Mean	Likert Mean	Overall Means
Beethoven	*Symphony No. 5*, Mvt. 1	.31	.10	< .01	6.27	7.11	6.69
Hindemith	"Marsch"	.20	.04	< .01	5.48	6.01	5.74
Debussy	"Fêtes" from *Nocturnes*	.29	.09	< .01	5.41	5.77	5.59
Berlioz	Mvt. 4 *Sym. Fantastique*	.49	.24	< .01	4.97	6.15	5.56
Berlioz	Mvt. 5 *Sym. Fantastique*	.33	.11	< .01	4.97	6.01	5.49
Stravinsky	*Le Sacre du printemps*	.38	.14	< .01	5.07	5.11	5.09
Holst	"Jupiter" from *The Planets*	.29	.08	< .01	4.84	5.02	4.93
Stravinsky	*Petrushka*	.58	.34	< .01	4.87	3.82	4.34

A significant difference was found for method of measurement, F (1, 208) = 14.08, $p < .001$. The 2D Grid (n = 96) yielded different results than the Likert-type (n = 118) scale. Additional significant differences were found for the following main effects: the ratings of change of expression versus change of dynamics, F (1, 208) = 27.25, $p < .001$, and the eight excerpts, F (7, 1456) = 60.79, $p < 001$. The main effect for order resulted in no significant difference F (2, 208) = 0.41, $p = .66$.

The post-hoc Scheffé test indicated that the excerpts from the first movement of Beethoven's *Symphony No. 5* (M = 6.69) and from Stravinsky's *Petrushka* (M = 4.34) were significantly different from all the other excerpts. The excerpt from "Jupiter" (M = 4.93) was significantly different from all other excerpts with the exception of the excerpt from *Le Sacre du printemps* (M = 5.09).

Significant two-way interactions were found for the method of measurement and the excerpts, F (7, 1456) = 16.28, $p < 001$, the method of measurement and the ratings, F (1, 208) = 44.84, $p < 001$, and the excerpts and the ratings, F (7, 1456) = 29.58, $p < 001$. No significant differences were found between two-way interactions that included order as a factor, with the exception of the interaction between order and the excerpts, F (7, 1456) = 2.31, p = .004). This interaction contributed less than 2% of the total variance.

Figure 2 displays the interaction between the method of measurement and the ratings. The mean ratings for change of dynamics for all of the excerpts were noticeably higher from the participants using the Likert-type scale (m = 5.99) compared to those who used the 2D grid (m = 5.19) by almost one full rating point. The mean ratings for change of expression for all of the excerpts were almost identical between the Likert-type scale (m = 5.26) and the 2D grid (m = 5.28).

Figure 3 illustrates the interaction between the method of measurement and the excerpts. Means from the Likert-type scale are higher than means from the 2D Grid in all cases with one exception. Likert scale ratings for the *Petrushka* are a full

point lower than for the 2D Grid.

Significant three-way interactions was found between the method of measurement, excerpts, and ratings, F (7, 1456) = 6.73, p < 001. The remaining three-way interactions, all containing order as a factor, were also significant. These contributed little additional variance (less than 3%) to the analysis. The four-way interaction was not significant.

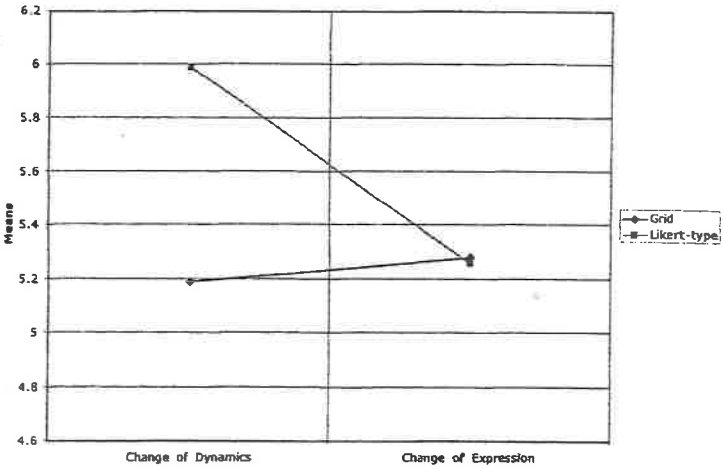

FIGURE 2.
Two-way interaction between Method of Measurement and Rating Scale..

Both of the Stravinsky excerpts, *Petrushka* and *Le Sacre du printemps*, and Debussy's "Fêtes" excerpt had higher mean ratings in change of expression compared to dynamics change (Figure 4). The other five excerpts had lower mean ratings in expression than in dynamics. Of these excerpts, the largest difference comes from the Berlioz excerpt from *Symphonie*

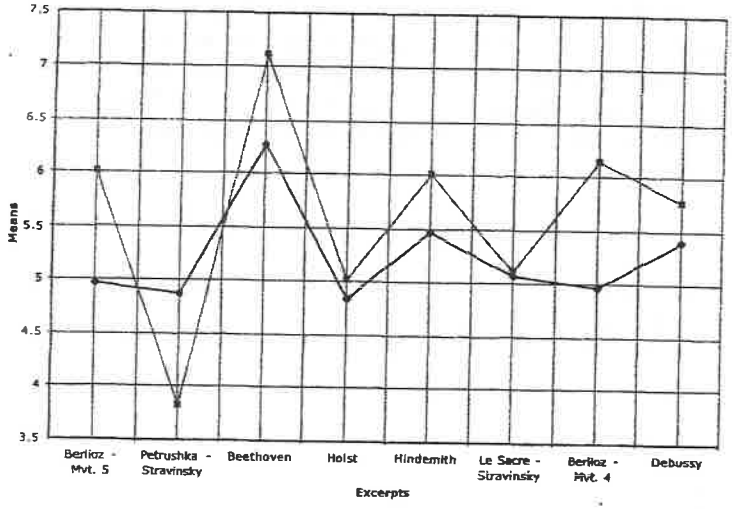

FIGURE 3.
Two-way interaction between Method of Measurement and Excerpts.

fantastique, Fifth movement, with a mean rating of 6.20 for change of dynamics and a mean rating of 4.79 for change of expression.

There was also a significant three-way interaction found between the method of measurement, excerpts, and ratings, F (7, 1456) = 6.73, $p < 001$. As in Figure 3, this interaction indicated that the Likert-type ratings are higher than 2D Grid ratings for the change of dynamics with the exception of Stravinsky's *Petrushka*. The direction of the Likert-type ratings, although over a greater range than the 2D Grid ratings, follow the same trend as the 2D Grid ratings with the exception of Debussy's "Fêtes." The interaction also reveals that the Likert-type scale produced ratings that were both higher and lower than the 2D Grid for the change of expression ratings. The difference between each excerpt's

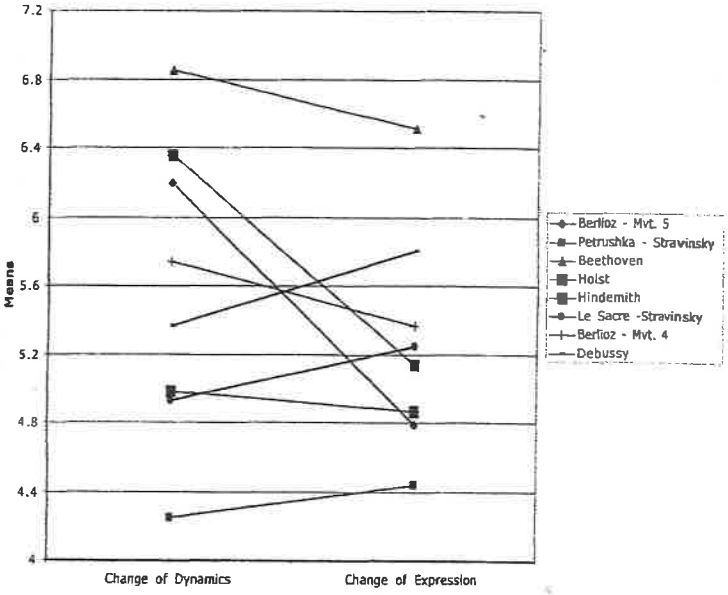

FIGURE 4.
Two-way interaction between Excerpts and Rating Scale.

mean rating is much closer between the two methods of measurement within the change of expression graph than the change of dynamics graph.

The main focus of this study was to investigate the correlations between dynamics and expression (see Table 2). The highest correlation was from the excerpt of Stravinsky's *Petrushka* (r = .58). The lowest correlation was from the Hindemith excerpt (r = .20). The mean correlation between the change of dynamics and the change of expression rating was .36. The mean effect size (r^2) of dynamic changes on expression was 13%.

Discussion

Correlation analysis showed that perceived changes in dynamics do appear to be moderately (r = .36) related to the perceived changes in musical expression. This is consistent with prior research (Carney, 2003). The Beethoven excerpt had the highest mean rating for both rating scales. Its mean rating score for change of dynamics was 6.86 and mean rating score for change of expression was 6.52.

Russell, Weiss, and Mendelsohn (1989) introduced a "single-item scale, the Affect Grid, designed as a quick means of assessing affect along the dimensions of pleasure-displeasure and arousal-sleepiness" (p. 493), which was designed to be appropriate for any research that requires judgments about affect of either a descriptive or a subjective kind. The 2D Grid used in the present study is based on this model. One difference is that the Affect Grid uses a semantic differential scale along each axis whereas the present 2D Grid uses two Likert-type scales on each axis. Subjects using either grid mark a single indication to suggest two ratings at once. A second difference is the normally static nature of the 2D Grid or Likert-type scales versus the three temporally-sequenced responses of the 2D Grid per excerpt in the present study. It was thought that this process increased the focus of attention of the participants during the study.

Kuhn (1980) recommended that, "If a researcher is using a dependent measure of opinion or preference for groups of subjects, then a self-report rating measure is the most efficient and, in all likelihood, is quite adequate" (p. 14). The results of the current study indicate that the 2D Grid produces results that are significantly different in some cases than the Likert-type scale ratings. This is not to suggest that the 2D Grid is more or less valid than the Likert-type scale or any static response system, but the results demonstrate that the two methods of rating are not equivalent. Duke & Colprit (2001) compared a continuous response instrument (CRDI) with a summative response instrument and the different procedures yielded different results. Present results are similar. The

results of these investigations contribute to an expanding research base that uncovers inconsistencies between continuous, sequenced, and static post hoc ratings of music affect.

Further studies using the 2D Grid could provide information regarding the results acquired from the 2D Grid's temporally-sequenced responses. Additional studies could answer the following questions: (a) are the results different from continuous or static post hoc rating systems due to differences in listener attention? (b) Are the results different from continuous or static post hoc rating systems because of the sequenced responses? (c) Are the results different from continuous or static post hoc rating systems due to a combination of the previous two factors?

It is reasonable to assume that each structural phenomenon in music, such as tempo, dynamics, timbre, rhythm, tonality, and so on, has a tangible effect on expression at some level. As music educators, we should be knowledgeable of such effects. This influence on students' perception of expression relates to their opinion regarding music. Continued research of students' perception through continuous, sequenced, and static post hoc ratings could reveal possible relationships between expression and the musical phenomenon which conductors and educators might use to promote a better musical experience for our students.

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Missouri Journal of Research in Music Education, No. 42, 2005, 18-26

The Effect of Mental Imaging Rehearsal on the Study of Black-Key Major Scales in a College Piano Class

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The purpose of this study was to investigate the effect of relaxation and mental rehearsal techniques on teaching black-key major scales on the piano. Subjects (N = 63) were music majors enrolled in 6 intact keyboard skills classes. Group 1 (Mental Practice and Traditional Practice) practiced black-key major scales in class for a period of 10 minutes once each week. In addition, this group relaxed on the floor of the classroom and engaged in mental rehearsal exercises on the black-key scales once each week for a 10-minute period. Group 2 (Traditional Practice) practiced the black-key major scales twice each week in class for a period of 10 minutes each session. Group 3 (No Practice - Control) did not practice the black-key major scales during the length of the study. All 3 groups were instructed not to practice black-key major scales outside the classroom. Each participant was videotaped playing each of the black-key scales prior to the study and again at the completion of the 6-week period. Students were asked to play in eighth notes, hands separately while the metronome ticked at 60 bpm. Students were scored by giving one point each for correct pitches, correct fingerings, not starting over, and playing at the correct tempo for a possible 40 points. A paired samples t-test for correlated means on the difference between pre and posttest scores for all research participants revealed that Groups 1 and 2 significantly improved their black-key scale playing, while Group 3 did not. Recommendations for future research are discussed.

