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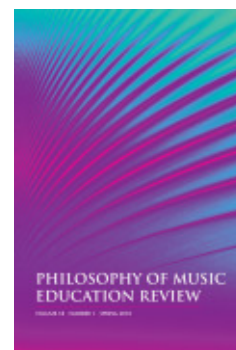
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## **Reflecting on the Rationales for String Study in Schools**

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# REFLECTING ON THE RATIONALES FOR STRING STUDY IN SCHOOLS

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*Abstract: This essay will address the question of the value of string education by first examining arguments offered on behalf of string education in schools, and noting their somewhat mixed value. Then a set of arguments will be presented that may have greater promise. The focal point will be the establishment of excellence in string teaching and playing. When public school string programs are of the highest quality, they produce the kinds of musical outcomes that will draw strong support from students, communities, and administrators. While string programs should always have strong advocacy arguments at their disposal, these arguments should be balanced by a high level of musicianship and musicality in the public schools which will in turn draw fine teachers and students to string education.*

In reflecting on the state of string music education in the 21<sup>st</sup> century, it appears that the string community is facing both an advocacy and a recruiting crisis. While many string positions are being cut due to lack of funding and the current political climate, there is a surplus of teaching positions available due to retirements and movement out of the profession.<sup>1</sup> These employment opportunities would be useful if they stimulated a new generation of string students to enter

the field of music education. The reality, however, is that most qualified string students do not choose to study music education, and the string community is faced with the possibility of less qualified educators taking over the available positions. This leads to an inferior process and outcome in general, which gives administrators valid reasons for continuing to cut programs. Enticing eminently qualified and well-trained musicians into music education, where they can build programs of excellence which enjoy support as a strong part of the curriculum, lies at the heart of a response to this dilemma. Advocacy arguments need to be strengthened by strong research answering questions specific to string education. Does string instruction belong in general education? Why? What makes it unique and important in arts education? Are the purposes of string education significant enough to consider it an indispensable part of music in the public schools?

In this article, I will address the question of the value of string education by first examining arguments offered on behalf of string education in schools, and noting their somewhat mixed value. I will then suggest a set of arguments that, for me, have greater promise. The focal point will be the establishment of excellence in string teaching and playing. When public school string programs are of the highest quality, I propose that they will produce the kinds of musical outcomes that will draw strong support from students, communities, and administrators. While string programs should always have strong advocacy arguments at their disposal, these arguments should be balanced by a high level of musicianship and musicality in the public schools which will in turn draw fine teachers and students to string education.

These reflections are grounded in my experience as a teacher and performer of the violin, as a university teacher of strings and string education at the Indiana University Jacobs School of Music, and as a teacher and collaborator with Mimi Zweig in the Indiana University String Academy, where I prepare violinists from beginning through advanced levels. I have been involved in teacher training for many years, teaching the undergraduate violin pedagogy course and establishing the curriculum and serving as a faculty member for the Indiana University Retreat for Professional Violinists and Violists at IU each summer. As an educator, I approach teaching in the public school setting from the unique dual perspective of a performer who was educated primarily within a strong public school string program as well as long-time faculty member in an esteemed children's program at a world-renowned music school. Years administering and working in the String Academy enrich my perspective with an understanding of the challenges public school educators face. Just as it intersects with the ideas of musical and educational philosophers, my own views are informed by a significant period of time spent working in a program in which there are few limits on the requirements I

can make of my students and where the results have given me a great vision and hope for the future of string education.

## TOWARD EXCELLENCE

John Dewey once stated that the wise person wants for every child the education that they want for their own child.<sup>2</sup> In suggesting that string music education belongs at the core of educating our children today, I claim that the study of string instruments at a high level blends multiple cognitive, physical, and creative processes that will benefit each individual musically, emotionally, socially, and culturally. Successful performance on string instruments requires a unique combination of general knowledge of music and an ability to demonstrate and process that understanding through the act of music making. I agree with David Elliott, who argues that the “growth of musical understanding depends on progressive musical problem solving, problem finding, and musical problem reduction.”<sup>3</sup> By layering progressively challenging and developmentally appropriate problems for the students to solve creatively, higher levels of musicianship are built. The ability to self-reflect and continually raise the level of listening and playing is essential in this process. Establishing excellence in string programs is dependent on having a teacher in the classroom who is first and foremost a skilled musician as well as an educator who is able to discern and model the various levels of learning that occur in the string classroom. Understanding how to build string technique correctly from the beginning through advanced levels, establishing mastery at each stage so that the students can effectively execute the technical issues as well as perform musically and contribute creatively to the process are integral to fine string teaching. In addition, choice of repertoire that is challenging but attainable in terms of technical and musical mastery as well as representing a wide variety of musical and cultural styles is essential. The teacher needs to be intimately familiar with at least the sweep of the Euro-classical tradition that is home to the string family in order to provide a strong musical and cultural foundation.

