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The construction and method of a pre-violin instrument to be taught in the third grade.

Alpert, Harold P.

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Boston University
BOSTON UNIVERSITY
COLLEGE OF MUSIC

Thesis

THE CONSTRUCTION AND METHOD OF A
PRE-VIO-LIN INSTRUMENT TO BE TAUGHT IN THE THIRD GRADE

by

Harold P. Alpert

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Approved by

First Reader. Kenneth G. Kelley
Professor of Music Education

Second Reader. Calvin Schraga
Professor of Music Education
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CHAPTER I
STATEMENT OF PURPOSE

Concurrently with the increase in popularity of bands in the United States, there has been a decrease in the interest in stringed instruments, which in turn has led to a waning of the orchestral part of the instrumental program. Many people in the field of instrumental education, cognizant of this trend, are even now directing efforts to increase interest in strings on the part of students. Leaders in the field of music education are attempting to awaken music teachers to the dangers of allowing the increasing popularity of bands to lead to complete deterioration of the orchestral program. Articles in music journals and magazines are now and have been bombarding music educators with various aspects of this problem. Groups of educators are given many opportunities to attend string clinics offered by music colleges and music organizations.

Methods for teaching strings have been closely scrutinized and many new and revised methods have resulted. Professor Bornoff of Columbia University has devised a completely new approach to the study that vastly accelerates the gaining of technical skills. Walter Angus of Meriden has produced a method which may in time have a profound effect on string programs throughout the country.

The use of a pre-violin instrument which is described

1 Dykema & Gehrken, High School Music, Boston, C. C. Birchard, 1941
herein, will not supplant any of these aforementioned efforts, but rather will be another gun to be used to attack the problem of getting young people interested in strings strongly enough to enable them to hurdle the first problems of the stringed instrument.

The proposed pre-violin may be able to accomplish the objective in two ways: First, the instrument shall be so simple that the child will not be compelled to face the complexities of the four stringed violin. Secondly, the techniques gained on the pre-violin can be almost directly transferred to the violin itself with little or no loss in technique.

The implication that the pre-violin has for the string program is that it aims at the heart of the orchestral problem which is really a string problem. Without strings there can be no orchestral program. With a minimum of wind and percussion instruments and a maximum of strings, the orchestral program can flourish. Strings should be started as early as possible. The pre-violin is especially designed so that the violin could be started in the fourth grade with greater impetus than could have been possible under normal conditions. The likelihood of a greater percentage of students starting the violin is more probable than if there had been no advance preparation.

It is not intended to give the impression that the use of the pre-violin will assure a successful string program. How-
ever, the inclusion of the pre-violin as part of the string schedule may mean the beginning of a program that will grow and progress.
CHAPTER II
METHOD OF APPROACH

The study of stringed instruments poses more discouraging problems than are usually found in the study of wind and percussion instruments. The violin in particular requires a comparatively long training period and for this reason it is necessary to start students at an early age. The string problem that most music educators have to face results from the low interest in the violin among the majority of students and the high drop out rate among the students who do start the study of the violin.

Instrumental instructors who have used pre-bend instruments find that the great majority of the students develop an interest in playing the legitimate instrument which served as a model for the pre-bend instrument. If similar results could be obtained from a pre-string instrument, a project developing and using such an instrument would be worthwhile.

Teaching pre-bend instruments for the purpose of developing skills to be used later is essentially a transfer situation. Investigation of several transfer experiments by well known psychologists would bring to light many of the principles which would enhance the greatest possible transfer.

On the basis of investigations of other experiments, many of the general requirements for a pre-violin instrument may be determined. With these general requirements in mind a crude experimental instrument can be devised.
With the completion of the experimental instrument, all its playing difficulties might be easily discovered. Changes of various aspects of this instrument could be made until the final pre-violin instrument shall have evolved.

Once the final instrument is completed and playing procedures determined, a course of study for the instrument can be written. The material in this course of study would develop skills progressively leading up to the study of the violin.
CHAPTER III

THE THEORIES OF TRANSFER OF TRAINING AS A BACKGROUND TO USE OF PRE-BAND INSTRUMENTS

Within the past two decades, there has been an increasing use of instruments known as pre-band instruments by music educators throughout the country. The theories behind the use of these instruments can be traced back to experiments made by educational psychologists in the field of transfer of training. P. T. Orata in a summary of experiments in transfer has compiled the following data.¹

