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The Influence of Beginning Instructional Grade on String Student Enrollment, Retention, and Music Performance

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The purpose of this study was to investigate three primary variables concerning the starting grade level of beginning string instruction in public schools: (a) initial enrollment, (b) retention data for both the end of the first year and at the seventh-grade year of instruction, and (c) music performance level in the seventh grade. Secondary variables including schedule of instruction, decision makers, grade-level organization, and private lessons also were examined. Research objectives were developed to provide string teachers with information for use when they consider the grade level of beginning instruction in their school districts. Later starting grades yielded the highest retention rates, when retention data for both the end of the initial year of instruction and the beginning of seventh grade were compared with starting grade level. The starting grade level of instruction did not, however, affect initial enrollment figures or music performance of string ensembles.

**Keywords:** beginning strings; retention; music enrollment; music performance

Instrumental music educators must balance the quality of their programs with the number of students who choose to participate. The initial grade level of instruction for beginning strings could have an effect on both of these aspects—quality and quantity. Findings from previous research document trends for string instruction in schools; there are no studies that provide an empirical justification for when to begin instruction. Because string instruments (violin, viola, cello, and bass) are made in various sizes to accommodate young children through adults, starting beginning string instruction is possible as early as 3 years old. Although some have speculated...
in certain instances that string study should begin at an early age, this age has not been defined, nor has this speculation been supported by research. The decision of when to begin school string instruction is a topic that must be explored because it affects the quality of string education, potential staffing and scheduling outcomes, and not only retention of string students but also the success of string programs.

Various elements of string instruction have been investigated previously. Authors of several studies examined the demographics of school districts offering string instruction (Gillespie & Hamann, 1998; Horvath, 1993; Smith, 1997a). Data revealed a greater percentage of string programs being offered in urban and suburban school districts than in rural areas. As reported in Smith (1997b), a study by the National Endowment for the Arts revealed a sharp decline in orchestra offerings in the latter part of the 20th century. In 1962, 66.7% of school districts offered orchestra in high schools, whereas in 1989, the numbers had decreased to 16.7%. According to the most recent national surveys, these percentages have remained static, with only 16% to 18% of school districts offering string programs throughout the United States (Danforth, 2007; Delzell & Doerksen, 1998; Smith, 1997a). Conversely, band instruction is offered in 98.8% of schools nationwide (Delzell & Doerksen, 1998). Although we speculate that this marked difference between the number of band and orchestra programs currently offered in schools is attributed to the rise of marching band popularity, band competitions, and athletic band commitments, there is no research to support these suppositions. In addition, the shortage of string programs could be due to a lack of available and qualified string teachers. Hamann, Gillespie, and Bergonzi (2002) conducted a national survey of string teachers and reported that 43% of available string positions in 2000–2001 were not filled. Of those positions that were filled, 24% to 28% of these teachers were not string specialists. The string teacher shortage becomes a vicious circle: String teachers are developed initially through school string programs; the fewer string programs there are in schools, the fewer potential string teachers there are to be hired in the schools.

Discrepancy in the participation levels between band and orchestra also raises questions about the differences in practices between these two instrumental music opportunities. Current research identifies one of the major differences between band and string instruction as the starting grade level of instruction. In their National Survey of Beginning Band and Orchestra Programs, Delzell and Doerksen (1998) reported that starting grade levels for beginning string programs were earlier than beginning band programs. More string programs began in Grade 4, whereas band programs tended to start later (Grades 5 and 6). Results of the same study indicated that string instructors appeared to agree that more students would likely start strings in the elementary setting to avoid competition with band instruction. No research studies have documented which school officials determine the starting grade level of beginning instrumental music.

The Opportunity-to-Learn Standards published by MENC–The National Association for Music Education (1994) recommend that the study of strings should
begin in the schools by Grade 4, although no evidence can be found to support this suggestion. Several nationally recognized string educators have recommended that string instruction begin at an early age, citing the length of time needed for the physical and technical development required to master the bow arm and finger and hand positions as the reason for this recommendation (Hamann & Gillespie, 2003; Klotman, 2000; Maddy & Giddings, 1926).

Hamann et al. (2002) found that string study was begun primarily in the upper elementary grades across the country: fourth grade (31%), fifth grade (30%), or sixth grade (23%). Dillon-Krass and Kriechbaum (1978) suggested starting first-year students in multiple grade levels to increase enrollment and also recommended avoiding initial instruction too early to prevent students from losing interest.