But how do we recruit and properly train string teachers who possess the qualities that are essential to developing string programs at the highest level? What are the characteristics that are necessary to develop excellence in both teaching and musicianship? Is it necessary for a teacher to be a fine player on a stringed instrument in order to teach strings at a high level? Are fine players necessarily fine teachers? Or is it a combination of these factors that creates the teacher that is highly successful? One vehicle for possible answers to these questions is through Vernon Howard’s discussion of the various forms of knowledge. In his book *Artistry: The Work of Artists* Howard distinguishes between propositional knowledge and procedural knowledge. Propositional knowledge, or “knowing-

that” implies an understanding of a subject that can be expressed in statements, but not necessarily in the ability to perform a task. An example of this would be an instrumentalist who could explain how to execute an advanced technique on a string instrument, but is unable to demonstrate it him or herself. Procedural knowledge, or “knowing-how” comes from the opposite approach: it implies understanding in the form of a skilled performance, but not necessarily knowledge of how to explain how to carry out the activity. This often occurs with string players who may be able to perform an advanced technique, but cannot explain the steps involved. Howard maintains that true understanding occurs when there is an intersection of these two forms of knowing and “may be involved in all stages of a complex skill, even the most elementary.”<sup>4</sup>

The question lies then in whether we should have our most “evolved” players and teachers, those with not only highly developed musical and technical skills but also an understanding of how the skills are systematically learned and an ability to instruct others in the steps necessary to gain the skills, teach the elementary string classes. Given the argument that true understanding occurs when both procedural and propositional knowledge have been attained, one would assume that teaching beginners would be the most complex of tasks, and should be reserved for those with the most skill and musical understanding. To start a string group with little knowledge and systematically develop the skills necessary to allow a high level of musical understanding and communication is a daunting task.

Perhaps this is the problem in string music education. The typical teacher of elementary strings is considered a somewhat lowly member of the string performing community. Some of the best string players do not tend to view themselves as teachers (even when their own teachers at the university level are making their living educating them) but would prefer to pursue ever more elusive performance opportunities. The far more practically minded music education majors are typically at a weaker performance level coming into the university, and are given a rigorous academic course, albeit sometimes at the expense of practicing and developing their own musical skills to a high level. Too often, string music education specialists are not the strongest string players and yet it is upon these teachers that the work of developing string players at an elementary level devolves. When the educational system has the weakest link doing the most important work, it is bound to fail.

How can the present system be changed so that highly accomplished string players are attracted to working with beginning string players and developing excellent string programs from the ground up? A first step, perhaps, is in educating string music education students in the importance of “craft.” Craft, according to Howard, is the process of creating routines and means to ends. Is craft a neces-

sary prerequisite to art? Howard sees craft and art as inextricably interwoven in combining the teaching of these systematic routines with creativity and imagination so that the students can eventually evolve into artists themselves. Despite the seemingly dry routine of developing skills on stringed instruments, creativity and imagination are required to make the adjustments necessary to make a musical statement. As Howard puts things, "That craft of any kind involves judgment and continuous adjustment to changing conditions in ways often imaginative and creative seems to have escaped the notice of those who would reduce craft to rote means to fixed ends, as if all that were involved was a "running off" of mindless routines."<sup>5</sup> Can string music educators at the elementary level aspire to constructing a creative and artistic vision of how to present the craft to the beginners? My response to this question is an unqualified "Yes." This is possible, but string music educators need to know not only how to visualize such a program, but they also need to grasp how to implement their visions in practice. At the beginning level, the need for systematic technique evolves "from the failure to understand spontaneously, so to speak, what the desired result is and how to get it. It then becomes requisite to show and tell what went wrong as well as to supply corrective exercises, sound procedures, and exemplars to a fledgling judgment."<sup>6</sup> String teachers need to be steeped in a technical system so as to provide them with an understanding both of "know-how" and "know-that" that will enable them both to demonstrate and explain possible solutions. Most students training to be educator-musicians, however, are in a hurry to get to the artistic level, hoping to skip over the drudgery of developing technical capabilities and often view such work as dull and un-musical. What they often do not realize is that those at the highest level of artistry are continually working on "craft" as a means to serve their art. The work they see as drudgery is in effect crucial to creating the kind of craftsmanship and artistry that they desire not only in their own playing but in that of their students. Perhaps teachers throughout the process could present material for technical development as a means to a musically artistic end. By developing a carefully thought out progression of technique, from the beginning through the most advanced artistic levels, students could become more attuned to the process of learning, developing not only their "know-how" but their "know-that" and ultimately forming a technical vocabulary that would serve their musical and artistic vision.

In addition to placing a higher priority on performance in the training of string music educators so that they are established in their art and craft, a higher priority needs to be placed not only on raising expectations on the part of string teachers but of providing them the art-craft to realize the expectations in practice. Ideally, there should be a vision in string music education that both craft and artistry can and should happen at every level of development, including the

beginning. This is the key to developing excellence not only in the foundational stages, but throughout the entire span of music making. Utilizing a sequential and spiral approach to developing skills, such as has been implemented by successful pedagogues such as Suzuki, Rolland and Zweig, gives a framework for developing technique that is necessary to serve the art. Setting the expectation from the beginning that children will have a good position, relaxed motions, a beautiful sound, good intonation, and a musical approach should be the norm in the beginning string classes. Too often, important issues such as those listed above are dealt with only briefly (position was last week's lesson) rather than as a concept that is to be developed over many years. Continual reminders and a spiral approach in which students are reviewing previously learned technique as well as adding challenging elements will ensure that excellence can be achieved. While it is important to learn repertoire, the approach I am suggesting presents a balance that leans more heavily toward development of basic technical skills—craft, if you will—that will allow the student at every level to perform the repertoire with a higher level of artistry. This vision of mastery—the ideal of excellence that string education students should develop in their own playing—will help shape the expectation they have of themselves as well as of their students.