The use of mental imaging in the learning, memorizing, and acquisition of performance skills has long been recognized as a viable technique (Britt, 1997). With advances in brain research and the emergence of a greater understanding of how the brain processes information, educators are exploring the use of mental imagery in systematic applications to a variety of subjects. However, the area of sports performance appears to offer the most extensive examples of the use of mental imagery which is often referred to as mental rehearsal. An examination of effective mental practice techniques utilized by athletes can offer unique insights into equally effective mental rehearsal techniques for the musician.

A report by Feltz and Landers (1983) indicated the use of mental practice has been noted in the literature of sports psychology since the 1960s. Schroeder and Ostrander (1979) provide extensive documentation of the use of mental rehearsal by professional athletes in the book *Superlearning*. The use of mental imaging techniques by such popular athletes as Billie Jean King and Jean-Claude Killy is described in *The Brain Book* by Peter Russell (1979).

An experiment by Alan Richardson (1952) in Australia tested the use of mental rehearsal on basketball players by dividing the students into three groups. Group 1 practiced throwing the ball into the basket for 20 minutes each day. Group 2 engaged in mental practice by imagining themselves throwing the ball into the basket for 20 minutes each day. Group 3 did no practice of any kind. After 3 weeks the study concluded that Groups 1 and 2 improved their basketball throws by the same amount -- about 24%. Group 3 did not improve.

However a search of the literature revealed that the application of mental imagery in music was predominantly in the area of stress reduction related to performance. Although a considerable lack of documented research exists to support the effectiveness of mental rehearsal in the study of music, an early study by Rubin-Rabson (1941) indicated that mental rehearsal was far more beneficial than physical practice in memorizing piano music.

More recently a study by Ross (1985) documented the effect of mental rehearsal techniques on the performance of college trombonists, and a study by Coffman (1990) stated the benefits of mental practice combined with physical practice for pianists. While these studies were focused on adults there have been projects that involved children. Petrie and Ross (1986) conducted a study with inner-city children to explore the effectiveness of mental rehearsal when no piano was available during piano instruction. Considerable progress was made by these children during an 8-week course of study.

The value of physical relaxation as it relates to the learning process, particularly in cognitive tasks as opposed to music-making, has been documented by Johnson (1982) and others. Studies by Hill (1986) and Moon, Render, and Pendley (1985) indicate that the learning process is enhanced with physical relaxation exercises, particularly when combined with mental imagery. A study by Stein, Hardy, and Totten (1982) concluded that the use of certain Baroque music was helpful in increasing both immediate and long-term retention of vocabulary words. Aleman, Nieuwenstein, Boecker, and de Haan (2000) found that trained musicians outperformed nonmusically trained individuals on auditory imagery tasks. Band, Quitter, and Miller (2001) led college music appreciation students through exercises in Guided Imagery and Music (GIM) as described in Bonny and Summer (2002). After the sessions, subjects used Visual Analogue Scales and an Imagery Content Questionnaire to describe their imagery. The authors suggest that music can have an impact on vividness, absorption, and vigor/activity during imagery.

Mental Rehearsal Defined

Mental rehearsal may be defined as vividly picturing, sensing, or experiencing a situation within one's mind without the gross muscular movements involved in the situation taking place. Mental rehearsal is a cognitive experience rather than physical. Dr. Jerry May, former Chairman of the U.S. Olympic Sports Psychology Advisory Panel and professor of

psychiatry at the University of Nevada - Reno, described the use of mental practice to one of the authors as used by the Olympic Athletes to one of the authors Dr. May stated that "the athlete must become deeply physically relaxed before attempting to produce a mental image for practice. Once the state of complete relaxation is achieved, the athlete rehearses his/her particularly sport with such clarity and intensity that the mind perceives the situation as an actual physical rehearsal" (personal communication, 1983).

For the current study it was decided to evaluate the possible effect of mental rehearsal combined with traditional practice versus traditional practice alone. To deal with the potential confounding of maturation during the course of the study it was decided to include a no practice control group, where subjects continued to receive instruction in the same way as all other subjects with the exception of the one skill being measured.

Method

Participants (N = 63) in this study were music majors enrolled in intact keyboard skills classes in a large school of music in a Midwestern university. The students were divided into three groups: Group 1, Mental Practice and Traditional Practice (n = 21), Group 2, Traditional Practice only (n = 18), and Group 3, No Practice Control (n = 24). Students in all three groups were instructed not to practice black-key major scales outside of class for the length of the study. Group 1 physically practiced black-key major scales in class for a period of 10 minutes once each week. This group also practiced the scales using mental rehearsal for 10 minutes once each week. Group 2 physically practiced the black-key major scales in class twice each week for a 10 - minute period. Group 3 did not practice the black-key major scales for the length of the study.

Each participant was videotaped playing each of the black-key major scales hands separately (a total of 10 scales) prior to the study and again at the completion of the 6-week period.

Students were asked to play in eighth notes, two octaves while the metronome ticked at 60 bpm. Students were scored by giving one point each for (a) correct pitches, (b) correct fingerings, (c) not starting over, and (d) playing at the correct tempo, for a possible 40 points on all scales.

Mental Rehearsal in this Study

Students in Group 1 of this study received no specific instructions in mental rehearsal techniques. However, prior to each period of mental practice the students relaxed on the floor of the classroom in any way they felt comfortable. Students were directed to breathe deeply and visualize each part of their bodies becoming increasingly relaxed. No mental rehearsal was conducted without the benefit of this preliminary physical relaxation period. During this period, which lasted 8-10 minutes, the researcher improvised soft music in the Dorian mode using a digital piano at approximately 60 beats per minute while giving verbal instructions in relaxation.

Dorian mode was chosen for this study based on several trials prior to final data collection. Initially slow, quiet classical music was pilot tested but functioned as a distracter for the music majors (students would ask questions about composer, performer, recording indicating critical listening rather than relaxation). White noise was characterized as "annoying" by many students and ocean sounds also received mixed reactions. It was ultimately decided that, in the absence of research in this specific setting, that the project would move forward using keyboard improvisation in the Dorian mode based on several factors: 1) the sounds of the keyboard would be consistent with the classroom environment, 2) the fact that Dorian does not have a leading tone could free the improvisation from more traditional constraints, 3) the minor tonic coupled with the major subdominant could create a free flow between major and minor, and 4) Dorian mode is a common sound in New Age music which is often associated with guided relaxation.

Following the relaxation prelude, the researcher ceased playing the improvised music and played each of the black-key scales on the piano while verbalizing pitch names and corresponding correct finger numbers. Students imaged the scales mentally and often moved their fingers slightly in response to each finger number. Following the verbalized pitch and finger rehearsal for each scale, the researcher played the scale without verbalization of pitch or finger numbers. This allowed students to mentally rehearse the scales without any verbal coaching.

Results

A paired samples *t*-test on the difference between pre and posttest scores for all research participants revealed that the Mental and Traditional Practice Group (Group 1) significantly improved their black-key scale playing ($t = -7.001$, $df = 20$, $p < .0001$). The Traditional Practice Group (Group 2) also significantly improved their black-key scale playing ($t = -5.161$, $df = 18$, $p < .0001$). The No Practice Control Group (Group 3) did not significantly improve their black-key scale playing ($t = -.814$, $df = 23$, $p = .424$).

Discussion

This study appears to indicate that mental rehearsal in combination with physical practice can enhance the ability to learn and process information. However, because the traditional practice group improved as well, more research is indicated to determine if refining the mental rehearsal task affords differing results. Several factors involved in the mental rehearsal experience need to be examined. Mental rehearsal is a cognitive process, and this study was not designed to measure the vividness of the subjects' mental imagery or even the extent to which the subjects are actually imaging. In short, we are not able to view what the subject is thinking. In future research of this type using a dependent measure such as the Visual Analogue Scales and/or an

Imagery Content Questionnaire (Band et al., 2001) might help clarify this variable. Aleman et al. (2000) indicated that, while trained musicians outperformed subjects not trained in music on auditory imagery tasks, they did not have an advantage in visual imagery tasks. It may be that the imagery task in the present study falls into the latter category. Further study to determine the effects of both relaxation and mental imagery on visual, physical, and auditory tasks is warranted.

The degree to which the slow, soft, improvisatory music used in this study enhanced the subjects' abilities to relax and enter more fully into the mental rehearsal process is worth continued investigation. Burns (2000) suggests that music might affect the likelihood of a person becoming involved in spontaneous imagery experiences, but does not necessarily have an impact on that person's ability to manipulate or control images. Students in this study often stated their belief that the relaxation prior to mental rehearsal enhanced their abilities to concentrate and image more vividly. Various types of relaxation need to be examined in relationship to creating the desired state of enhanced mental concentration in subjects. No objective data were obtained in this study to determine each subject's depth of relaxation.

Future systematic inquiry in the use of relaxation techniques related to music skill acquisition seems to be a fruitful area of research. The current results indicate that finding the most effective musical and/or environmental stimuli for efficient and effective relaxation related to skill acquisition should be systematically undertaken, beginning if possible with a replication of the current study with a larger population. Free-form improvisation versus formal music, modes, dynamic levels, and instrumentation all need to be evaluated. Many different tasks can be tested including, but not limited to keyboard skills, sight-singing, dictation, style/form analysis, technical aspects of individual performance, enhancement of ensemble performance, and memorization. Testing the effects of guided relaxation might also include a variety of venues including classroom, studio, group rehearsal, private practice, and the "green room" prior

to concerts. Finding the right balance of relaxation and attentiveness for each task and permutation provide a beginning direction for this research agenda.

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Missouri Journal of Research in Music Education, No. 42, 2005, 27-39.

A Study of Personality Type Among College Music Majors and Music Faculty

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The purpose of this study was to investigate personality differences between students in different undergraduate music degree programs and also between undergraduate music majors and music faculty using the Myers-Briggs Type Indicator *or* MBTI *(Briggs & Myers, 1985) in order to improve their understanding of their preferences for learning and teaching. Personality profiles were determined according to scores gleaned from measuring four bipolar aspects of personality: that of Extravert (E) or Introvert (I); perception due to Sensing (S) or Intuiting (N); processors typified by Thinking (T) or Feeling (F); and judgment of the outside world through Judgment (J) or Perception (P). Analyses yielded no significant differences between students in different degree programs in personality profile, in Extravert/Introvert aspects, or in personality function, that of collapsed profiles of ST, SF, NF, or NT; similarly, no significant differences were found between students and faculty in any of the comparisons. It is suggested that further research be conducted to determine if personality preferences are significant in terms of career choice, career success, and career longevity.*

The topic of personality characteristics and the musician

has been a focus of research for four decades with results that present interesting, and sometimes provocative, outcomes. A variety of studies have been conducted because personality factors are a complex subject and therefore, difficult to categorize definitively. Among these are the musician's personality (Kemp, 1982b; Woody, 1999), musical performers (Kemp, 1981a), music teachers (Kemp, 1982a), applied music teachers (Schmidt, 1989), personality factors of music teachers and performers (Wubbenhorst, 1994), musical temperament (Kemp, 1996; Seashore, 1939), psychological androgyny of the musician (Kemp, 1985), and differences among instrumental musicians (Bell & Cresswell, 1984; Kemp, 1981c).

This study used the theory of personality type to explore those differences between students in different undergraduate music degree programs and also between undergraduate music majors and music faculty. Wubbenhorst's (1994) earlier study had reported a comparison of music educators and performers, one that had employed the *Myers Briggs Type Indicator* or *MBTI* (Briggs & Myers, 1985), and served as impetus for our study. The theory of psychological types was first introduced by Jung in 1921 and then embraced by Myers and Briggs as they developed an instrument to identify dichotomies of personality (Myers, McCaulley, Quenk, & Hammer, 2003). The premise of the instrument is that "much seemingly random variation in behavior is actually quite orderly and consistent, being due to basic differences in the way individuals prefer to use their perception and judgment" (Myers et al., 2003, p. 3). There are 16 different profiles identified by the *MBTI,* composed of the following four dichotomies:

1. Extraversion (E), directing energy mainly toward the outer world of people and objects, or Introversion (I), directing energy mainly toward the inner world of experiences and ideas.