Starting beginning instrumental music programs in the sixth grade (middle school) tends to present the advantage of more weekly instructional time, 3 to 5 days per week, versus starting instruction in elementary school (K-5), with 1 to 2 days per week of instruction (Berger, 2004; Doerksen & Delzell, 2000; Hartley, 1991b; Horvath, 1993; Pruitt, 1966). More instruction time per week could lead to more rapid development of music performance skills as well as a higher retention rate. The Complete String Guide (MENC–The National Association for Music Education, 1988) and Culver (1999) recommend that beginning instruction is preferable when classes can meet 3 to 5 days each week.

For band instruction, Hartley (1991b, 1997), Kuhn (1970), and Sillman (1977) demonstrated that a higher retention rate could occur if students begin instruction at a later age (sixth grade vs. fifth grade). The MENC publication The Complete String Guide suggests that starting strings and band during the same year has several advantages: (a) A potentially larger participation rate in the overall instrumental program may occur, (b) attrition from the instrumental program may be reduced, and (c) the negative string image that can result from students shifting from string instruction to band instruction may be eliminated.

Many sources have suggested that school grade-level organization can influence starting grade level of instruction as well as retention rates. Attrition rates for instrumental music have been shown to be greater when students move from building to building, such as from elementary to middle school (Allen, 1982; Bergan, 1957; Berger, 2004; Hartley, 1991b, 1997; Horvath, 1993; Shull, 1984; Sillman, 1977; Solly, 1986; Wolfe, 1969). It appears that grade-level reorganization in schools has not affected a change in the traditional starting grade level of beginning strings. String instruction has typically begun in elementary school, with the majority of string programs beginning in the fourth grade, although this varies by region across the country (Delzell & Doerksen, 1998). Many school systems seem to offer string instruction in the elementary schools so that, by the time these students reach middle school and high school, their playing level will be more advanced. There is no research in the string education literature, however, to support this opinion.
Several studies investigated performance advantages among band students who began instruction at the middle school and junior high levels versus the elementary level (Cramer, 1958; Hartley, 1991a; Kuhn, 1970; Pence, 1942; Sillman, 1977). Findings were similar; these studies indicated no statistically significant differences in performance achievement between students who began instruction in elementary grades and those who began in middle school and junior high grade levels by the time students reached the upper middle school or junior high grades.

According to Gordon (1980), there is no correct chronological age to begin instrumental music instruction. He believed that the younger a student is when starting instrumental music instruction, the more a student will ultimately learn. He did suggest, however, that there is a correct musical age to begin training on a musical instrument. In addition, he advocated the necessity for sufficient motor dexterity to perform on a musical instrument at the elementary level of proficiency.

Referencing Piaget’s theory of cognitive learning stages, Hartley (1991b) suggested that the level of cognitive development found in middle school (formal operations) is an asset when learning a musical instrument because students can more easily perform simple music reading skills as well as begin to understand musical interpretation and apply this to their performances. Thus, one might expect a more rapid rate of progress to be found in students who begin instruction at a later age or grade level. Baer’s (1987) study, which examined the relationship between music aptitude, motor development, and music performance achievement, found a low to moderate positive correlation between music performance achievement and motor development, especially in string players (vs. wind players and percussionists). Baer stated that fine motor skills were more closely related to performance achievement than gross motor skills.

Given past research, the following questions arise: (a) If string teachers wait until the sixth grade to begin instruction, will students play as well by the seventh grade (or later) as those in programs that begin instruction earlier? and (b) Because starting instruction at a later grade level (middle school) usually provides additional weekly instruction time, is there any advantage in beginning string instruction earlier than sixth grade?