There are several challenges to effectively working toward these objectives and realizing these expectations. First and foremost, the climate in the university needs to change to reflect a trend toward recruiting and maintaining more highly trained players as music education students. University faculty should not have lower expectations in performance areas for the education students. Typically, the music education students are among the brightest and hardest working, and expectations should be raised regarding their output in performance areas. This may mean a curricular change to a longer degree program in some cases: developing musical skills takes time. It may also mean that there are fewer and more select students in the programs. The outcome would mean a higher level of musician-educator in our classrooms and ultimately a more successful outcome for the students in string classes.

The second challenge is in the string classroom itself, where the teacher must have an understanding of the various ways of learning as well as a vocabulary of teaching techniques they can successfully implement which address the variety of learning styles. One of the major hurdles any school string teacher will face is a classroom full of students whose “understanding” or “knowing how to go on” is at different levels. It is in this situation that a teacher who possesses both “know-that” and “know-how” is crucial. The ability to both describe and demonstrate allows the teacher to teach both craft and art simultaneously. While either technique is likely to assist some students within the classroom, Howard observes that description is no substitute for demonstration, and “an expertly performed

demonstration will not always speak for itself.”<sup>7</sup> If the student does not know what to look for or listen to, then the demonstration is pointless. Knowing whether to present information in a technical manner through verbal instruction, through demonstration, or the use of metaphor or imagery, and which combination of those forms of learning might be most effective with a given group of students at their various stages of learning is a complex decision. Howard presents the paradox of presenting complex technical material verbally, which may either facilitate the growth of skill or hinder it depending on the level of the students, as an example of this complexity.<sup>8</sup> Descriptions are necessarily limited by both the understanding of the student as well as the ability of the instructor in terms of both content and timing. Knowing what *not* to say is in many ways as important as knowing *what* to say. Ultimately, a combination of both “showing” and “telling” is necessary for the variety of stages and styles of learning that the teacher faces in the classroom. Knowing what combination will be most effective and when it is best presented in the learning cycle is a hallmark of a successful teacher.

A third challenge in meeting these expectations for establishing excellence in the classroom is addressed by Howard in his discussion of knowing when enough of the “bits and pieces” of information in the form of “knowing-how” and “knowing-that” have been digested to move to a new level. While every child in the classroom will not be in the same place technically or musically, the priority should be on establishing a good foundation and setting a high musical standard at every level. The timing involved in knowing when the majority of students have both procedural and propositional understanding and the ability to move forward and tackle new challenges presents a difficulty. Howard maintains that this process is the creative part of craft.<sup>9</sup> It is in this instance where experience in one’s own playing as well as familiarity with a sequential system of developing technique becomes important in the teaching process. Knowing when a skill has reached a level of mastery that indicates that it is “good enough” to move on is easier when a teacher has achieved mastery him or herself. In a sequential learning context, each skill is addressed and built upon in a spiral at every level of development, and it is crucial to know what level of competence is sufficient in order to move to the next stage. Successful teachers have the ability to recognize when both “know-how” and “know-what” have occurred in the majority of students in the classroom, and at that point will present a new level of technical and musical challenges. This is the key to developing excellence without “holes” that require remediation at advanced stages of learning. The error in string education is typically in moving too quickly for students to achieve mastery. Many string method books begin with instrument, bow, and note reading simultaneously, feeding the tendency to move forward without establishing these skills separately. In many advanced string classrooms, the emphasis is on performing difficult



repertoire without the benefit of systematically preparing the students with the technical and musical means to perform at a high level. This inevitably leads to frustration on the part of the student and teacher as well as a lower standard of performance in the orchestra than should be expected. Mastery of skills at every level will allow students to play with confidence and an understanding of the meaning of excellence in both art and craft.

In addition to being able to judge the level of musical and technical understanding of their students and present appropriate challenges, the ability of the teacher to monitor the general stage of “rule following” of the class they are teaching is an important quality in determining success. As described by Howard, the stages of “rule following” move from the beginning “rule invoking” stage, in which a set of explicit directions is given, through the “rule accepting” stage in which rules can be formulated which can describe the action in the form of a diagnostic comment, such as “The pitch was flat because your thumb did not shift.” As students develop, they move toward the higher level “rule-covered” and “rule-guided” actions in which vast amounts of detail are compressed in a series of rules which are unstated, but are in essence a “summary of rules,” according to Howard. In effect, the ideal is to move to a point in which rules become an organic response.<sup>10</sup> This supports the argument that excellent string teachers need to have developed their own playing to the “rule-guided” level, but also be well-versed in both the “rule-invoking” and “rule-accepting” stages in order to guide their students through the process. In the beginning stages of string teaching, a clear sequence of rules should be invoked in order to establish the procedure of how to play the instrument. In IU String Academy classes, the sequence of beginning steps is so ingrained that beginners often “remind” the teacher if a step within the set up sequence is forgotten. As students develop, these beginning steps are assumed and the teacher moves into the role of diagnostician, making corrections based on what has gone wrong. At the highest stages, students typically move beyond the rules, no longer focusing on the small details of the technical process, but instead concentrating on the larger musical issues. Ideally, the teacher who is guiding students through this process should be well aware of the various stages, including the importance of establishing rules at the outset as well as allowing students to “break” the rules to serve a musical end at the highest levels.

In an effort to allow students practice in applying the aforementioned skills, universities should present early opportunities for teaching apprenticeships at the various levels. Music education students are often afraid of working with beginners, as they are usually more highly evolved in procedural knowledge (knowing-that) than propositional knowledge (knowing-how). The ability to break down information into its most basic elements and present it to a group of children in a

creative and interesting way may be difficult and intimidating. String education students (as well as performance students since we are all educators in the long run) need to have training under a master teacher who is able to both present a systematic technique as well as model these concepts throughout the musical and technical levels. These ideas are not exclusive to the beginners, but serve to provide a foundation that will be useful at every level of development. By simultaneously working on their own technique and musicianship and transferring that knowledge to a beginning group, the hope is that the education student will see the connection between the information being presented at every level.