2. Sensing (S), focusing mainly on what can be perceived by the five senses, or Intuition (N), focusing mainly on perceiving patterns and interrelationships.
3. Thinking (T), basing conclusions on logical analysis with a focus on objectivity and detachment, or Feeling (F), basing conclusions on personal or social values with a focus on understanding and harmony.
4. Judging (J), preferring the decisiveness and closure that result from dealing with the outer world using one of the Judging processes (Thinking or Feeling), or Perceiving (P), preferring the flexibility and spontaneity that results from dealing with the outer world using one of the Perceiving processes (Sensing or Intuition) (Myers et al., 2003, p. 6).

Myers et al. (2003) reported that of the four letters that represent the *MBTI* profile, the inner two letters tend to have the greatest influence on career choice, that of ST (Sensing, Thinking), SF, (Sensing, Feeling) NF (Intuiting, Feeling), and NT(Intuiting, Thinking) (p. 293). The inner letters of the *MBTI* are referred to as personality functions by Myers et al. (2003) whose report of a variety of studies indicated the following: STs are likely to be quite pragmatic and often work in areas such as business; SFs are frequently caregivers, such as those in education and health care; NFs prefer working with people and are typically in the areas of the arts, teaching, and religion; and NTs gravitate towards more theoretical areas such as technology, management, and science (p. 294).

Much research in this field has reported trait characteristics for certain occupations and populations. For example, Csikszentmihalyi and Getzels (1973) maintained that virtually any occupation will naturally draw persons who exhibit particular qualities which "pre-select the type of person intending to perform within their given limits" (p. 100). Intrinsic requirements for particular careers seem to be quite important, for example, "a career in classical music not only excludes people who are tone-deaf, but also those whose personality characteristics make them unwilling to concentrate, who lack self-discipline, or dislike sedentary

activities" (p. 100). Although the research by Csikszentmihalyi and Getzels (1973) was devoted to artists rather than musicians, it might be appropriate to assume that musicians are no exception for the current study. Kemp (1982b) suggested that particular personality traits are readily associated with musicians, that is, those conducive to "the process of developing the motor, perceptive, and cognitive skills necessary for musical performance" (p. 3). Furthermore, Kemp (1981a) (comparing performers from secondary through professional levels) concluded that there was a stable factor of intelligence, introversion, and pathemia. He suggested that the "life style, cognitive style, and work habits" contributed to "an ability to withdraw into a colourful and imaginative inner mental life . . . providing the single-mindedness necessary for the acquisition of technical skills" (p. 12).

Some might contend that musicians, who choose to spend their professional life in the performance arena, while others elect to become music educators, might exhibit a fundamental difference in the manner in which music is used/made. However, Wubbenhorst (1994) maintained that the profiles of performers and educators, primarily extroverted, are more similar than disparate. He also suggested that music could well be the element that could "account for the similarities in the *MBTI* personality type preferences for Intuition (I) and Feeling (F)" for both music educators and performers (p. 73).

Incongruently, the connection between introversion and pathemia for the musician has been reported by several of Kemp's studies (1981a; 1981c: 1982a). Cattell's (1973) study of pathemia described that which is associated with cerebral escapes, those that allow the mind to experience excursions that are inventive and creative. Kemp (1982a) characterized pathemia as a "feelingful" element (p. 73) and noted that pathemia was most typically associated with musicians who are Introverts, typically performers and composers (1981a; 1981b).

In contrast to the above mentioned investigations in which performers were said to be more introverted (a characteristic associated with aloofness, great inner strength, highly creative

thought processes, and threat-sensitivity), Kemp (1982a) also indicated that those college musicians who choose to become music teachers exhibit traits of extraversion. Those traits are described as being outgoing and adventurous. The classic traits of the Introvert (that of threat-sensitivity and aloofness), do not lend well to the classroom setting where greater levels of resiliency and exhibition are necessary (Kemp, 1982a). In other words, the successful teacher does not retreat into the safe inner world, but rather functions best in a more demonstrative, outgoing manner.

Kemp (1982a) concluded that the college musician who has devoted a great deal of time and effort to developing his/her technical proficiency on an instrument may not readily acclimate to the classroom. The individual who focuses on practice within the confines of a small practice room day after day would very suddenly be required to focus on the needs of others, a change that may be difficult for some, though an exhilarating challenge for others. He posited that the music classroom may well offer a more appropriate venue for those musicians "who may be poorly adjusted to the demands which performance makes on them" (p. 73).

If this contention is correct, then in the performance setting there is an emphasis on the musician's development of his/her musical proficiency. Differently, the opposite is required for success in the classroom: the attention and focus on one's students, their behaviors, their skills, their musical outcomes, and on their growth from dependence on the teacher to a state of musical independence during performance. Given that there may be differences between performers and educators, this study was conducted to determine if those differences exist. The purpose of this study, therefore, was to investigate personality differences between students in different undergraduate music degree programs and also between undergraduate music majors and music faculty using the *Myers-Briggs Type Indicator* or *MBTI* (1985) in order to improve their understanding of their preferences for learning and teaching.

Method

Participants

Participants in the study were lower division music majors (n = 93) and music faculty (n = 19) at a Midwestern teacher preparation institution. Undergraduate students had all declared a music major in either performance (n = 8), music education (n = 68), or the BA program (n = 17). Music faculty represented the areas of applied music study (n = 10), music education (n = 5), theory and composition (n = 2), general education (n = 1), and ensemble directors (n = 1). The faculty sample was composed of professors with teaching experience ranging from 1 to 35 years; among these, 14 held doctoral degrees and 5 had obtained masters' degrees.

Measuring Instrument

The *Myers-Briggs Type Indicator* (1985), or *MBTI* , is a self-scorable, self-reportable inventory that is designed to determine a subject's preferences with respect to four bipolar categories. The first category contrasts those who depend upon people and events from which to extract their energy, called Extraverts (indicated by E), to those who depend on themselves to provide inner experiences and thought as their energy source, or Introverts (I). The second category examines variables of perception as being either sensing (S) or intuiting (N). The third categories are the processors of judgment by thinking (T) or feeling (F). And the final category includes those who address the outside world by judgment (J) or perception (P). The various combinations of these types suggest the ways in "what people attend to in any given situation . . . [and] how they draw conclusions about what they perceive" (Myers & McCaulley, 1985, p. 2). The *MBTI* has been a widely used instrument for personality inventory; however, it is designed to identify preferences rather than categorically determine personality traits (Fleenor, 2001). Reliability may "range from 55% to 80%, with an

average of 65%" (Fleenor, 2001, p. 251). The identification of the four preference factors appears to demonstrate validity, but is less impressive as a comprehensive tool for type identification (Mastrangelo, 2001). Despite the imperfections noted by these authors, the *MBTI* is a well-documented and frequently-used personality profile instrument, identifying a total of 16 personality types based on dichotomous preferences.

Mastrangelo (2001) states that:

> The *MBTI* is best used in situations where basic information regarding personality must be presented to lay individuals for self-understanding; it should not be used to make specific decisions about an individual (e.g., hiring). (p. 252)

The use of the *MBTI* seems to be appropriate for this study, for self-understanding was a key practical goal. While data on test reliability and validity are incomplete, there are a number of studies that have employed the *MBTI* and produced publishable results, such as those Schmidt (1989) and Wubbenhorst (1994).

Procedure

Undergraduate students were administered the *Myers-Briggs Type Indicator* (Briggs & Myers, 1985) during one hour of a music theory class while faculty participants took the *MBTI* at their convenience. Accompanying the *MBTI* were additional questions used to obtain demographic information from the students and faculty members. All data were collected anonymously and confidentially.

A de-coding of personality profiles was offered to all participants in the study, both in group and individual settings. All participants received information regarding the preferences associated with their profiles, accompanied by verbal explication of strengths and weaknesses typically identified with the profiles.

Results and Conclusions

Chi-square analyses were conducted in this study, addressing a two-fold purpose. One purpose of this study was to investigate personality differences between students in different music degree programs. The major area of the undergraduate music majors was identified with an imbalance among the major areas, that of music education (n = 68), performance (n = 8), and BA (n = 17). The first comparison focused on the *MBTI* profiles among the music majors in which scores were gleaned from identifying four bipolar aspects of personality: Extravert (E) or Introvert (I); perception due to Sensing (S) or Intuiting (N); processors typified by Thinking (T) or Feeling (F); and judgment of the outside world through Judgment (J) or Perception (P). The second comparison was devoted to the Extravert/Introvert aspects of the *MBTI*. And the third comparison considered personality function, the inner letters of the *MBTI* that are frequently indicative of career choice/preference, i.e., ST (Sensing, Thinking), SF (Sensing, Feeling), NF (Intuiting, Feeling), and NT (Intuiting, Thinking). Analyses yielded no significant differences within undergraduates between the different majors on the *MBTI* personality profile bipolar aspects (χ^2 (26) = 27.63, p = .377), on Extravert or Introvert aspects (χ^2 (2) = .234, p = .890), or on personality function (χ^2 (6) = 8.62, p = .196). While no detectable differences were noted when music majors were compared with the *MBTI* profile, it is important to note that two profiles were not identified by the sample. Additionally, the profiles were quite dispersed.

The second purpose of the study was to investigate differences between undergraduate music majors and music faculty. The first comparison of groups was focused on major area; however, the small sample of faculty made the comparison inappropriate. Subsequently, comparisons of *MBTI* profile, Extravert/Introvert aspects, and personality function followed. The results of each Chi-square analysis were not significant (respectively, χ^2 (14) = 22.25, p = .074,

χ^2 (1) = .169, p = .681, and χ^2 (3) = 1.47, p = .689). See Table 1 for the distribution of *MBTI* profiles.

Table 1
Distribution of Personality Types using the MBTI

MBTI Type	Faculty	Students
ISTJ	2	18
ISTP	0	1
ISFJ	1	0
ISFP	1	0
INFJ	0	1
INTJ	2	3
INFP	1	9
INTP	0	7
ESTP	0	1
ESFP	0	3
ESTJ	1	4
ESFJ	1	8
ENFP	3	21
ENTP	0	7
ENFJ	5	5
ENTJ	2	5
TOTAL	19	93

Given the results of other studies, our finding of nonsignificant differences might be looked upon as surprising, particularly when one considers personality of the musician. For example, Wubbenhorst (1994) reported the profile of ENFJ (Extrovert, Intuiting, Feeling, Judgment) to be that which represents "the prototypical music educator...and music performer" (p. 68). Similarly, Myers et al. (2003) suggested that ENFJs are most likely to be teachers and artists, but those with profiles of INFP (Introvert, Intuiting, Feeling, Perception) and ENFP (Extrovert, Intuiting, Feeling, Perception) are typically in the arts and in teaching also. Our results indicated that the largest group of faculty (n = 5, 26.3%) was noted in the category of ENFJ, but only five

(5.4%) undergraduates were typified with that profile. Among the INFPs, 9 (9.7%) were students and 1 (5.3%) was faculty; for the ENFPs), 21 (22.6%) were students and 3 (15.8%) were faculty.

The results with respect to Extraversion and Introversion also were surprising, particularly so when comparing these with Kemp's (1982b) study. He presented a comprehensive model of the musician's traits, in which he noted that extraversion was more representative of the music educator and introversion of the performer and composer. In our study, there were no significant differences between the Es and Is among undergraduates in musical emphasis, yet the undergraduate subjects were largely categorized as Extraverts (n = 54, 58.1%), as were the faculty (n = 12, 63.2%). Kemp (1982a) indicated that successful teachers are extraverted, a quality that seems to serve the classroom, or, in our study, the studio, as well. The faculty subjects in our study were in a "teacher training institution," where the teaching aspect was more pronounced than the performing venue, although the faculty were very involved in world-wide performance opportunities; perhaps these faculty were attracted to a teacher institution despite their performance preparation. For the student subjects, it is possible that they are attracted to a profession where the outer world, for example, a classroom environment, students, and faculty, are stimulants for the Es – one that provides elements from which the E can draw upon.