<table>
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<th>Findings</th>
<th>Lab. Exper.</th>
<th>Class Exper.</th>
<th>Total</th>
<th>%</th>
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<tr>
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<td>18</td>
<td>14</td>
<td>32</td>
<td>32.32</td>
</tr>
<tr>
<td>Finds appreciable transfer</td>
<td>23</td>
<td>26</td>
<td>49</td>
<td>49.50</td>
</tr>
<tr>
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<td>1</td>
<td>7</td>
<td>8</td>
<td>8.08</td>
</tr>
<tr>
<td>Finds no transfer</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2.02</td>
</tr>
<tr>
<td>Claims transfer but no data given</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1.01</td>
</tr>
<tr>
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<td>1</td>
<td>1</td>
<td>2</td>
<td>2.02</td>
</tr>
<tr>
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<td>2</td>
<td>2</td>
<td>2.02</td>
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<tr>
<td>Finds transference and interference</td>
<td>8</td>
<td></td>
<td>8</td>
<td>8.08</td>
</tr>
<tr>
<td>Finds interference only</td>
<td>3</td>
<td></td>
<td>3</td>
<td>3.03</td>
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<tr>
<td>Grand Total</td>
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<td>51</td>
<td>107</td>
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<td>Net total</td>
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<td>51</td>
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<td>100.00</td>
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¹ Includes experiments in sensory and perceptual functions, memory and experiments with animals.

Orata, P. T., The Theory of Identical Elements, Ohio State Univ. Press, 1928
The conclusions from the above data are that transfer does actually take place although the amount of positive transfer based on total learning is closer to zero than it is to one hundred per cent.

However, it was found that transfer is more likely to take place in the mind of the learner when there are many points of similarity between a familiar situation and an unfamiliar situation.

According to experimental studies by E. L. Thorndike, in order to have transfer from one situation to another, identical elements must be present.¹ The theory may be stated as follows:

"A change in one mental function alters any other insofar as the two functions have as factors identical elements. The change in the second function is, in amount, due to the change in the elements common to it and the first. The change is simply the necessary results upon the second function of the alteration of those of its factors which were elements of the first function and so were altered by its training. To take a concrete example, improvement in addition will alter one's ability in multiplication because addition is absolutely identical with a part of multiplication, and because certain other processes, for example, eye movements, and the inhibition of all save arithmetical impulses are in part common to the two functions."

An apparently opposite theory proposed by C. H. Judd² states that specific elements in one situation can only be

¹ Thorndyke, E. L., *Educational Psychology*, New York, Columbia University, Press, 1913

transferred if they are first generalized before applying knowledge to the new situation. Actually both theories are valid. They operate at different mental levels. The theory of identical elements tends to describe the process of transfer in terms of the lower mental processes where reasoning and problem solving are at a minimum. The theory of generalizations operates on a higher mental plane which recognizes similarities and analogies, though they may be quite vague. The theory of identical elements may be said to operate at the perceptual level whereas the theory of generalization operates at the conceptual level. Seen in this light, the two theories are not opposed but rather complementary.

The amount of transfer varies greatly among different individuals. Transfer of skills from one function to another varies under changing conditions in the same individual. One of the factors which may influence the amount of transfer is the kind and amount of previous training. If the period of previous training is short, and the task is complex, then the techniques gained in this first situation will in themselves be very little. If the training period is sufficiently long to gain proficiency at the first task, but little or no attention paid to generalization, the amount of transfer will vary with the ability of each individual to see similarities, and draw analogies. If the individual is not interested in the task at hand, or in the new task to which techniques may be transferred, or has no incentive for transfer, then the amount of transfer
will be small. Thus to gain the maximum amount of transfer, interest and incentive must be high and training extended over a period of time long enough to permit development of proficiency. There should be a great deal of generalization by the instructor, and the new task must have many points of similarity to the old or familiar task.

Children are more susceptible to impression than are adults and thus have an advantage in the amount of transfer. Adults on the other hand have a wider fund of knowledge and are able therefore to make a greater number of applications. However, in a situation wherein the tasks are simple, and the transfer is to be made to a single other task, children would have the advantage. To put it more concisely, children would transfer more than adults at the perceptual level, whereas adults would transfer more at the conceptual level.

No matter at what level transfer takes place, it can do so only if there is some conscious effort on the part of the individual. It is thus very important to consciously generalize and to make application to procedures of learning as well as to content. Retention of content is the means by which transfer is made between similar situations. Transfer however is greatly enhanced by the development of methods and techniques of attacking problems.

Transfer ability may be associated with superior intelligence. Pupils with low intelligence must necessarily make application through the medium of identical elements which
would require drill and specific guidance. Superior pupils will be able to make applications through generalizations and reflective thinking, and in this case, training and guidance may be more general.

There is a phenomenon known as retroactive inhibition among psychologists which sometimes takes place in the process of transferring skills from a learned function to an unlearned one. Retroactive inhibition is a mental block which slows down the learning of the new task rather than accelerates it. This occurs when there is a confusion of which elements may be transferred with the result that points in the old situation which are different from the new situation are not eliminated. Confusion may also result when the differences between two situations are slight but very important. Thus, learning French may be somewhat slowed down by studying Spanish since the slightest change in vowel formations is the difference between a French accent and a Spanish accent. The difficulties arising in such a situation may be somewhat abated by bringing the slight difference to conscious attention.