What, then, does it take to become a master musician and string educator? Given the argument that a combination of knowing-that and knowing-how is a prerequisite for most effective teaching, the best teacher-performers with the most integrated approach (including both procedural and propositional knowledge), would be most effective in the early levels. In short, it is crucial to lay a solid foundation in the early stages because good habits established at the beginning level allow students to build on this foundation throughout their education. Foremost, it is necessary for music education programs to produce fine musicians who not only play their instruments at a high level, but have an understanding of the systematic process of learning and teaching strings. Coupling fundamental knowledge of how children learn with practical experience in the classroom using a variety of teaching techniques will provide future string music educators with qualities which would allow them to successfully establish excellent public school programs at every level that would provide the solid values that all educational systems strive for.

## WHY STRINGS?

Assuming, then, that highly trained musician-educators are poised to enter public school string teaching, some important additional questions are raised. Does string education belong in general education? If so, why, and what goals should it accomplish? Advocacy arguments have been commonplace in the philosophy of music education. In the following section, I will summarize arguments specifically drawn from and used in the string educator's dialogue.

Given the number of qualities that have been discussed as possible prerequisites for becoming a string teacher of excellence, it follows that string playing and teaching are often viewed as an elitist activity. Historically, instruction on string instruments was reserved for those students considered "talented."<sup>11</sup> This music/talent association has contributed to the placement of string education on the periphery of the core general education of the school curriculum. As Elliot states the problem, "The unexamined association between music and talent causes parents, administrators, and the general public to assume, wrongly, that

music is inaccessible, unachievable, and therefore, an inappropriate or unnecessary subject for the majority of school children.”<sup>12</sup> This is particularly the case regarding strings, where considerable time is required to develop the necessary skills, the difficulty of the skill set is more complex than in other instrument families, and the financial cost of purchasing and maintaining instruments is high. Orchestra programs are perceived as expensive, elitist, and predominately for those in large suburban school districts.<sup>13</sup> Children in rural or urban school systems are often denied access to string programs, frequently because of the lack of qualified teachers, the cost of such programs, or the lack of interest culturally. It is vital that string educators study successful programs in nontraditional settings in order to transcend the bias that only traditionally supported programs are worthy of continuation. Jody Atwood cites a variety of “Successful Impossible String Programs,” including a program for Hispanic students in Los Angeles, an East Harlem violin program, as well as the Chicago Housing Authority Youth Orchestra.<sup>14</sup> In addition, Van Camp indicates that string instrument classes have been successful and appropriate for mildly mentally handicapped middle school students.<sup>15</sup> String education has been successfully undertaken in many settings that do not necessitate high levels of talent, and is applicable to more than just the programs and students to whom it historically has been offered.

Why strings? Among the extrinsic arguments offered for string education, mainly that it benefits education in ways that lie beyond music, are those offered by the American String Teachers Association. Does string education in fact, as the American String Teachers Association claims, “...add a unique dimension to a child’s life that cannot be fulfilled by any other type of musical instruction?”<sup>16</sup> What will it teach our children that other musical experiences or academic courses will not? Many statements of string advocacy might easily replace the word “string” with “band” or “chorus” and remain valid.<sup>17</sup> One factor that strongly supports string study is that the instruments are available in fractional sizes, and therefore children can start instruction from a very young age. This opportunity to begin early supports the idea that children can begin to see themselves as artists or musicians in their initial educational experience. By defining themselves as musicians in childhood, it is possible that children may continue to develop and enjoy these skills through adulthood.<sup>18</sup> Neurological research suggests that the early study of music, and particularly string study beginning at a young age, changes the development of the brain. Thomas Elbert, Christo Pantev, Christian Wienbruch, Brigitte Rochstrub, and Edward Taub found that string players have greater neuronal activity and a larger right motor cortex (which controls the muscles of the left hand) than non-string players.<sup>19</sup> Study of a string instrument requires highly complex motor skills and concentration, and the development of these skills from an early age allows for the achievement of excellence when

practiced over a significant period of time. These qualities of thought and action may also spill over in children's attitudes toward education more generally, as they begin to apply the self-same skills in other settings beyond string study.

Perhaps one of the most global arguments for keeping strings in the public schools is that music programs teach many skills which will serve children throughout life. According to U. S. Assistant Secretary for Vocational and Adult Education Susan Sclafani, arts education "instills lifelong habits of perseverance, confidence, drive for excellence, and an ability to analyze and solve problems."<sup>20</sup> Development of skills on a string instrument require that the child break down and complete tasks, apply flexible and creative solutions to problems, and work together with a group to present a final product. The end result builds self-esteem and discipline for the individual and ability to work within a group socially. Whether the student becomes a professional musician is irrelevant—it is the understanding of the process, as well as an appreciation of the art form, that is important in developing and contributing to a society that ultimately values and understands music. In short, strings should be studied, in the words of Robert Klotman, "because humanity benefits."<sup>21</sup> But the problem with this argument is that exactly how humanity benefits is left to the imagination. There is no data to support how string study specifically impacts our culture. While the effects of music study are widely acknowledged to integrate a variety of learning styles, as well as to teach social and life skills, each subject within a typical school curriculum also has similar skill sets that intersect with music. Strong arguments and research to support these arguments is necessary to ensure inclusion in the curriculum.