As noted earlier, there were four possible groupings of personality function: ST, SF, NF, and NT. Our study did not detect significant differences among the four despite the apparent clustering of students (n = 36, 38.7%) and faculty (n = 10, 52.6%) under the NF grouping. Myers et al. (2003) reported NF to be the typical indicator for teachers and artists; Wubbenhorst (1994) reported that NF function served as that of the proto-typical music educator and performer. An explanation for our results might be that career choices are well in place at the point of entry into college; it is also possible that the choice became more obvious as the students matriculated, thereby incurring influences by professors and

their courses as well as through other experiences such as applied lessons and ensemble participation (see Table 2).

Another interpretation might be suggested that is reflective of some of the findings by Wubbenhorst (1994). Results of the current study might suggest, in the absence of significant differences, that not only might there be some common factors between Extraverts and Introverts, but also among educators and performers. Wubbenhorst (1994) reported some similarities among music educators and performers, also noting that they were predominately extraverted. If we consider similarities among musicians rather than differences, it might be that students assimilate similar behavior

Table 2
Comparison of the Functions of MBTI Type

Function	Undergraduates	Faculty
ST	25.8% ($n = 24$)	15.8% ($n = 3$)
SF	11.8% ($n = 11$)	10.5% ($n = 2$)
NF	38.7% ($n = 36$)	52.6% ($n = 10$)
NT	23.7% ($n = 22$)	21.1% ($n = 4$)
TOTAL	100% $N = 93$	100% $N = 19$

since they "behave" as performers in ensemble and lesson environments, but may also act as teachers within other venues such as student-directed groups, field experiences, and in providing private lessons to youth in the community.

We may surmise that the identification of personality characteristics may be important information for both the prospective and the practicing music educator to enhance self-understanding and improved understanding of others. Myers and McCaulley (1985) provided information on each profile, characterizing a variety of strengths as well as areas that may need additional attention. Recognition of one's strengths may serve to provide self-confidence and validation for the music teacher. An awareness of those areas that could conceivably

be noted as weaknesses could also aid the music educator in shoring gaps so that effective planning, teaching, and communication can occur in the classroom. Schmidt (1989) suggested that the awareness of personality factors may assist teachers in identifying both personal tendencies and those of others and contribute to "greater flexibility in teaching and increased sensitivity to differing teaching (and learning) styles" (p. 269). This information is seemingly quite useful to both the learners and the teachers, for it would intimate that greater awareness might lead to better communication between the learner and teacher, ultimately affecting efficacy of both learning and teaching. (see Myers et al., 2003, p. 256 for a list of learning characteristics related to personality type). It is suggested that the music educator, regardless of level of experience, become armed with knowledge and skills in addition to attention to personal qualities to better minimize personal deficiencies that could profoundly affect efficacy in teaching. One's concerted efforts to balance the deficiencies against the adequate qualities may also serve to prolong professional longevity.

We might suggest that perhaps our sample was too small to determine if similarities or differences existed. Certainly, we have offered a variety of plausible explanations and recognize that further replications of this study would more substantively contribute to the knowledge about personality factors and their influences on the many preferences of the musician. There are many areas of investigation possible regarding personality differences among musicians, among musicians' occupations, and, more discretely, among success in performance and educational venues. This study provides a brief discussion of personality differences that should serve as an impetus for future studies and stimulate further research regarding those differences with respect to career choice, career success, and career longevity.

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Block Scheduling and Middle/High School Music Performance Ensembles in the State of Missouri: An Update of Current Practice

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The purpose of this descriptive study was to research the scheduling practices of Missouri schools and their effects on high school, middle school, and junior high school music performance programs. Participants were 38 high school and middle school band and choir directors from diverse school districts in Missouri. Each teacher responded to a survey asking the following: (a) Does the school utilize block scheduling? (b) If so, which type: 4x4, A/B, split, or other? (c) What is the school size? (d) Is the school a high school, junior high school, or middle school? (e) Is the district urban, suburban, or rural? (f) How many hours per week are allowed for rehearsal? (g) Do students move between classes by homeroom? Data from the above questions were studied using bivariate analysis. Results indicated a positive correlation between whether or not a school uses block scheduling and if a school's location was urban, suburban, or rural. A positive correlation was also indicated between school size and the amount of time the school's performance ensembles were able to rehearse. Along with the survey questions, participants were provided an area to comment on how their school schedules affected their programs. These comments provided insight into how block scheduling affects music performance programs.

Block scheduling has become a core criterion of educational reform, spurred by a need for change as a reaction to the "A Nation at Risk" report in the early 1980s (National Commission on Excellence in Education, 1983). Block sche-

duling is not such a new concept in the United States. Educators were courting the idea in the 1940s (Huyvaert, 1998). The question of time for science as well as other academic courses during the school day was concern for educators like J. P. Garber as early as 1911:

> "...the present amount of time in the so-called academic subjects is inadequate...instruction in industrial subjects and in applied science is costly and there is not enough money for what is already being done...increased time per day and per year would also remove any necessity for reducing the academic or cultural elements." (Garber, 1911, in Huyvaert, 1998, p. 6)

The philosophical inspiration for the block schedule surge in the mid-1980s was a book by Theodore Sizer entitled *Horace's Compromise*. This work began a push for educational reform beginning with the structure of the school schedule and the idea of empowering teachers by giving them more freedom in teaching methods, as well as more time for planning:

> "A flexible structure implies a simple structure. A school day segmented into seven or eight time units, each with its own set of imperatives, is almost impossible to bend...such a fractionated and specialized set of subjects distorts knowledge for young minds; a simpler, more cogent organization of subject matter is wise." (Sizer, 1984, pp. 216-217)

After Sizer, other educators began to see the need for changes in school scheduling as an avenue of educational reform. A superintendent in Massachusetts, Joseph M. Carroll, devised a system known as the *Copernican Plan*, a "fundamental change... in schedule" (Carroll, 1990, p. 358). The significance of the Copernican change is that it would allow "teachers to concentrate on the learning of individual students, which is the key to better instruction and improved

student performance" (Carroll, 1990, p. 358). This is in contrast to what educators began to term the "Carnegie schedule" – seven or eight periods per each day, with each student attending all his/her classes every day for the entire year. The traditional or Carnegie schedule was seen by Carroll and others as having an "adverse impact on students....this is an impersonal, procrustean structure that prevents the teacher from working closely with each student" (Carroll, 1994, p.106).

Block schedules are not standardized. There are many forms (Miles & Blocher, 1996). The two most popular are the semester (4x4) and the rotation (A/B) forms. The 4x4 is a schedule where the same four classes are held each day. The objective is to complete year-long courses in one semester (Barnes, 2000; Carroll, 1990; Freeman & Maruyama, 1995. See Appendix A, Figure 1.) The A/B or alternating schedule is like an eight period day, cut in half. For example, students attend periods 1, 3, 5, and 7 on Monday; periods 2, 4, 6 and 8 on Tuesday, etc. (Freeman & Maruyama, 1995; Patterson, 1997; Barnes, 2000. See Appendix A, Figure 2.)

Those who favor alternative scheduling look to it as the answer for rebuilding our educational system. According to these proponents, block scheduling: (a) enables teachers to make better use of individualized instruction (Carroll, 1990); (b) facilitates variety in the use of instructional approaches (Canady & Rettig, 1993); (c) reduces discipline problems (Canady & Rettig, 1993); (d) increases instructional time (Canady & Rettig, 1993); (e) allows "more opportunities for using varied and interactive teaching methods" (Irmsher, 1996); and (f)is a beneficial strategy for improving student achievement, especially in urban areas. (Peters, 2001).

Block scheduling has been found to be very useful to some music programs. Ronald Demkee, Director of Bands at Freedom High School in Bethlehem, PA, published his findings in the middle of Freedom's second year of block scheduling. He writes:

As a result of Block Scheduling:

1. We have found the 85-minute rehearsal period to be a more efficient and productive use of instructional time than the traditional 40 minute class time.

2. We are able to cover at least as much music as we did under the traditional eight period day.

3. We have experienced no decline in enrollment in the band, orchestra, or choral programs.

4. We co-operatively share music students across the instrumental and choral program.

5. We utilize a rotating pull out schedule for instrumental music lessons and sectional rehearsals.

6. Most students, faculty and administrators [consider block scheduling] as having made our school better ... i.e., improved student attendance, more students on the honor roll, fewer student failures, and fewer discipline referrals view the new delivery system. Based on personal experience, I would strongly urge the band and/or orchestra director faced with the prospect of Block Scheduling to get involved in a pro-active capacity with your steering committee, especially as it pertains to scheduling and course offerings. (Demkee, 1997)

According to those who oppose block scheduling, the Copernican format has yet to prove itself in terms of student achievement (Benham & Benham, 1996; Hackmann, 2004). Christina Hans, a middle school orchestra teacher from Chesapeake, VA, says, "Many schools again are jumping on a block scheduling bandwagon because of the convenience it allows students, teachers, and administrators. It gives a positive appearance of academic performance on paper. However, there is no conclusive research that shows any improvement in student achievement" (Hans, 2002).

Donald G. Hackmann, in the May 2004 issue of the *Phi Delta Kappan*, writes: "Block scheduling has become established practice in high schools, but many educators are unable to explain why it is superior to traditional daily-period formats and what results it is intended to produce" (Hackmann, 2004, p.698).

The prototype schedule formats created in the conception of the Copernican Plan are an area of concern to some music educators. In his follow-up book to *Horace's Compromise*, *Horace's School*, Theodore Sizer gives a suggestion of his idea of the block schedule, which leaves musical performance groups to fend for time either before or after school (in blocks called "Band, choir, other activities," Sizer, 1992).

Joseph M. Carroll's *The Copernican Plan* suggests that a time block be reserved for "Seminar/Music/Physical Education," but not for music performance rehearsal (Carroll, 1990). Canady and Rettig (1993) suggest splitting time between band and lunch. Other works in the educational world that praise block scheduling usually say very little if at all about the place musical performance groups have in the new plan.

Educators that have abandoned the block scheduling concept and return to 6-8 period per day schedules are seen by block scheduling advocates as abandoning "strongly-held beliefs regarding the needs of young adolescents" (Rettig, 2004, p.1).

Independent studies by both instrumental and vocal directors have been conducted as to how block scheduling affects their programs. The most thorough study on the role block scheduling plays in music performance programs is the landmark work *Block Scheduling: Implications for Music Education* by Miles and Blocher (1996). Their research indicated that there were no set block scheduling formats that were best suited for music education:

> "We have found some teachers who love block scheduling, some who hate block scheduling, some who are unsure about block scheduling, and some whose feelings about

> block scheduling change almost daily. We have found no 'typical' or 'model' high school schedule in any of the states [Kentucky, Indiana, Wisconsin, Michigan] that we have studied" (Miles & Blocher, 1996, p. 191).

The status of the data compiled in the Miles and Blocher study was due to block scheduling being in such an infant stage in educational reform. Indeed, comments collected by Miles and Blocher from music educators in these four states are mixed. It is impossible to pinpoint which format works for music performance groups and which does not. The main concerns of the participants surveyed were (1) student enrollment and (2) scheduling conflicts with other classes. Follow-up research by Miles and Blocher (2002) revealed the following: (a) concern for student burn out (b) concern that music is being considered extracurricular, (c) increased music teacher work load, and (d) increased music teacher job dissatisfaction.

One item of interest in the comments collected in Miles and Blocher's initial study indicated that music teachers who have good professional rapport and open communication with their administration seem to have success with their groups within a block format. This is in agreement with Demkee's findings at Freedom High School (Demkee, 1997). How administration views the importance of participation in performance arts classes as part of students' overall education between the four states studied resulted in averages of 58% of administration thinking it is important, versus 42% thinking it is not important. Kevin Meidl, Music Director at Appleton West High School in Appleton, WI, conducted research via a national survey. Among Meidl's findings, his results indicated that (a) 69% of those music programs surveyed saw a decrease in enrollment in their choir, band or orchestra after a move to block scheduling; (b) 66% found that the decrease was directly attributed to scheduling conflicts; (c) 65% of the teachers felt that students who drop a performance class because of scheduling conflicts did so because they believed music was not as important as other high school classes

needed for college; (d) 81% of those surveyed believed that students rejoining music classes after a semester or year's absence were significantly behind other students in skill development and slow to regain their original proficiency,(e) 65% of those surveyed found that the quality of their performance groups had decreased following a movement to block scheduling; and (e) 68% of the music teachers surveyed believed that block scheduling had been detrimental to their performance based music classes (Meidl, 1997). Block scheduling has also been a factor in job stress for music directors, constantly having to be advocates for their ensembles by lobbying against it (Scheib, 2003).