The purpose of this study was to investigate three dependent variables concerning the starting grade level of beginning string instruction in public schools. Specific research questions addressed were as follows: (a) Does the starting grade level of beginning string instruction affect the initial enrollment of string students? (b) Does the starting grade level of beginning string instruction affect the retention of students by the end of the first year of instruction? (c) Does the starting grade level of beginning string instruction affect the retention of students by the beginning of the seventh-grade year of instruction? and (d) Does the starting grade level of beginning string instruction affect the music performance of string ensembles by the time the students reach the seventh-grade level? Secondary variables investigated included schedule of instruction, starting grade decision makers, grade-level organization, and private lessons.
Method

To assess current trends in enrollment, retention, and starting grade level, a statewide survey of school string programs was undertaken with the intent that results could be generalized across a broad spectrum of areas and regions. Ohio, the state selected for administration of the survey, reflects similar percentages for string program enrollment nationally (approximately 16-18% of schools provide string instruction) and also mirrors national data on starting grade level trends and rural, urban, and suburban distributions (Horvath, 1993; Smith, 1997a). Teacher names, schools, and addresses were obtained from MTD Marketing, Inc. in 2006.

After pilot testing the research questions and survey format, a researcher-created survey was sent to 556 elementary, middle, and junior high school orchestra teachers (this number included all string teachers in this state who were teaching at these levels). Design of the survey included 12 basic questions, which addressed research questions of this study, with the exception of music performance data. The surveys sought to determine starting grade level of string instruction, schedule of instruction, school district building organization, school location demographics, initial enrollment, and retention information. Respondents in this study were 172 elementary, middle, and junior high school string teachers with a response rate of 30.9%. The final total was 166 usable surveys (N = 166). Retention data were self-reported by respondents in this study but were not corroborated by school officials.

To compare performance achievement of string programs with different starting grade levels, personal visits and field recordings were made (two selections each) of 22 different middle school string orchestras. Recordings were collected primarily during the month of May so that all ensembles would be near the peak of their performance ability for the school year. The selected orchestras were made up of players with the median grade level of seventh grade and with a mix of beginning grade of instruction from fourth through sixth grades. Criteria for choosing these ensembles included the following: (a) string programs that began instruction earlier than the seventh grade; (b) directors agreed to participate in this research; and (c) schools were within a reasonable driving distance. There were eight schools selected with a fourth-grade start level, seven schools with a fifth-grade start level, and seven schools with a sixth-grade start level. It should be noted that although every elementary, middle, and junior high school string teacher in the state received the survey, the orchestra directors who were selected for performance evaluation may or may not have been survey respondents.

Digital field recordings were made using an Edirol, 24-bit digital wave/mp3 R-1 recorder and were transferred to compact disc for dissemination to adjudicators. All school and teacher names were kept anonymous. Three string specialist judges certified in good standing through the state-level music educators association independently adjudicated the field recordings. Adjudicators were asked to give an overall rating for the performance recordings of each orchestra based on the state-accepted
assessment form for large-group adjudicated events using a I to V rating scale (I = superior, V = poor). The overall performance ratings were used to compare performance achievement and starting grade level along with private lesson data. Similar to a live performance evaluation, the adjudicators were provided the instrumentation for each ensemble as well as the selections for performance but did not know the starting grade level of instruction.

Results

Starting Grade

Results from the surveys corroborate previous findings (Gillespie & Hamann, 1998) and indicate that the most common starting grade for string instruction was fourth grade, with greater than 50% of respondents’ schools beginning instruction that year, followed by fifth grade with more than 30%. Results indicated that initial instruction began in the third grade in 1.8% of the respondents’ schools, in 54.8% of respondents’ schools in the fourth grade, 32.5% in the fifth grade, and 9.6% in the sixth grade. It is interesting that the data collected from this survey with regard to starting grade level for beginning band instruction showed that 73% of respondents’ schools started instruction in the fifth grade, with 19% starting in the sixth grade. For a comparison of string and band starting grades, see Figure 1.

Figure 1
Starting Grade Level Distribution Percentages for Strings and Band
**Initial Enrollment**

One of the primary research questions investigated in this study was whether the starting grade level of beginning string instruction affects initial enrollment of students during the first year of instruction. Respondents were asked to estimate the percentage of initial starting grade enrollment for string instruction. More than half of respondents (50.3%) estimated that they enrolled equal to or less than 20% of the total starting grade population, whereas 37.6% estimated that they enrolled 20% to 40% of the eligible students, and 12.1% estimated that they enrolled greater than or equal to 40% of the starting grade.

Percentage of initial enrollment was compared with the starting grade level using a chi-square test. Results indicated that there were no statistically significant differences, $\chi^2(12, N = 165), p < .07$, among the percentages of eligible students who enrolled and the grade levels of beginning instruction.