Proponents of arts education argue that the arts contribute to general academic achievement. In support of this claim, they cite evidence that arts education correlates with general achievement. According to the National Educational Longitudinal Study, University of California-Los Angeles researchers determined that "students who were highly involved in arts instruction earned better grades and performed better on standardized tests. They also performed more community service, watched fewer hours of television, reported less boredom in school, and were less likely to drop out of school. These findings were also true for students from the lowest socioeconomic status quartile of the 25,000 students surveyed, belying the assumption that socioeconomic status, rather than arts engagement, contributes to such gains in academic achievement and social involvement."<sup>22</sup> The Arts Education Partnership found that arts programs in low socioeconomic schools can transform the learning environment, in part because the arts close the achievement gap, and low achievers often become high achievers in arts settings. These accomplishments can then transfer to other areas.<sup>23</sup> Sometimes "troubled" children who struggle in the regular classroom are high

achievers in the orchestra class. The active participation, physical movement, emotional expression, structured environment, and involvement in group activities often found in string classes may bring success to these children.<sup>24</sup> A study by Kathryn Vaughn and Ellen Winner finds that students' composite SAT scores were significantly higher for those with increased years of study in the arts.<sup>25</sup> They note also that "high achievers focus and take more non-required courses in a particular area ... including the arts."<sup>26</sup> In general, children who were able to pursue focused study in a particular area were high achieving, regardless of the area chosen. In view of the fact that these studies assume that correlations are to be interpreted causatively, that is, that the arts are the principal causative element, questions arise as to whether participation in the arts in fact contributes to higher test scores, or whether the type of student who is attracted to, and supported in, the study of arts subjects is generally the more capable student initially. Nor is there evidence to support the claim that such correlations hold specifically for string programs. So we are left with somewhat questionable evidence and weak claims concerning string music education's extrinsic claims.

Since in practice, elementary string programs have typically operated as extracurricular pull-out classes from the core curriculum, one common argument administrators make against establishing string classes at the elementary level is that pulling children out of the regular classroom for specialized music instruction affects children's academic achievement. The empirical data, however, negates this argument and supports the idea that children's academic progress seems not to be affected by their occasional absences from class in order to attend string classes.<sup>27</sup> In separate studies, Edward Kvet and Robert Gillespie found that string students pulled out of class consistently scored at or above median on standardized tests.<sup>28</sup> While it is hard to justify that string education "makes people smarter," such pull-outs appear not to harm children.

What about music for the sake of its intrinsic value alone? Can the value of learning music, in particular, strings with its unique combination of skills, be thought of as valuable in and of itself? Kathryn Vaughn and Ellen Winner suggest that in the United States better schools tend to value and offer arts instruction as an intrinsically worthwhile area of study, independent of any possible transfer of arts instruction to other academic areas. They caution against justifying arts instruction based on proposed links to academic instruction stating, "... the presence of the arts in our schools should not rest on whether or not learning in the arts transfers to other academic domains. The arts are important in their own right and should be justified in terms of the important and unique kinds of learning that arise from the study of the arts. We should not expect more, in terms of transfer, from the arts than we expect from other disciplines." Such an argument would hold that string education needs to be defended for its own sake,

not for the benefits it accords other subjects. Historically, music educators have been divided over the merits of this argument. The problem is that string education provides similar benefits as any other music class (vocal or instrumental) as well as a wide variety of other academic subjects or sports. Although string instrument study offers unique variables that include the wide variety and style of the repertoire, the age one is able to begin (compared to wind instruments), and the complexity of the technical skills (bow/left hand/ear/music reading), research has not conclusively proven that string study has significantly more value than other modes of musical or academic study. At best, the data establishing that many of the finest school districts in the U.S. also have robust string programs may suggest some support for these sorts of advocacy arguments and encourage the establishment of string programs as core curriculum throughout the country, although these correlations cannot be taken to be causative. The data suggest that it is far from clear that string education programs have the kinds of general impact claimed by advocates.

Robert Gillespie and Donald Hamann argue that the music curriculum is incomplete without an orchestra.<sup>29</sup> For them, the canon of “classical” masterworks is impossible to perform without strings. The problem with this argument is that one could conceivably add to the core curriculum *ad infinitum*, as there is always other knowledge to be offered. The school curriculum is never complete but always limited and selective. The real question is why the string program is so crucial as to require inclusion. One answer, which significantly broadens the argument presented by Gillespie and Hamann is that strings are not limited to playing classical masterworks but are among the most versatile instruments stylistically and culturally, with music from virtually every style period from the late Renaissance to the present. Strings remain an important voice in contemporary music in both classical and popular genres. Throughout history, the popularity of string instruments arose because of their role in supporting and imitating vocal music, from Renaissance polyphony through the development of opera. Certainly strings can still be considered a strong supporting role to general/vocal music in the schools. Culturally, strings have a wide variety of stylistic options available, as string instruments were used not only in the Western/European tradition but in many world cultures including American (jazz and fiddle tunes), Eastern European (gypsy), Asian, South American/Hispanic (mariachi bands) and Northern European (hardanger fiddle), to name a few. In addition, strings can also enhance choral, band, and jazz programs through performances requiring full orchestra, chorus, and musical theater.