Studies indicate that the strict 4x4 block (or full block) type of schedule to be especially detrimental to music groups in high schools and is responsible for up to 77% of reduction in music class enrollment (Barnes, 2000; Miles & Blocher, 1996; Patterson, 1997). With the 4X4, the director teaches "fewer courses so students will lose these options unless the school hires additional staff" (Benham & Benham, 1996, p. 30). The A/B rotation schedule seems the better of the two formats for performance ensembles, yet the A/B must also be modified to fit rehearsal needs (Barnes, 2000; Benham & Benham, 1996; Miles & Blocher, 1996; Patterson, 1997).

A 1997 National Association of Secondary School Principals Bulletin study of the results of block scheduling revealed some testimony as to what effect the new scheduling had on music performance groups: "We hear more concerns expressed by teachers and parents about performing arts (especially band and orchestra) than about almost any other area. We concur with band, orchestra, and choral directors that limiting instruction in these areas...is problematic" (Shortt & Thayer, 1997, p. 7).

Proponents of block scheduling seem to be aware of the difficulties that the new plan has brought to "non-core" subjects like music. Michael Rettig answers his critics: "Teachers and advocates of foreign language, the arts, physical education, and other non-core subjects may argue that I have denigrated the value and importance of their

disciplines. The question is not of value, but of balance" (Rettig, 2004, p. 1).

One great concern for music directors (especially under the 4x4 system) is whether or not certain groups will have to be cut, as music teachers will only have 3 courses available per day (Benham & Benham, 1996). Another concern, as seen in the Meidl study, is that of students maintaining proficiency on their instrument, after being away from band for a semester. J. Allen Queen referred Rettig and Robert Canady in his Kappan article "Block Scheduling Revisited":

> In 1996 Michael Rettig and Robert Canady stated that teachers of performing arts programs, particularly band instructors, feared that limiting instruction to one semester could hurt the quality of performance. However, many band teachers noted improved quality when students with serious musical interests signed up in the program for the entire year. These teachers reported increased student participation in music as additional elective opportunities became available. (Queen, 2000, p. 217)

The purpose of this study was to analyze the scheduling practices of Missouri schools and their effects on high school, middle school, and junior high school music performance programs. Demographics, size, and student movement style were also taken into account. The research questions for this study were: (a) Do demographics or size of student population affect the amount of rehearsal time in a music performance program? (b) Do schools with block scheduling have more or less time than those without? and (c) Do music educators in Missouri schools feel positive or negative about block scheduling?

Method

Data were collected via a survey designed during the summer of 2004. Attempts to obtain participants were by sending requests for music staff e-mails to each school district

in the state of Missouri. Participant contacts were collected from principals'/superintendents' responses. The survey was then either e-mailed or sent regular mail to 155 potential participants. Thirty-eight surveys were returned (see Appendix B).

The survey began with an introduction explaining to the participant some of the types of block scheduling now popular. Along with the 4x4 and the A/B alternating schedules, two other options were included: a split block option (where the middle block of the day is divided between two or more classes), and an option of modification to any of the other forms of scheduling.

Questions on the survey were designed in order to find out seven different kinds of information about the scheduling practices in the participant's school; (a)if the school had block scheduling; (b)the type of schedule the school utilized; (c) the size of the school; (d) the population/age range of the school (high school, junior high, or middle school) – this question differentiated between middle and junior high schools due to philosophical and other differences in the two institutions; (e)the demographics/location of the school (urban, suburban or rural); (f)hours per week available for ensemble rehearsal; and (g)what system of student movement was used in each of the schools where block scheduling was implemented. Do students move from place to place on their own, or do they travel together between classes with their assigned homeroom? This last protocol is becoming popular with block schedule middle schools in urban areas. At the bottom of each survey, space was provided for directors to comment on their rehearsal schedules (see Appendix C).

Results

Since the survey was not sent out until June, many teachers were on vacation. This greatly affected the number of responses. A total of 38 middle and high school music teachers from around the state responded to the survey.

Of the 38 schools surveyed, 31.6% did not have block scheduling; 7.9% employed a full block (4x4) format, 39.5% used the A/B format, 2.6% a split block format, and 18.4% used either a modification of the 4x4 or the A/B. Of the 38 schools surveyed, 28.9% served under 399 students, 28.9% served between 400 and 799 students, and 42.1% served over 800 students. Of the schools surveyed, 65.8% were high schools and the other 34.2% were middle schools. No junior high schools participated in the survey. Results of the demographic question (# 5) indicated that 15.8% of the schools surveyed were in urban areas, 55.3% were in suburban areas, and 28.9% were rural schools. Concerning rehearsal time, 13.2% of participants reported having no more than 2 hours per week to rehearse. 42.1% rehearsed between 3 and 4 hours a week, 42.1% rehearsed 5 or more hours a week, and 2.6% (one school) had varying rehearsal times depending on the school's modified rotation block schedule, as well as marching band season. Only 7.9% of the schools moved students from class to class by homeroom. These schools were urban middle schools.

The first question in this study was "Do demographics or size of student population affect the amount of rehearsal time in a music performance program?" Bivariate analysis of the survey questions indicated a positive correlation between the use of block scheduling and the demographics of a school (urban, suburban, or rural) ($r = .3817$, $p < .05$) as well as between school size and the amount of time the school's performance ensembles were able to rehearse ($r = .3563$, $p < .05$).

The second question in this study was, "Do schools with block scheduling have more or less time than those without?" The results of the survey did not yield a high correlation between those schools with block scheduling and those schools who were not ($r = .0689$, $p < .05$). In addition, the relationship between type of block schedule used and rehearsal time yielded a negative correlation ($r = -.352$, $p < .05$).

Discussion

The purpose of this descriptive study was to research the scheduling practices of Missouri schools and their effects on high school, middle school, and junior high school music performance programs. One-hundred-fifty-five surveys were sent to music teachers across the state; 38 responses were returned. The survey consisted of seven questions, along with a section for comments by the teacher.

Of the 38 responses to the survey, 13 teachers provided comments on how block scheduling affects their performance class programs (see Appendix C). Eleven of the comments were from suburban schools; one was urban, and one was rural. Three of the teachers provided positive feedback on block scheduling. In one of these schools, time is provided for rehearsal during school hours for four choirs, an orchestra, and a jazz band. Another positive comment was from a teacher who was allowed time (62 minutes) every day for Concert choir rehearsal. An urban school music teacher reported that is was possible to have rehearsal due to persuading "the administrators to let me do the scheduling." According to these comments, administrative support is a main factor of success for these programs.

One teacher, from a rural school, reported both positive feedback ([the schedule] "kept more students in program without scheduling conflicts") and negative feedback ("2/3 of my students only play every other day"). This latter concern is of most importance to the other nine teachers, all from suburban schools. Consistency in rehearsal is a result indicated by these comments. One teacher stated, "Nothing beats less time, every day as opposed to a big block of time a couple of times a week." Less time, every day rehearsal is especially important when teaching "less motivated students." Another concern of rehearsing within a block format is overworking students. Two teachers who work on 90-minute block schedules commented that the classes are too long – "for even the most talented and dedicated student" and "ninety-minute blocks are not great for vocalists."

As the response rate was very low (38 respondents from 155 surveys sent), the outcomes of the survey questions should not be viewed as amenable to generalization, but rather as provisional.

The correlation between school size and rehearsal time was an unexpected outcome of the study. Results indicated that the larger the student population, the more time was available for rehearsal. Block scheduling may be more successful in larger suburban areas due to a larger amount of staff, giving students more choices in related arts classes. This, in turn, allows band and choir students to continue in programs.

Six of the 11 rural schools surveyed did not use block scheduling. Of the 21 suburban schools surveyed, only five did not use block scheduling. All five urban schools surveyed used block scheduling. The indication is that block scheduling has a higher degree of acceptance in school districts located in larger population areas.

The literature, along with comments provided from the surveys (see Appendix C), indicate that the support of administration and good rapport between the music departments and the rest of a school's staff are two crucial elements in maintaining a successful music program (Demkee, 1997; Miles & Blocher, 1996). The importance of music to a school and its community is also critical in the maintenance of healthy bands and choirs.

> "Many parents, teachers, and even administrators do not realize that the music education curriculum is (or should be) made up of much more than performances by a marching band and swing choir. When music classes are viewed as *activities* (comparable to school sports and clubs), their educational value is undermined." (Woody, 1998, p.45)

According to educational literature, early proponents of block scheduling viewed music as a noncore or extracurricular subject t when outlining their plans (Canady & Rettig, 1993;

Carroll, 1990; Sizer, 1992). More research is needed to determine how the public's interest in music affects the success of music education programs.

Aside from a few articles in the *Instrumentalist*, the *Music Educators Journal*, and articles on MENC's website, research on how block scheduling impacts music performance programs is difficult to find within the ranks of music education's professional journals. The *Journal of Research in Music Education* has no articles directly dealing with the subject.

Teachers who have successful programs within a block schedule format need to publish their schedules and corresponding data in professional journals that serve not only the music education world, but the rest of the teaching profession as well. This knowledge will help music teachers (especially first year band and choir directors, along with those whose schools are converting to a block format) adapt to the changes in their teaching environments. Such research should be brought to the attention of non-music educators and administrators, to help them understand the needs of their music departments. In middle schools, for example, beginning bands, orchestras, and choirs need as much time during the school day for homogeneous sectional practice as possible. Is there a block scheduling format that can ensure this valuable time? How could such a schedule be developed?

Along with research in the above mentioned areas, block scheduling issues affecting music educators should continue to be addressed at both state and national conferences through seminars as well as round table discussions. The schedules, strategies, and ideas that instrumental and choral directors share would benefit the entire music education profession.

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APPENDIX A

The 4X4 (Full Block)
(Monday-Friday)

Period	Time	Minutes
1	7:30-8:55	85
PASS	8:55-9:05	10
2	9:05-10:30	85
PASS	10:30-10:40	10
3/LUNCH	10:40-12:35	115
PASS	12:35-12:45	10
4	12:45-2:10	85

FIGURE 1.
Samples Of 4x4 (Full Block Schedule).

The A/B Rotating Schedule

Time	Monday	Tuesday	Wednesday	Thursday	Friday
7:35-9:00	Class 1	Class 2	Class 1	Class 2	Class 1
9:09-10:34	Class 3	Class 4	Class 3	Class 4	Class 3
10:43-12:38	Cl. 5/Lunch	Cl. 6/Lunch	Cl. 5/Lunch	Cl. 6/Lunch	Cl. 5/Lunch
12:45-2:10	Class 7	Class 8	Class 7	Class 8	Class 7

RIGURE 2.
Sample of A/B rotating day schedule.

APPENDIX B
SURVEY OF MUSIC PROGRAM SCHEDULING

Different forms vary block or alternative scheduling in today's high/middle schools. Some popular forms are the Full Block, sometimes

called the 4X4 (4 block day, 4 classes per semester); the A/B (8 periods, with classes 1,3,5 & 7 alternating days with classes 2,4,6 & 8); and the split block (middle block of the day divided between two or more classes). Some schools have modified versions of these three.

Please complete the survey below based on your school's characteristics.

1. Does your school operate on a type of block scheduling? Yes [] No []

2. If your answer to #1 was yes, which type best characterizes your type of scheduling?
   a. Full Block/4x4
   b. A/B
   c. Split Block
   d. Modified/Other

3. What is your school size?
   a. Small (0 – 399)
   b. Medium (400 – 799)
   c. Large (800+)

4. Is your school a:
   a. high school,
   b. junior high school
   c. middle school

5. Is your district:
   a. Urban
   b. Suburban
   c. Rural

6. How many hours per week do you rehearse your ensembles?
   a. 1-2
   b. 3-4
   c. 5+

7. Do your students move between classes by homeroom?
   Yes [] No []

Comments:

Thank you for completing this survey.

APPENDIX C

Comments from Music Directors

- I have taught in block in two different districts and in both middle school and high school. It is not effective for a music program. But that is probably the subject of another survey.