**Retention**

The second major area of focus for this study involved the relationships between starting grade and retention of string students. Respondents in this study were asked to estimate typical retention rates at two points in their program—the end of the first year of instruction and the beginning of seventh grade. At the end of the first year of instruction, 23% of respondents estimated that they retained 50% to 65% of initial enrollment, 19.6% retained 65% to 80%, 36.5% retained 80% to 95%, and 22.6% retained 95% to 100% of initial beginning string enrollment. Respondents also estimated typical retention rates for their programs through the beginning of seventh grade. Whereas 12.8% of respondents estimated retention rates less than or equal to 30%, 27.6% estimated retention rates at 60%, 40.4% estimated a 90% retention rate, and 19.2% of respondents estimated retention rates as high as 95% to 100%.

When examining the retention data for the end of the initial year of instruction and the beginning of seventh grade in terms of starting grade level, the results show a higher retention rate for both variables with later start grades. The starting grade level was found to have a significant relationship to retention at the end of the first year of instruction, $\chi^2(12, N = 165), p = .001$. Retention of 80% or better was reported by 44% of respondents for schools with fourth-grade starts, 72% with fifth-grade starts, and 88% with sixth-grade starts.

Results of the chi-square analysis also showed a higher retention rate in seventh grade for the later start grades, $\chi^2(12, N = 156), p < .001$. Retention of 60% or better was reported by 31% of the fourth-grade starting programs, 72% of the fifth-grade starts, and 94% of the sixth-grade starts.


Music Ensemble Performance

The third major area of focus for this study involved an examination of the relationships between starting grade and string orchestra performance achievement. Ensembles that were evaluated in this study were primarily made up of seventh-grade students with a balanced mixture of fourth-grade, fifth-grade, and sixth-grade starting levels. Results of a chi-square analysis, $\chi^2(2, N = 22), p = .407$, indicated that for the performance evaluations by state-approved adjudicators, there were no statistically significant differences in overall composite ratings (the average of three judges’ overall ratings) among ensembles that began instruction in the fourth grade, fifth grade, or sixth grade (see Table 1). Interjudge reliability was high ($r = .96$), calculated using the intraclass correlation with Pearson-Brown correction for multiple ($n = 3$) judges.

Secondary Variables

Several secondary variables were examined in a descriptive manner. Respondents were asked about starting time of year for beginning string instruction. Ninety-seven percent of returned surveys indicated fall as the season of the year for initial string instruction, with less than 2% each indicating winter and summer starts. School location information also was requested, and respondents were asked to choose among urban, rural, and suburban locations. The responses were fairly evenly split between urban and suburban settings (see Figure 2). Some respondents who taught at more than one type of location selected multiple sites.

Respondents were asked to report the number of class meetings per week for beginning string instruction. The majority (66.3%) provided instruction two times per week, and only 5.4% delivered instruction five times per week. When the number of class meetings was compared with the grade level of initial instruction, large discrepancies were found, most notably with fourth-grade beginners having fewer class meetings.

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<td><strong>String Performance Ensemble Composite Ratings According to Starting Grade Level</strong></td>
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<td><strong>Performance Evaluation</strong></td>
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<td><strong>Composite Rating</strong></td>
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Note: I = superior; II = outstanding; III = good; IV = fair; V = poor.
meetings per week than sixth-grade beginners (see Figure 3). In addition, chi-square analysis indicated that a greater number of class meetings per week was significantly related to the end-of-first-year retention, $\chi^2(12, N = 164), p = .003$.

Also reported were class meetings per week for seventh-grade string students. The majority of respondents (65.8%) delivered instruction five times per week, whereas 17.8% provided instruction three times per week. With respect to the time of day for delivery of beginning string instruction, 90.3% occurred during the school day, and 5.5% occurred before school.

Survey results revealed a substantial disparity in grade-level organization per school. For elementary instruction, 45.7% of respondents reported schools with a K–5 grade-level distribution, 23.8% of respondents reported a K–6 distribution, and K–4 was reported by 9.3% of respondents. A total of 18 different elementary grade-level configurations was reported. Intermediate/middle school grade organization also was varied, with 9 different distribution combinations, whereas the high school organization contained 5 different variables.