Another problem with using the ability of string groups to play the “canon” of Western classical masterworks in their original form as an advocacy argument is that, within a public school setting, a limited number of orchestras at the high

school level in the United States are successfully able to perform such monuments of Western culture. Within string study, it is much more likely that players will be exposed to folk songs from various cultures, particularly at the beginning levels, than play a Beethoven symphony. A major obstacle is that the instruments themselves are difficult to play at their most basic level, most string teachers in the public schools are limited in their skill and knowledge, and there is a rare person who is able to teach both the technical basics within the string class as well as teach a wide variety of musical styles, including world music, with excellence. If most string players in public school classes are unable to achieve the technical level of proficiency to perform the Western “canon,”—and the ability to perform these masterworks is an important advocacy argument—the string education community needs to either raise the standard of teaching or adjust the argument to correlate with the product that the vast majority of public schools are able to produce.

So where does that leave us? While we can list important reasons to continue to keep string study in the schools, the basic advocacy arguments are dependent on the current political and educational culture. Strong string programs exist where state government and local school systems value string study. If there is a historical precedent of excellent orchestral programs in a community, there is often a broad base of support to continue this tradition. The opportunity to offer string education to all students, even those who might not be likely to choose strings because of their cultural or socioeconomic background, could be recognized as an important means of preserving and expanding this culture. Until string educators can successfully advocate politically for their inclusion in the core music curriculum and establish, through the quality of their programs, that string education is an important means for educating our children, string teachers will be on the defensive. This advocacy movement needs to be supported with strong research that is specific to the string classroom. Among the questions that need systematic investigation are the following: What are the unique and beneficial outcomes of string education? What variables are in place within the strongest programs that allow them to succeed? What are the benefits to the individual students, the community, and the wider culture? These important questions must be discussed and researched within the string community to ensure continuation in future generations. I would like to see a sustained body of scholarship developed that would unpack them systematically, and thereby provide solid empirical evidence for the claims that are made for string education. In the absence of these data, it is clear from my analysis that the extrinsic arguments offered on behalf of string education in schools are somewhat problematic.

## THE PURPOSES OF STRING EDUCATION IN SCHOOLS

In counterpoint with the rather mixed and sometimes questionable extrinsic values asserted for string education, I want to suggest an alternative approach to defending string study that focuses instead on the intrinsic values of string study. That is to say, I prefer to focus on what string study can accomplish in schools as an aspect of cultural study. This allows me to examine the particular aspects of value in string study quite apart from whether these aspects are peculiar to string study alone. Since I view music as a part of life, the intrinsic and extrinsic values of music are slurred as one melds into the other.

As I see things, the primary purpose of string education in schools should be to instill a love and appreciation of music that children will maintain throughout life. Familiarity with a basic canon of classic composers and musical styles and an ability to read and perform music at a rudimentary level should be part of the general education of a cultured society. Music is a trait specific to humans and is found in every society in every time period throughout history.<sup>30</sup> Knowledge of one's own musical culture, as well as musical experiences in a variety of other cultures, seems basic to a strong educational foundation. In addition, music education is necessarily a family matter, and when children are involved in musical activities, the parents and family members of those children are also involved through their financial, logistical, and emotional support. Parents often find that they are excited and enthusiastic about their child's participation in orchestra and enjoy the music that their children are performing, even if they do not consider themselves "musicians." An example of this is an after-school program at a local at-risk elementary school where children are offered free group lessons. The music teacher wrote the following about a girl whose mother came to the final concert: "A really cool thing happened for her—her mother came to watch her play. It is the first time she has ever done this, worked extra hours to have the recital day off, and be there for her. I watched the mom as her child played—the look on both of their faces! The mom was holding out her cell phone so that someone on the other end of the line could hear her play. Sometimes—things just work out."<sup>31</sup> The effects of this sort of experience ripple out into society as a whole, as not only the children but their parents and grandparents may ultimately become supporters of local arts organizations and active advocates for the arts in our culture. Certainly, string education is an important means to draw the parents into the learning community through the participation in the home practice regimen and concert attendance. Parent involvement inevitably leads to success both within and outside the classroom. For the children, performances are a valuable means to extend the classroom into the community through public concerts, making the development and presentation of a high level musical product a showcase for achievement and learning within the community at large.



A second purpose of string education in the schools is to integrate musical knowledge with the student's knowledge of other subjects such as history, art, literature, and mathematics. In any successful music classroom, an integration of musical knowledge with extra-musical ideas and the rest of their lived lives should occur. Teachers should strive to put repertoire in an historical context and relate it to concurrent artistic movements. A strong natural relationship between mathematics and music is very apparent in string teaching, where kinesthetic distances in the left hand determine pitch and bow distribution determines the sound of the musical phrase.<sup>32</sup> These elements can and should be related to mathematical ideas through the study of intervals, sequences, and fractions.

String classes, like other instances of music education, also build self-discipline and problem-solving skills that are not only musical but more widely cognitive, affective, and psycho-motor than many other academic subjects. When students work together in groups, as is often the case, members are likely to have individuals with different abilities, learning styles, and performance levels, and it is necessary for students to cooperate and compromise to create a collective product that is uniform and complete. All students must take the responsibility to practice and prepare their individual parts, going through the process of learning to listen, analyze, break down problems, and accept responsibility for the results. Learning to play a string instrument well requires consistent practice, with multiple correct repetitions of problem spots. The motivation and self-discipline to follow this regimen lies in the final product: the ability to participate in music making at a high level and the self-esteem gained from working hard individually and collectively to create beautiful music.