- Our classes are 87 minutes long. Periods 1-4 and periods 5-8. I do not like it because, obviously, you lose the every day consistency of rehearsal. We could not do what we do without extra rehearsals year round, especially during marching season. It also limits students to their choices of electives, especially fine arts classes, i.e. being in band and choir or band and jazz band, etc.

- We (the music dept.) has fought off block scheduling twice in the 13 years I've been in the district. Research (music research-not to be confused with educational research) has shown block scheduling has a very adverse impact on retention, recruitment, and quality of music groups. There are some great articles in the Instrumentalist from 8 or 10 years ago. Music educators who are in favor of block are generally the younger ones who have done most of their careers with block. Nothing beats less time, every day as opposed to a big block of time a couple of times a week.

- We have 90 minute classes - too long for even the most talented and dedicated student. Yet not a sufficient amount of time, given the A-B schedule for maintaining a consistent orchestral learning environment.

- We have been on the block schedule since the 80's. Positive impact: kept more students in program w/o scheduling conflicts. Negative impact: 2/3 of my students only play every other day in my class (other 1/3 of students enrolled in Jazz band on off day). Overall feeling about 8 block: I hate it, but it is unfortunately a necessary evil in small rural schools where teachers are spread out over JH and Senior High. I taught here for 6 years before we went to 8 block, so I have experience w/both ways.

- After 6 years of being frustrated with the scheduling here, I, along with the rest of the humanities team, persuaded the administrators to let me do the scheduling. So, for two years, I've gotten what I want. The students do follow their core classes by homeroom (there is even an 8th grade home room made up of just band students to simplify pulling them out for special rehearsals). However, for one period a day, the students have humanities. Four days a week in whatever class and one day of PE. In sixth grade, they rotate through art, comp., IT, and FACS by quarter, by home room, except for band and choir students, who stay in those classes all year. In 7th and 8th grade, we allow them to choose by semester (again, band and choir stay, although choir students can be

added and dropped). [The band director] rarely drops students, since she only has beginning band in 6th grade, she cannot replace them.

- I spent the first 10 years of my career teaching in two different types of block scheduling. I was able to do it but there are definite drawbacks to student progress. Teaching in a traditional schedule has shown me how much faster students progress with daily work.

- Having a successful band program with block scheduling depends fully on the administration's willingness to arrange a rehearsal time or, if you aren't allowed a full block, to take kids out of other classes. Of course this is hardly feasible with today's emphasis on test scores. My school was never really able to do it. For the 2 years I was at this school, I was essentially a general music teacher who had a few instrumental students, but at most we had a small ensemble, never a full "band."

- I've taught in a traditional 7 period day before and I wish my district would go to that type of scheduling. I find that my higher achieving and self-motivated students are successful regardless of what type of schedule there is. My concern is with the less motivated students who need daily attention and motivation from the teacher. The students who don't regularly practice need the daily reinforcement of fundamental technique for proper development.

- We have the A/B type of scheduling with a 25 minute seminar at the end of each day (a sort of home room). My chamber choir kids are the only kids in my seminar, so I am able to monitor their grades and of course squeeze in extra rehearsals, especially for solos and small ensembles. Still, I would prefer a non-block schedule where I would see the choirs every day for a shorter period of time. Ninety-minute blocks are not great for vocalists.

- Block Scheduling is difficult to work with.

- I am able to achieve many hours of rehearsal time with the groups here. I conduct four choirs (includes one large choir split into two sections), a fine orchestra, and a jazz band. The instrumental program meets before and after school with regular after school rehearsals for the vocal ensembles after school as well (in addition to their rehearsals within the school day- mostly in the weeks before the concert). The parents, students, and admin are extremely supportive of not only music, but all of the arts. I hope this helps.

- We have 5th hour class everyday in our block scheduling. My 5th hour is Concert Choir. That class meets 1hr 2min per day. I had to practically beg my administrator for this class time, but it was worth it. I hope this is helpful!

Missouri Journal of Research in Music Education, No. 42, 2005, 58-76

Availability and Use of Recorded Music in Selected Prekindergarten Classrooms

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This study was designed to examine recorded music collections in a variety of prekindergarten classrooms, and investigate the ways recordings are used in those classrooms. Collections of tapes, compact discs, and records found in 13 classrooms from 8 diverse prekindergarten programs were cataloged, and the classroom head teachers (N = 13) were interviewed. A total of 1293 recordings was found, representing 24 different styles or genres to varying degrees, but with a preponderance of children's and popular music. In assessing the collections, it is evident that there is little repertoire in common across classrooms. The collections were consistent with the teachers' expressed preferences, and with what they believe the children like. Recorded music was used for many different purposes throughout the day, however little time was devoted to developing perceptive, attentive, sustained music listening skills. It was concluded that music educators should work to find ways to assist prekindergarten teachers with listening strategies, materials, and repertoire, in an effort to provide a rich music listening environment in prekindergarten classrooms.

The ability to listen to music with attention and understanding, and the disposition to appreciate a variety of genres of music, are musical behaviors that can and should begin to be developed in early childhood. By the time children enter kindergarten, the National Standards for Music Education call for them to be able to identify a wide variety of sound sources, describe characteristics of music, demonstrate

responsiveness to a variety of musical elements, and understand roles music plays in daily life (MENC, 1994b, p. 12). To help master these standards, children must be provided with opportunities to acquire information from experiences with recorded music. Recordings allow children to hear music they and their teachers cannot produce themselves, and expose them to sounds of instruments and styles of music they may otherwise never encounter.

Recorded music typically is incorporated into the prekindergarten classroom in a number of ways. Directed music listening experiences may be included as part of teacher-led group sessions. Children may have the opportunity to listen to music individually or in small groups at a listening center, perhaps while manipulating play objects, props, or accompanying with classroom instruments. Recordings may be used to accompany dramatic play, to stimulate movement and dance activities, and to create a restful environment for nap times.

Several questions arise when considering the role of recorded music in the prekindergarten setting (prekindergarten is used here generically to refer to any group classroom setting enrolling children between the ages of two and five, including preschool, daycare, nursery school, etc.). The Opportunity-to-Learn Standards for Prekindergarten and Kindergarten (MENC, 1994a) call for every teacher to have "convenient access to sound recordings representing a wide variety of music styles and cultures" (p. 1), as well as a high-quality sound reproduction system and audio equipment that can be operated by children. Data do not yet exist to document the extent to which these standards are being met in prekindergarten classrooms. One purpose of the present study was to examine the recorded music collections in a variety of prekindergarten classrooms, to find out what music is available for teachers' and children's use.

Lists of recommended recordings appropriate for young children appear in methods books, journal articles, and trade books designed for parents, teachers, and child care providers (some of the more prominent include Burton, Hughes &

Cavalier, 1997; Campbell & Scott-Kassner, 1995; Habermeyer, 1999; Jalongo, 1996; Jarnow, 1991; Kline, 1999; Ortiz, 1999). While some recordings appear on these lists consistently, most notably *The Carnival of the Animals, Peter and the Wolf*, the *Nutcracker Suite*, and recordings by children's musicians such as Raffi and Hap Palmer, we were interested in determining whether there was any common body of music repertoire present across diverse classrooms.

The research that has been completed with young children regarding listening to recorded music primarily has been in two areas, preference and sustained attention. For a number of years, researchers have been interested in what music children prefer, and factors influencing music preferences. Young children have been found to "respond positively to virtually any kind of music they encounter," and do not appear to make preference decisions based on characteristics or categories of music in the same way that older children do (Sims & Cassidy, 1997, p. 235). Because children are so receptive to various styles of music, the conventional wisdom in early childhood music methodology is to encourage teachers to expose children to a wide variety of music while they will be most accepting of it. One purpose of this study was to investigate the types of music available for children to listen to in prekindergarten classrooms. As was concluded in a research-based publication edited by Merrion (1989), "selecting suitable music to play for children to develop appreciative listening skills is important" (p. 6).

The strategies used by teachers for presenting music listening experiences may have an effect on young children's preference responses. Greer, Dorow, & Hanser (1973) found that higher teacher approval resulted in stronger music preference responses, while Callihan & Cummings (1985, p. 81) concluded that "teacher modeling of enthusiasm and involvement was a key factor in children's responsiveness" to listening activities. Similarly, it was concluded by Peery and Peery (1986) that "a positive classroom experience emphasizing social reinforcement and modeling factors can

affect musical preference" in combination with exposure and repetition (p. 30).

More recently, Carper (2000) found that using a variety of instructional activities to acquaint preschool children with music of an unfamiliar style resulted in significant preference gains. In Carper's study, repeated exposure to the music was embedded within the activity sessions, and this may have contributed to the results. Schuckert and McDonald (1968) found that repeated exposure to music during play sessions appeared to result in preference shifts towards targeted music, although numbers were small and the results not statistically significant. The current study was designed to provide insights into the recorded music prekindergarten teachers prefer to use with children, how they choose to use it, and their assessment of how the children respond to the music and activities.

The ability of young children to sustain attention during music listening has generally been assumed to be short – in the range of 1.5 to 2 minutes for prekindergarten children, for example (Merrion, 1989; Palmer & Sims, 1993; Sims, 1985, 1993). Mack (1995) found that when children listened to recorded music in a group setting, attention began to decline noticeably after about 2.5 to 3 minutes. When provided the opportunity to listen individually, however, many children will choose to listen to recorded music for much longer periods of time, with listening times varying greatly among children (Sims, 2001, 2005; Sims & Cassidy, 1997; Sims, Cecconi-Roberts & Keast, 2004, July; Sims & Nolker, 2002). Based on a review of a series of studies, Sims (2000, July) concluded that music educators must accommodate children with these different listening patterns. She suggested that this might be accomplished by providing self-directed opportunities for children to listen, "by making music listening available at a center in the classroom, and/or by sending music home for out-of-class listening" (p. 10). One question addressed in the current research was whether music listening experiences were being provided in an environment conducive to developing attentive listening skills.

Method

There were two components to this study, cataloging recordings available in prekindergarten classrooms, and interviewing head teachers from each of the classrooms. The schools or centers were selected to represent a diversity of full-day prekindergarten programs, including a wide range of socioeconomic levels of the children served and a variety of philosophical approaches to early childhood education. The directors of eight programs agreed to participate, which resulted in a total of 12 prekindergarten classrooms and 13 teachers participating. The socioeconomic levels represented ranged from Head Start and United Way supported programs to the most expensive tuition-based preschool in the small Midwestern City where this study took place. According to printed materials provided by the schools, the curricular approaches of the programs were based on child-centered, Christian, constructivist, Highscope, or Montessori philosophies. The director of one school had a bachelor's degree in music, one school employed a music teacher on the staff, and two schools were served by itinerant music teachers who provided weekly group music experiences for the children. One teacher performed regularly as a member of a bluegrass band.

Cataloging Recordings

For each classroom studied, every record, cassette tape, or compact disc that was available for the classroom teacher to use was entered into an Excel spreadsheet. In some classrooms the music was stored in the room itself, in some schools in a storage area near the classroom, and in some cases the music was stored in a central area for use by multiple classrooms. In one school there were separate collections of music in the nap room and the regular classrooms.

Information compiled for each recording included title and performer, musical style or genre, publication information, performing medium, original or copy, and whether it was

owned by the school or a teacher's personal recording. Most of the data were obtained directly from the print material accompanying the recordings. In a number of cases where cassettes were copies, however, much of this information was not available.

Determining style or genre categories was the most challenging aspect of the cataloging process. If this was not indicated on the recording, we placed items in categories based on our knowledge of the recording or performer, and in some cases after reading the description of the recording on a commercial website such as Amazon.com and bmgmusic.com. There was still a small percentage we could not categorize. It was beyond the scope of the study to listen to recordings to determine this, because in most cases that would have been disruptive to the classroom in question. We started with 10 predetermined categories, which we expanded as necessary to accommodate the recordings we found. This resulted in a final list of 19 specific style/genre categories, including an "adult popular music" category comprising country, easy listening, new age, pop, and rap styles, and a not-enough-information category labeled "other/unknown" (see Table 1 for complete list). If a recording crossed categories, for example world children's music, it was counted only once, and placed in the least common category (in this example, world music).