Although data concerning decision makers were somewhat difficult to interpret, 42.3% of respondents reported that “multiple people” helped make the decision concerning the beginning grade level for string instruction. The specific number of people involved or their roles in the decision process could not be determined in this response. Results seem to indicate, however, that the school district superintendent
made this decision in 23.9% of cases, whereas the school principal was the decision maker in only 0.6% of the cases, and the string instructor had responsibility for this decision in 11.7% of surveyed programs. The music supervisor was responsible for the decision in 10.4% of surveyed programs and the category of “other” was selected by 11% of respondents.

Data collected from the performance evaluation portion of this study indicated that private lesson instruction varied widely, ranging from 0% to 80% of total students in the ensemble ($M = 19.7\%$). This mean was lower than the private lesson average for string students ($M = 27\%$) reported by Gillespie and Hamann (1998), in a study that included elementary school, middle school/junior high school, and high school students. Results of a chi-square analysis indicated that the percentage of private lesson participation had no relationship to the overall composite ensemble performance rating from the three adjudicators in this study, $\chi^2(42, N = 22), p = .387$.

The preceding paragraphs begin to provide a profile of the typical beginning string program in Ohio. School string programs are most likely located in an urban or suburban area, with either a fourth- or fifth-grade starting level. Instruction begins in the fall and occurs during the regular school day, usually functioning as a pull-out program in elementary school, with an average of two class meetings per week. In many cases, multiple stakeholders make the decision about when to begin instruction; it should be noted, however, that 23.9% of respondents in this study reported that the superintendent...
has this responsibility. Private lesson instruction varies widely from program to program. Approximately 20% to 40% of the starting grade students are enrolled, 80% on average are retained through the first year of instruction, but only 60% are retained through the beginning of seventh grade. Neither starting grade level nor percentage of private lesson instruction appears to have a significant effect on music ensemble performance by the seventh grade.

Discussion

It should be noted that the survey return rate for this study was somewhat low (31%) and that the results provide a picture of the string programs for only one state. Also, the retention figures provided are estimations based on teacher self-reports and have not been independently verified. However, the state surveyed appeared to reflect prior research results with regard to starting grade level, schedule of instruction, and demographics (Danforth, 2007; Doerksen & Delzell, 2000; Hamann et al., 2002; Hartley, 1997; Smith, 1997a). Therefore, the survey results likely may be generalized to a broader population.

One of the primary research questions addressed in this study was whether the starting grade level of beginning string instruction affects initial enrollment of students during the first year of instruction. Schools starting string instruction in the fourth grade did not yield a statistically significantly higher enrollment than schools starting students in later grades. There may be various reasons that the majority of string programs begin before the fifth grade. The results of this study, however, raise questions about the rationale of starting earlier to attract a greater initial enrollment than starting in later grades. Further investigation is recommended to better determine if competition from other music programs (e.g., band or chorus) or the result of students being involved in a greater number of activities by the time they reach the fifth and sixth grades produces lower initial enrollment.

More research is needed to determine why school districts and string educators continue to offer beginning string instruction in elementary school. Many string instructors appear to agree with this practice (Doerksen & Delzell, 1998), there is no empirical evidence to support this view. Although it is suggested in prominent textbooks that string instruction begin prior to band instruction to lessen the competition with beginning band instruction, further research is needed to determine if this is the case. As previously mentioned in, The Complete String Guide (MENC–The National Association for Music Education, 1988), starting string and band instruction during the same year to potentially increase enrollment for both is advocated.

Horvath (1993) reported that approximately 50% of string students were not retained during the move from elementary school to middle school or junior high school. Results of this survey seem to indicate that estimated retention rates were higher with later starting grades for initial string instruction (such as starting instruction
in middle school, or later than fourth grade). Further research is needed to determine if this is perhaps due to a more frequent schedule of instruction created by having regular class periods for instruction in the later grades as opposed to pull-out classes in elementary school, or the possibility that when other music instruction (band or chorus) is offered to other students during those later grades, this creates a less isolated feeling for the string students. Although previous research has shown that the pull-out process did not affect the academic achievement of the students negatively (Kvet, 1985; Wallick, 1998), this process is nevertheless disruptive to the class and inconvenient for the classroom teacher and may contribute to the overall lower retention rates associated with earlier grade level starts. String teachers will need to balance carefully the desire to start instruction at the fourth-grade level against the potential for increased retention at the end of the first year by starting instruction at a later grade level.