Teaching cooperation and compromise within a group setting is a strong function of string teaching. This involves careful preparation and vision on the teacher's part: the students not only need to physically play together for a given piece, but also to "feel" the character of the work uniformly and understand the piece musically. Creating a homogenous sound with a variety of different abilities and levels within the same group is a steep challenge for any educator. Preparing this product for public consumption in a concert venue adds an additional element of pressure and expectation to the endeavor. The attention to detail throughout the preparation process that is required of teacher and students, as well as the cooperation required of the group to perform a piece both technically and musically as a unit, is extraordinary.

A further purpose of string education is to teach children to think creatively and articulate their creative visions. Problem solving on string instruments involves a certain amount of creativity in approach, due to the many variables, both musical and technical, that the musician deals with in performance. Children directly involved in solving the problems will integrate their creative and

problem-solving skills. Since there is no one “correct” way to interpret music, but rather a set of guidelines provided by the composer and limited only by historical stylistic concepts, students and their teachers can freely “make music” together by examining a variety of possible musical choices, trying multiple possibilities, and deciding on a successful musical idea for a single performance.

Finally, one of the main purposes of string education should be to build a sense of excellence and an understanding of the steps needed to achieve this quality. Excellence can be accomplished at all levels of achievement, from the beginning to the most advanced orchestra. In preparing for a performance, teachers go through the process of choosing suitable repertoire, preparing the music from a technical standpoint, making sound musical choices, and ultimately presenting a product that is at the highest level that the students are capable of achieving. This process is fundamental to successful music teaching. Students learn that it is possible to present something at a high level given proper preparation both individually and collectively. The pleasure in both the process and product creates a wonderful sense of self-esteem and accomplishment. All students, no matter what level, are able to achieve this excellence, and it should be the standard that all string teachers strive to attain for their students. As Benjamin Bloom, in his study “Developing Talent in Young People,” said:

... the quality of life is dependent on individuals having a sense of fulfillment in one or more roles and fields of human endeavor. The development of both excellence and standards of excellence in a society is dependent upon the extent to which the society offers opportunity and encouragement for the majority of individuals in it to find meaning and enjoyment in one or more areas and fields of human development. We believe that societies that emphasize minimal standards of competence are likely to produce only minimal levels of competence and talent.<sup>33</sup>

By providing strong string classes that perform at a high level of musical and technical proficiency, teachers are setting the stage for building important skills in their students both within and outside the classroom, and also maintaining music’s role as an intrinsically important part of our culture.

Building excellence within string classes is dependent first and foremost upon building a strong technical foundation. A carefully sequenced plan of instruction addressing correct instrument set-up, freedom of physical motion, and problem solving through a systematic and positive approach is necessary for a successful string program. Continual maintenance of this foundation from the beginning through the most advanced levels assures the student of a technical vocabulary that allows freedom of musical expression. Teachers can continually build techniques such as vibrato and shifting from the outset of string study using a spiral

approach in which rote exercises integrating large, non-specific motions are gradually fine-tuned through the developmental stages, creating a solid foundation. Strong string teaching also integrates interpretative, historical, and theoretical skills alongside the development of the technical aspects through the careful choice of repertoire that is both interesting musically as well as appropriate technically. With carefully chosen repertoire and a strong foundation, other important musical aspects will gradually emerge in increasing importance which will allow groups to perform with both musically and technically satisfying results.

In critically examining the arguments regarding the role of string education, and suggesting several of my own, it is clear that it is difficult to say that string study alone can create the sorts of ends that I am suggesting can be possible. Rather, it is likely that other subjects may also be approached in ways that are humane, holistic, and that cultivate a civil and cultured society. It is also clear that string education also has a unique contribution to make in terms of knowledge of string performing technique, as an example of a family of orchestral instruments that is integral to the European-Western classical tradition as well as multiple non-classical genres. Since curriculum is only ever justified, and arguments mounted on behalf of particular subjects that may be included in the school curriculum, it devolves on string education and those interested in this work, to demonstrate these values and to press the importance of strings with school politicians, administrators, and the public at large.

## NOTES

<sup>1</sup>Several contemporary researchers have conducted studies on the status of string education in the public schools. In their 2002 study "Status of Orchestra Programs in the Public Schools," Hamann, Gillespie, and Bergonzi found that an estimated 57% of public school districts anticipated string teaching openings between 2002–2004, for a total of 5,000 available string education positions. Despite the fact that 40% of teachers reported increases in the number of string teacher positions in their schools between 1995–2000, these positions are often cut because of a lack of teachers that are qualified to fill them. (See Donald L. Hamann, Robert Gillespie, and Louis Bergonzi, "Status of Orchestra Programs in the Public School," *Journal of String Research* 2 (2002), <http://www.arts.arizona.edu/jsr/jsrhome/index.html>). Universities are graduating fewer string music education students despite the fact that there are many string teaching jobs open. Faced with general cutbacks in many arts programs due to recent political legislation and subsequent efforts to raise the academic level of students nationwide, the remaining string educators are left to advocate for their programs.

Studies by Leonard (1991), Horvath (1993), Abel (1994), Bergonzi (1995), Smith (1997, 2000), Gillespie and Hamann (1998), and Moss (2002) indicate that most students do not have access to string instruction. (See Kirk D. Moss, "A Review of Literature Pertaining to Factors that Contribute to the Process of Starting a Curricular String Program," *Journal of String Research* 2 (2002), <http://www.arts.arizona.edu/jsr/jsrmoss/>

jsrmoss%20main%20frame.htm). Hamann, Gillespie, and Bergonzi (2002) reported that only between 16 to 31% of schools in the United States offer string programs. (Hamann, Gillespie, and Bergonzi, p. 3) On a positive note, these same researchers found that “the number of students playing string instruments in the school has steadily increased since the early 1980s at all levels—elementary, middle school, and high school.” (Hamann, Gillespie, and Bergonzi, p. 9). These statistics point to a rise in interest in string playing despite very few programs offering string education nationally. Many string teachers are retiring or leaving positions that are politically and financially unsupported, yet few students are being trained to take their places.