Teacher Interviews

After cataloging was completed, we returned to each preschool to interview one or more head teachers from each participating classroom. We were interested in their attitudes toward, and use of, recorded music with the children. Interviews were scheduled at a convenient time for the teachers, often while the children were napping, although for two classrooms, the teachers preferred to complete the interviews via e-mail. These were semi-structured interviews, based on a list of questions that served as prompts, but not limited to them. Interviews, which lasted approximately 15 to

20 minutes, were tape recorded and later transcribed for content summary and analysis. As we transcribed the interviews, we examined their contents to determine emerging and redundant themes and categories of information.

Table 1
Total Number, Percent, and Rank of Recordings, With and Without School L Included, by Category

	Without School L			With School L		
	Total Recordings	%	Rank	Total Recordings	%	Rank
CATEGORY						
Children's	370	44.8%	1	387	29.9%	1
Adult Popular (Country, Easy Listening, New Age, Pop, Rap)	141	17.1%	2	369	28.5%	2
Holiday	63	7.6%	3	123	9.5%	3
Classical	58	7.0%	4	70	5.4%	6
Disney	57	6.9%	5	73	5.6%	5
World	32	3.9%	6	33	2.6%	8
Sound Tracks	25	3.0%	7	95	7.3%	4
Sacred	20	2.4%	8	20	1.5%	10
Other/Unknown	15	1.8%	9.5	55	4.3%	7
Jazz	15	1.8%	9.5	23	1.8%	9
Lullaby	10	1.2%	11	16	1.2%	11
Dance	8	1.0%	12	13	1.0%	12
Sound Effects	6	0.7%	13	9	0.7%	13
Folk	4	0.5%	14	5	0.4%	14
Patriotic	2	0.2%	15	2	0.2%	15
Totals	826			1293		

Teacher Characteristics

The teachers represented a wide variety of educational backgrounds and experience. Two of the participants held bachelor's degrees in early childhood education; one was

pursuing a degree in that field, three held degrees in secondary education, and two others were pursuing degrees in other fields. Three held or were pursuing a master's degree in education or human services. One participant was close to completing a child development associate program, and three did not have college degrees. Several of the teachers were certified in special areas of early childhood education such as Montessori and Creative Curriculum. At the outset of this study, the time spent teaching in their current classrooms ranged from three weeks to 28 years.

The teachers had taken a wide variety of college music courses, including fundamentals, music appreciation, music performance, and ensembles including concert, marching, and jazz bands. Three teachers had taken a music education methods course for elementary and/or early childhood teachers. One of the teachers received a minor in music in college, while four teachers had not taken any college music courses. A number of the teachers reported pre-collegiate music study such as lessons on piano (n=7) and other instruments (n=4), as well as past or current participation in school or church choirs, and performance on folk instruments. Many reported participating in conference workshops and in-service sessions related to prekindergarten music.

Results

The cataloging component of this study was designed to provide data regarding characteristics of recorded music available for use in prekindergarten classrooms. The interviews with the teachers were completed to obtain information about the collections and how the recordings are used in the classroom. Thus, the findings from both of these methods of data collection will be integrated into the report of results below.

Catalogued Recordings

The total number of recordings catalogued was 1293. This does not include multiple copies of the same recordings that were found in some of the classrooms, but does include multiple copies when they resided in different locations in a school building. The total number of different recordings found, counting each title only once no matter how many times it was duplicated in the complete data set, was 1133, a difference of 160. This does not mean that these are all of the recordings used with the children, however. In our database, we noted whether the recordings were school or teacher owned. Over 11% of the recordings found in the classroom were the personal property of the classroom teachers, and most teachers described bringing in their own personal recordings extensively, as needed. Several also mentioned using recordings children and parents bring to share, as well as items borrowed from the public library. It also should be noted that 21% of the total number of recordings catalogued were "homemade" copies of commercial recordings onto cassette tape, and the majority of these appeared to be the property of the schools.

The number of recordings available to each classroom varied considerably (a complete classroom by classroom table is available from the authors upon request). One facility (School L) has a music listening collection that is shared by all the prekindergarten classrooms, as well as by a dance studio that is also operated by that organization, resulting in 467 different recordings. This total is almost three times as many as any other collection. The smallest number found for any classroom was 36, in one of the subsidized centers. The average number of recordings per classroom was 107.75 (s = 117.67). This was greatly affected, however, by the data from School L. Without School L included, the range per classroom becomes 36 to 158, with a mean of 75.09 and a much smaller standard deviation of 33.96.

Table 1 presents the number and total percentages of recordings found for each of the style/genre classifications,

organized by category from highest to lowest number of recordings found. Again, it becomes evident how much the results are skewed by the program affiliated with the dance studio. The numbers of recordings for adult popular music and soundtracks found at this school are considerably higher than the numbers found at all of the other schools combined, and all of the rap music and much of the holiday music was found here.

Although not as dramatic, there were school-specific trends in other categories, as well. School E has a religious mission, which accounted for the all 20 of the sacred music recordings we found. The same school has a music teacher on staff and the recordings for all the classrooms are housed in the music room, probably accounting for what appears to be a relatively large number of children's recordings in that school as well. The collections also reflect the values of the teachers and programs. For example, some teachers mentioned an interest in exposing the children to world music, while others indicated that providing variety for their children is important.

Differences also may be identified in the distribution of recordings by style/genre categories among schools. Three schools' recordings fell into only five to eight different categories, while the remainder ranged from 11 to 19. In many cases, however, only one recording was found representing a particular style/genre. Again, this may reflect the teachers' preferences, since most identified particular children's recordings when asked about their favorites and the favorites of the children. Teachers also reported choosing music they like – thus, one class may have had a collection of new age music, while another may have had several recordings of country music. This is consistent with Price and Yarbrough's (1987) argument that one's choice of recordings is a "concrete indication of preference" (p. 242).

The large number of recordings, the variety of categories accounted for, and our research questions lead us to examine whether any common body of repertoire might be found. One way to determine this was to sort the data by titles and determine which recordings were found in multiple sites. We

found relatively few recordings in common among these 12 programs. There were 45 titles that were found in two sites, accounting for only 3% of the total. Of these pairs, 17 were categorized as children's recordings, 9 were Disney, 7 were popular, 5 holiday, 3 classical, 2 sound tracks, 1 world and 1 other (a recording of the local university marching band.) Fourteen recordings (1%) were found in three sites, including 6 children's, 4 Disney, 4 holiday, and 2 sound tracks. Only 4 recordings were found in each of 4 different classrooms, and 4 recordings in each of 5 classrooms. These recordings are all children's with one Disney recording included (titles and artists are listed in Table 2). One of the artists (Heather Harlan) had performed locally at an event sponsored by an early childhood professional organization. No recordings were found in half or more of the collections catalogued.

Table 2
Most Frequent Performers/Composers

Artist	Total Number	Number of Different Titles
Charlotte Diamond	5	2
Ella Jenkins	5	5
Heather Harlan	5	1
Jack Hartmann	5	5
John Denver	5	4
Enya	6	5
Madonna	6	6
Elvis	7	7
Whitney Houston	8	5
Georgiana Stewart	11	7
Greg & Steve	15	7
Raffi	31	13
Hap Palmer	45	25

Another way to look at commonalties was to examine the performers (often performer/composers) represented in this sample. The number of different titled recordings that appeared by one performer was counted, as was the total number of recordings by any given artist without regard for children's musicians Hap Palmer, with 45 copies duplication. By either count, the most represented were representing 13 different recordings, and Raffi, with 31 recordings representing 13 different titles. See Table 3 for a list of per-

formers for whom five or more copies of recordings were found. This list is very consistent with the music the teachers specified as among their favorites and the favorites of their children.

Table 3
Recordings Found Most Frequently Per Classroom

Number of Classrooms	Title	Artist
4		
	Baby Beluga	Raffi
	Kids' Dance Party	Various Pop Artists
	Little Mermaid	Disney Sound Track
	Wee Sing Silly Songs	Wee Sing
5		
	Getting to Know Myself	Hap Palmer
	I Want More Balloons in My Life	Heather Harlan
	Kids in Motion	Greg & Steve
	Singable Songs for the Very Young	Raffi

Teacher Interviews

One of the primary purposes of the interviews was to find out how the recorded music was used in the classrooms. The most common theme was the use of recordings as a background during other activities. All of the teachers reported that they played music for naptime, with one stating that she played a classical radio station in lieu of recordings. In two programs, music was also played during snack and meal times. Recorded music was used in some classrooms to ease transitions, and in some to either calm or energize the children. Music was often put on during free-play time, and to accompany the dramatic play area. Several teachers indicated that they responded to student requests to put on recordings for dancing or playing along with instruments. One teacher mentioned playing Mozart during work times because it "helps the brain mathematically/spatially."

Recorded music was used for instructional purposes, as well. Teachers reported using recordings during class group and circle times, primarily to help teach songs, to assist with meeting curricular goals such as practicing days of the week or counting, to stimulate and accompany movement and

rhythmic activities, and to correspond with curricular themes. Several teachers used different types of music to enhance a focus on teaching respect for cultural diversity. Teachers generally expressed the desire to expose their children to a variety of styles and genres of music. Only teachers from three of the classrooms that had specific music time set aside in the curriculum, however, reported using recordings to address music listening and appreciation goals, including learning about composers and musicians. Only two of the classrooms regularly provided the opportunity for children to choose to listen to music as an option at a listening center during free choice time, and one had recorded music available daily at a music center, primarily for the children to accompany with classroom instruments.

When asked whether they had sufficient resources to meet their needs, most indicated that they would prefer to have more extensive collections, and explained that this is why they brought in their own tapes and compact discs. We also wanted to know how they made decisions about what new music to purchase, and where they purchase it from most often. Many reported selecting new music based on what they hear presented at conferences and workshops. A common way teachers appear to learn about new music is from recordings parents recommend. Some teachers selected music because it increased the diversity of their collections, or met particular curricular themes or objectives. The teachers purchased recordings primarily from local discount department and electronics stores, at conferences and workshops, at stores that focus on educational playthings or teacher materials, and at local music stores. Several reported shopping via mail-order catalogs from toy companies and religious organizations.

We were interested in what resources would be useful to prekindergarten teachers in selecting recorded music to use with children. A number indicated that it would be helpful to have a good central resource, perhaps a website, where they could find many music examples and activities to incorporate into their classrooms. They would like this to be organized by

curriculum topics. They also would like to be able to listen to the music before investing in it. Workshops were frequently mentioned as valuable in this respect, because the music could be heard firsthand.

Finally, we asked about the sound reproduction equipment available. All except for one had school-owned cassette and compact disc players for the classrooms. The other school was using teacher-owned equipment while in the process of purchasing equipment for the school. Three of the programs still used records and had record players in good working order.

Discussion

This study was based on a small but diverse group of classrooms from one geographical location. While this may limit the generalizability of specific results, in general the results are in line with what we have observed in other parts of the country, and have discussed with other music educators around the U.S. The responses to the interview questions were remarkably consistent, especially considering the wide range of backgrounds of the participating teachers. This high level of redundancy among responses, along with the diversity of the classrooms and teachers, leads us to conclude that this is likely to be a representative group of prekindergarten classrooms. Further research to replicate this study in various locations and compare the results across geographic areas would be informative, however.

In assessing the recording collections found in a diverse group of prekindergarten classrooms, it is evident that there is little repertoire in common. The most frequently found recordings, and thus assumed to be the most popular, are educational children's music (e.g., Hap Palmer and Ella Jenkins), commercial children's music (e.g., Raffi), and music for movement activities (e.g., Greg & Steve and Georgiana Stewart). Recordings by pop music stars, past and present, were also in the lists of most frequently found recording artists. Even when the dance studio music was eliminated,

children's music and popular music together accounted for about 62% of the recordings found. Classical, holiday, and Disney music accounted for about 7% each, and all other styles for much smaller percentages (see Table 1). Even the classical pieces that are among the most highly recommended for use with children were not found in most of these classrooms. Are there some pieces of music to which early childhood music educators believe children should be exposed, or even familiar with, upon entering kindergarten? Music educators might consider creating a recommended music listening repertoire list for prekindergarten children.