This study also considered the influence of starting grade on the retention of string students by the beginning of the seventh grade. Although recruiting a robust group of beginning string students is vital to any successful program, retention of those students is equally important. Although fewer schools started string instruction in the fifth and sixth grades, retention rates for these later grade starts, by the beginning of seventh grade, were significantly higher. Results of this survey indicated that although the difference in enrollment between a fourth-grade start and starting in the later grades was not statistically significant when considering percentages, starting students in the fifth or sixth grades clearly yielded much higher retention rates by the end of seventh grade. These results mirror those found in other studies in which starting grade and retention rates for beginning band students were examined (Hartley, 1991b; Sillman, 1977). In addition, as the number of class meetings per week is a direct reflection of the starting grade level of instruction (e.g., fourth-grade starts that average two class meetings per week vs. sixth-grade starts that average five class meetings per week), more research is needed to determine whether the number of class meetings per week may have a greater effect than starting grade on both the retention at the end of the first year of instruction and retention rates at the seventh-grade level. Further research might indicate that string instructors should base their decisions about when to start instruction relative to the number of class meetings they can offer to their beginning string students.

There is no doubt that school systems are no longer adhering to an accepted model for grade-level organization. The degree of variability found in this study was expected for the intermediate and middle grades; the range of variability in elementary instruction was, to some extent, surprising. This is perhaps the result of national trends in education to allocate local control to school districts and boards of education to determine the most efficient and effective means for schedule of instruction. Consideration of staffing issues, building needs, student enrollment, community growth, budgetary concerns, test score results, and competition for students with parochial and private institutions all factor into the complex equation for delivery of instruction. Furthermore, local decisions about grade-level organization appear to be
constantly changing, depending on the above factors. Given that the majority of string teachers enroll students in an orchestra program during elementary grades (fourth or fifth grade), the range of grade-level organization options perhaps plays a larger role than originally thought in the lack of a consistent starting grade for string instruction. It appears that a majority of string programs (at least in Ohio) begin instruction in elementary school, regardless of grade-level organization. Further research is needed to determine if the lack of starting grade consistency might, in fact, play a role in string program retention numbers.

Although it may be part of the heritage of many school music programs to start string instruction in the fourth grade, these results seem to indicate that, at least from a retention perspective, string program decision makers should consider the potential benefit of increased long-term retention obtained through later start grades. The results of this study suggest that, although starting public school string instruction in the fourth or fifth grades is not necessarily a negative, it may not be the best option given the various concerns about instructional delivery and the developmental aspects of students at that age, in particular when taking into account the retention information presented here. Suzuki String Programs across the nation have demonstrated success with starting students much earlier than the fourth grade; however, this study examined only public school string instruction.

An important area for investigation in this study was the music performance of the 22 selected middle school string programs. Results indicated that starting grade level for these string ensembles played little, if any, role in the overall composite rating given by state-approved adjudicators. The incidence of private lesson instruction, long considered by many string pedagogues as a requirement for successful school string programs, had no relationship to the overall composite ratings. The transfer from private lesson setting to group performance as well as the competence and efficacy of the school string specialist in preparing groups for adjudication are all areas for further study for researchers attempting to measure the effects of private lesson instruction on string program participation.

The results of this study seem to indicate that teachers who are looking to develop a strong string program must carefully balance several mitigating factors concerning quality versus quantity when determining the grade level for beginning instruction. It appears that one of the most important factors to ensure good retention is the ability to schedule more than twice-weekly instructional periods. Beyond that, string teachers should be aware that starting instruction in the fifth grade or higher may yield stronger retention numbers by the seventh grade. In addition, this study shows that seventh-grade string orchestra performance achievement level was not significantly related to starting string instruction at an earlier age (fourth grade vs. fifth or sixth grade) or to the percentage of students studying privately.

School string instructors and school officials should take several variables into consideration when making decisions concerning the grade level for beginning string instruction. The results of this study along with previous research seem to support the
view that starting instruction earlier has little if any bearing on ensemble performance level in the upper grades and appears to negatively affect retention of students. Therefore, the results of this study could be used by school officials and string instructors to determine the desired number of class instruction times per week and the grade level in which to begin instruction. It is likely that these two variables interact and that considering them both could help resolve the question of the optimum starting grade level, to provide the best results concerning teaching time efficiency, utilization of staff and building space, and improved retention of string students.

References


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