<sup>2</sup>Susan Sclafani, “The Arts are Vital to Young People’s Success in School and in Life,” American String Teachers Association, [www.ecs.org/clearinghouse/62/36/6236.pdf](http://www.ecs.org/clearinghouse/62/36/6236.pdf) (accessed December 4, 2007).

<sup>3</sup>David J. Elliott, *Music Matters: A New Philosophy of Music Education* (New York: Oxford University Press, 1995), 73.

<sup>4</sup>V. A. Howard, *Artistry: The Work of Artists* (Indianapolis: Hackett Publishing Company, 1982), 50.

<sup>5</sup>Ibid, 52.

<sup>6</sup>Ibid, 64.

<sup>7</sup>Ibid, 73.

<sup>8</sup>Ibid, 92.

<sup>9</sup>Ibid, 70.

<sup>10</sup>Ibid, 94–95.

<sup>11</sup>Kristin Turner, “How Not to Repeat the Mistakes of the Past: A History of String Programs in Public Schools,” *American String Teacher* 51 (2001): 78.

<sup>12</sup>Elliott, 235.

<sup>13</sup>Kirk D. Moss, “A Review of Literature Pertaining to Factors that Contribute to the Process of Starting a Curricular String Program,” *Journal of String Research* 2 (2002), <http://www.arts.arizona.edu/jsr/jsrmoss/jsrmoss%20main%20frame.htm> (accessed December 4, 2007).

<sup>14</sup>Jody Atwood, ed., “Successful Impossible String Programs,” *American String Teacher* 41 (1991): 52–63.

<sup>15</sup>Moss, 3.

<sup>16</sup>ASTA with NSOA Brochure, “Why Strings?” [http://www.astaweb.com/AM/Template.cfm?Section=Why\\_Strings\\_Brochure&Template=/Custom/WhyStrings.cfm](http://www.astaweb.com/AM/Template.cfm?Section=Why_Strings_Brochure&Template=/Custom/WhyStrings.cfm) (accessed December 11, 2007).

<sup>17</sup>Moss, 4.

<sup>18</sup>Zoltan Kodály supports this idea in his *Selected Writings*: “Teach music and singing at school in such a way that it is not a torture but a joy for the pupil; instill a thirst for finer music in him, a thirst which will last for a lifetime. Music must not be approached from its intellectual, rational side, nor should it be conveyed to the child as a system of algebraic symbols, or as the secret writing of a language with which he has no connection. The way should be paved for direct intuition. . . . Often a single experience will open the young

soul to music for a whole lifetime. This experience cannot be left to chance; it is the duty of the school to provide it." (Zoltan Kodály, *The Selected Writings of Zoltan Kodály* (New York: Boosey and Hawkes, 1974), 120.)

<sup>19</sup>Donald A. Hodges, "Implications of Music and Brain Research," *Music Educators Journal* 87 (2000): 19.

<sup>20</sup>Susan Sclafani, "The Arts are Vital to Young People's Success in School and in Life," American String Teachers Association, [www.ecs.org/clearinghouse/62/36/6236.pdf](http://www.ecs.org/clearinghouse/62/36/6236.pdf) (accessed December 11, 2007).

<sup>21</sup>Robert Klotman, "Why Strings?" *Music Educators Journal* 87 (2000): 45.

<sup>22</sup>Rod Paige, "Key Policy Letters Signed by the Secretary or Deputy Secretary," American String Teachers Association, <http://www.ed.gov/policy/elsec/guid/secletter/040701.html> (accessed December 4, 2007).

<sup>23</sup>Arts Education Partnership Website, <http://www.aep-arts.org/resources/toolkits/criticallinks/index.htm> (accessed December 11, 2007).

<sup>24</sup>Gail V. Barnes, ed., *Applying Research to Teaching and Playing Stringed Instruments* (American String Teachers Association, 2003), 62.

<sup>25</sup>Ibid, 56.

<sup>26</sup>Ibid, 65.

<sup>27</sup>Ibid, 57–58.

<sup>28</sup>See Edward Kvet, "Excusing elementary school students from regular classroom activities for the study of instrumental music: The effect on sixth grade reading, language, and mathematics achievement," *Journal of Research in Music Education* 32 (1985): 45–54 and Robert Gillespie, "The elementary pull-out crisis: using research effectively," *American String Teacher* 42 (1992): 79–81.

<sup>29</sup>Gillespie and Donald L. Hamann, *Strategies for Teaching Strings: Building a Successful String and Orchestra Program* (New York: Oxford University Press, 2004), 16.

<sup>30</sup>Hodges, 18.

<sup>31</sup>Kathy Heise, email message to author, December 14, 2007.

<sup>32</sup>See Kathryn Vaughn, "Music and Mathematics: Modest Support for the Oft-claimed Relationship," *Journal of Aesthetic Education* 34 (2000): 149–166.

<sup>33</sup>Benjamin S. Bloom, ed., *Developing Talent in Young People* (New York: Ballentine Books, 1985), 18.