The music that these prekindergarten teachers have available in their classrooms is consistent with their expressed preferences, and with what they believe the children like, as well. This increases the likelihood that they are presenting it to the children with enthusiasm and positive affect, characteristics that appear to have a positive effect on children's responses to music (Callihan & Cummings, 1985; Greer, Dorrow, & Hanser, 1973; Peery & Peery, 1986; Sims, 1985). By playing music frequently throughout the day, they also appear to be providing for repeated exposure, which may result in positive student attitudes (Carper, 2000; Schuckert & McDonald, 1968).

The limited variety of styles and genres of recorded music to which children are exposed in most of these classrooms, however, does not represent the diversity of styles called for by the Opportunity-to-Learn standards, nor provide an adequate basis for meeting the National Standards cited earlier. While teachers report bringing in music from their own personal collections and from libraries, whether this results in an adequate listening repertoire is subject to question and a topic for further investigation.

Recorded music is used for many different purposes and at many points throughout the day in these prekindergarten classrooms. This is valuable and important to children's musical growth, as well as growth in many other areas of the curriculum. What appears to be lacking, however, is time devoted to developing perceptive, attentive and sustained

music listening skills. When music is mainly used as background for other activities, or to meet the goals of other content areas, the objectives of the music curriculum are not being met. Many of the prekindergarten teachers may believe that by using music throughout the day they are indeed implementing a music curriculum, but most early childhood music educators would not agree.

Very few children were being provided the opportunity to become engaged individually in music of their choice – to have self-directed listening experiences as recommended based on the results of a number of studies and summarized by Sims (2001). Several teachers commented that while they provided listening centers with books on tape for use by the children in their classroom, they had never thought about making music for listening available there, as well.

What seems clear is that while the prekindergarten teachers value recorded music in their classrooms for a number of reasons, there is much that early childhood music educators need to do to educate them about our goals and methodologies. This is not surprising, given that the majority have received most of their instruction in music education from conference sessions and workshops. Efforts to include music instruction in all early childhood teacher certification and degree programs should be a goal of our professional state and national music education organizations. A campaign to educate parents would also seem valuable, not only so they will provide their children with appropriate experiences and become advocates, but also because teachers reported that parents served as resources by sharing their own recordings.

Music educators should try to find more ways to assist prekindergarten teachers with strategies and materials for meeting music listening goals in prekindergarten. This might be accomplished through in-service training, conferences, and articles in early childhood publications. As mentioned by the teachers, the development of a website with recommended listening resources and activities, including audio samples, would be a valuable undertaking. Publication of resource books, accompanied by recordings, would be of assistance to

busy teachers, especially if marketed through national professional organizations and at workshops and conferences. No teacher mentioned using any print resources for planning music curricula or making purchasing decisions other than catalogs, although several trade books do exist in this area (see review of literature).

Prekindergarten teachers work diligently under often less-than-ideal conditions to provide the best experiences they can for the children in their classrooms. They are a receptive audience for new ideas and materials, eager to learn themselves and share what they learn with their children. Music educators should see it as our responsibility to assist them in their efforts to provide a rich music listening environment in their classrooms. The ultimate goal is that children enter school having had the kinds of experiences that will form the basis for future music learning and music listening.

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A Preliminary Study of the Effectiveness of Two Breath-Management Exercises on Three Aspects of Flutists' Performance: Duration, Breath-Control and Tone Quality

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December 2005
Committee Chairperson: William E. Fredrickson

Dissertation Abstract

This project was designed to investigate the effects of the administration of two breathing exercises on a population of flutists. The subjects acted as their own controls and measurements were taken at each of four visits, spaced three weeks apart. Subjects performed three musical examples and were given the opportunity to practice each example once prior to the trial. Measurements of loudness, duration, tone quality, and peak flow readings of subjects' breathing as well as a health-history were recorded at each visit. The experimental variable was introduced at the end of the second visit and subjects were given diaries to record practice habits and progress with breathing exercises.

The total subject population ($N = 23$) was comprised of a variety of ages and subject playing experiences to facilitate this preliminary study. Initial data analysis allowed for subjects to be grouped into three broad categories of flute playing experience: Beginning, Intermediate and Advanced. There was significant improvement in subjects' ability to sustain the musical examples during the course of measurement, with the Advanced group showing the most improvement. It will be important for future research to examine the effects of breathing interventions on larger subject populations with controls for experience level.

Vocal Agility in the Male Adolescent Changing Voice

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December 2005
Committee Chairperson: Wendy L. Sims

Dissertation Abstract

This study was designed to investigate agility in adolescent changing voice males. Participants (N = 58), 11.5 to 15.9 years old, were from six Midwestern schools. The boys had varied experience in school and/or community choirs.

Participants each were assigned to one of five stages of vocal maturation according to Cooksey's range stages, and to one of the two Cooper cambiata/baritone categories. These assignments were based on the participant's lowest terminal range pitch, and other observed tone quality factors. Each participant was recorded while singing a stepwise song pattern at increasing tempi, with and without lyrics. Judges later listened to the randomized recordings, and assigned agility scores for each participant at each of the six tempi, with and without lyrics.

Agility scores were statistically analyzed with a 3-way ANOVA. Results were that (a) mean agility scores were increasingly higher from Cooksey stage one through stage five, (b) scores were significantly higher with lyrics than without lyrics, (c) there were significant differences related to tempo, with slower tempi associated with higher scores, and (d) there was a significantly positive relationship between mean agility scores and participants' years of choral experience.

A summary of the findings was that:

1. Boys in progressively later stages of voice change were judged to be increasingly more agile (singing a stepwise melisma) than in earlier stages, on average.
2. Differences between cambiata and baritone were statistically significant for Cooper's range categories, but not for Cooksey's five stages of voice change.
3. Agility was more accurate when lyrics were employed, than when "ahhh" was used to sing the stepwise exercises.
4. Agility decreased as tempo increased.
5. Agility correlated positively with years of choral experience.

Implications for music educators include:

1. If very fast passages exist in solo or choral repertoire, boys in the earlier midvoice Cooksey voice range stages (or Cooper's cambiata category) may have more difficulty than boys in later stages (baritone) of voice change.
2. Songs using lyrics (consonant and vowel combinations) may be easier for changing voice boys to sing accurately, as compared to melismatic songs or passages using a single vowel.
3. As the tempo increases, changing voice students may have more difficulty with vocal agility.
4. Choral repertoire such as European Baroque music may be more accessible as changing voice boys' choral experience increases.

A Survey of Secondary Choral Educators Regarding Piano Skills Utilized in the Classroom and Piano Skill Expectations of Student Teaching Interns

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July 2005
Committee Chairperson: Wendy L. Sims

Dissertation Abstract

The purposes of this study were to determine which functional piano skills secondary choral educators used in the classroom and piano skills expectations that these secondary choral educators had of student teaching interns. This study focused on how frequently educators used the skills and how important they believed the skills were for the interns.

A review of related literature was used to formulate the online survey instrument. A cover letter was sent via e-mail to members of the Southwest Division of the American Choral Directors Association. Twenty-one percent ($N = 219$) of those receiving the cover letter responded by taking the survey.

Data collected were reported as frequencies and percentages. The results indicated that the majority of secondary choral music educators (a) use many functional piano skills daily or frequently (b) believe that functional skills are important to extremely important for student teaching interns. Several secondary choral music educators reported they would use functional piano skills more frequently if they were more proficient, particularly accompanying skills.

Recommendations that are provided can help guide collegiate music departments in examination of proficiency requirements with regard specifically to choral music education majors. From these data, choral student teaching interns may learn what skills they will be expected to use on a daily basis in the public school arena.

Camp Kodàly: Using Camp Songs in a Kodàly Curriculum

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August 2005
Committee Chairperson: Dr. Norma D. McClellan

Thesis Abstract

Camp songs comprise a genre of folk music that has been neglected in documentation and study. Camp songs connect to the student quickly and solidly and expand the repertoire of teaching curricula. A collection of camp songs provides a valuable additional source of American folk music for Kodály-based music curricula for classroom music teachers.

The development and preparation for publication of a book of camp songs collected by the researcher was the focus of this project. Original collection was made with lyrics only, and the camp songs were then transferred to printed musical notation. Many of these camp songs were used in teaching units and proved to be an effective tool in a Kodály-based curriculum. Children with a sparse folk song background seemed to connect the camp songs to the related American folksongs. The songs in the collection were categorized into the Kodály sequence in the areas of melodic content, rhythm, form and mode. Additionally, the camp songs were classified as folk song or ballad based on specific criteria, and geographical or cultural identity. Some of the camp song were found to be transformations of some older, authentic folk ballads and can serve as a link to the older, authentic folk heritage. A classification table provides a useful reference for the song collection.

This collection provides an initial study and documentation of camp songs and their potential value and use in the music classroom. With the use of these songs in the classroom, students will experience an expanded repertoire of folk music and be able to link to America's older traditional folk music heritage.

A Theoretical Model of Piano Sightplaying Components

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July 2005
Committee Chairperson: Wendy L. Sims

Dissertation Abstract

The goal of this study is to provide a theoretical model regarding sightplaying phenomena based upon investigation, analysis, and synthesis from a large amount of research findings, observation results, theoretical ideas, teaching methods, and perspectives from various fields of study including psychology of music, music education, psycho-musicology, and neurological science. Specifically, the focus of the study is on an individual's ability to sightplay on the piano. As a result of an extended review of literature, the author proposed a generalized picture about the possible components shown to be involved in the process of sightplaying development as well as sightplaying performance. With a qualitative philosophy as the research methodology and multiple perspectives in mind, the author believes that the model describing the four sightplaying components, CAPE: physical Coordination, musical Awareness, musical Potential, and musical Experiences, is useful as an instructional and experimental guideline for investigating and understanding a unique sightplaying ability in each individual as well as sightplaying performance in different circumstances. When using this model, music educators and researchers need to be aware that variations among levels or differences in the strengths of the component have not been predicted by this model. Any generalizations and implications need to be drawn with appropriate caution.

An Analysis of Rhythm Systems in the United States: Their Development and Frequency of Use by Teachers, Students, and Authors; and Relation to Perceived Learning Preferences

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August 2005
Committee Chairperson: Fred Willman

Dissertation Abstract

One of the issues facing music educators is the way in which they teach students to read rhythms accurately. Using the current educational philosophy of differentiation, or teaching a student by appealing to their preferred learning style, as a backdrop, the researcher proposed that music educators tend to teach rhythms using a limited number of systems, thereby failing to utilize many of the available systems.

The researcher examined the published rhythm systems dating back to the early nineteenth century, surveyed band students in grades 7-12 concerning their preferences in learning rhythms and their learning styles, surveyed music teachers concerning their background in teaching rhythms and their preferences, and surveyed the available method books along with many of their authors.

The results of the study showed that music educators, by a large majority, were taught and teach rhythms to their students using the Harr system. To a lesser degree, the Kodály and mnemonic systems are used. Although there seems to a relation between how students were taught to read rhythms and which systems they use, there seems to be no relation to their learning styles.

Although an examination of the available literature revealed that some research has been conducted to determine the effectiveness of certain rhythm systems, the survey indicated that most music educators are unaware of any research in this area. Indeed, when asked if they were presented with research showing another system to be more effective than the one they currently use, most music teachers were unsure if they would switch to the more effective system.

The researcher concluded that more study is needed in the area of rhythm pedagogy to determine different approaches of teaching rhythm in order to appeal to the various learning styles of students.

INFORMATION TO CONTRIBUTORS

The editorial committee welcomes contributions of a philosophical, historical, or scientific nature, which report the results of research pertinent in any way to instruction in music.

Manuscripts should be addressed to Carol McDowell, Editor, Missouri Journal of Research in Music Education, Music Department, Mail Stop 7800, Southeast Missouri State University, One University Plaza, MS 7800, Cape Girardeau, MO, 63701. Four copies of the manuscript must be submitted and must conform with the most recent style requirements set forth in the PUBLICATIONS MANUAL for the American Psychological Association (APA, 5th edition). For historical or philosophical papers, Chicago (Turabian) style is also acceptable. An abstract of 150-200 words should accompany the manuscript. All figures and tables should be submitted camera ready.

Manuscripts are reviewed by the editorial board in a blind review process. To assure anonymity during the review process, the author's name and affiliation should appear on a separate cover page only. Authors are also requested to remove all identifying personal data from submitted articles. The collective recommendations of the reviewers determine whether a manuscript will be accepted for publication. Manuscripts submitted for review must not have been published nor be under consideration for publication elsewhere.

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