The application of the above principles becomes clear when the factors in the transfer situation are clearly defined. The transfer situation discussed in this thesis are as follows.

1. Third grade pupils, aged eight or nine, of varying intelligence

2. A pre-violin instrument through which skills can be easily learned and later transferred to the violin

3. The violin to which skills are to be transferred
The age of the pupils limits the presentation of a course on the pre-violin to the perceptual level. The course of study should be sufficiently long to permit the attainment of proficiency. Materials should be vivid and entertaining enough to maintain a high level of interest throughout. The instructor should make as many generalizations as possible. Most important of all the design of the instruments should be very simple so that problems will be at a minimum. These principles have already been adhered to in the use of pre-band instruments. An extension of these same principles to include the pre-violin will greatly help to solve the problems in its development.
CHAPTER IV

THE FUNCTION OF PRE-BAND INSTRUMENTS IN DEVELOPING
INTEREST IN INSTRUMENTS AND TRANSFERABLE TECHNIQUES

There are several types of pre-band instruments now in use in the schools of the United States. The song-flute and the tonette are very similar and are played with the same technique. The flutophone is quite similar but has the advantage with its attending complexities of an extra octave by means of over blowing to produce the overtone.

These three instruments are modelled after the clarinet in that there are a great many identical elements. To play these instruments one blows through one end of a tube. There is no reed. The tone is produced by a column of air directed against a protruding edge within the instrument. Thus there is no problem of embouchure such as there would be on the clarinet. There are seven holes on the top side of the instrument and one hole on the bottom. These holes are covered in the same sequence as that of the clarinet. There are however, no extra keys which might be a confusing factor in the study of the instrument. The song-flute and the tonette have a range of nine tones. Cutting out two extra holes will give the tonette a wider range. The flutophone has a range of two octaves, but there is the problem of overblowing when the student tries to produce lower tones. Its tone is somewhat thinner than that of the tonette or song flute. It is pitched in C.
The melody flute is modelled after the flute. It is held like a flute and their tones are similar. The problem of embouchure on this instrument is eliminated by the use of a hollow piece which directs a stream of air against the edge of the hole. The tones an octave higher, like those of the flute, are produced by overblowing to attain the overtone. Similar to the song flute, the tonette and flutophone have no keys. There are but six holes to be covered in the same sequence as that of the flute.

The bugle, less a pre-band instrument than a legitimate instrument itself, is similar to the trumpet. Its only problem is that of embouchure, which, if developed, can be transferred directly to the trumpet. The tone is produced by the vibration of the lips against a cup mouthpiece in exactly the same manner as on the trumpet and other brass instruments. Different tones are produced by increasing the tension or lessening the tension of the lips. The tones produced are those of the harmonic series. It is simpler than the trumpet in that there are no valves or keys. The bugle could not however lend itself readily to classroom work because its volume is such that could not be too easily controlled. Then too, the fact that its tones are only those of the harmonic series rather than the diatonic series means that the vocal program could not be too easily coordinated with the study of this instrument.

All the pre-band instruments above mentioned have several
things in common. They are modelled after a legitimate instrument with which they all have identical elements in common. They all have eliminated certain factors of the legitimate instruments to make the pre-bend instruments much more simple in construction and easier to play. Although lacking the tonal possibilities of the legitimate instrument, the comparative ease with which the pre-bend instruments can be mastered give the pupils first experience with instruments a favorable quality by engendering the feeling of success. The favorable experience can be readily transferred to an interest in the study of the legitimate instrument after which they were modelled. Then too, the music teacher, by observing the progress of students on the pre-bend instruments, has a finer basis for selection of talented students and can make surer recommendations to parents.
CHAPTER V

CARRYING THE PRINCIPLE OF THE PRE-BAND INSTRUMENT TO THE STRING FAMILY

In the United States today there is a great need for stimulating an interest in strings. The band, with its pomp and show and its association with the ever popular athletic contests, has proven to be too great a competitor for musical talent for orchestras to strive and grow. Perhaps an even greater impediment to the string program is the comparatively longer training period before musical sounds come forth from the string instrument. Within a six months period, the average young clarinetist, trumpeter or trombonist has enough technique and control to play simple melodies or parts in an elementary band. The young violinist however, finds his first position with the violin acutely uncomfortable. He has four strings, each of which has to be tuned accurately, pegs which either defy his every effort at tuning or will not stay tuned; and a bow which he finds difficult to draw in a straight line on the same string. Being young, with the ability for suspending judgement not highly developed, the first experience with the violin tends to be a discouraging affair. As if that were not enough, his friend who has just had a lesson on the trumpet comes back flushed with excitement (and exertion) to tell of his experiences with that instrument. Presuming that the youngster was not initially discouraged, perhaps because of the personality and skill of his instructor, radio and tele-
vision brings to him the world's greatest virtuosos of the
violin and makes him aware of the great chasm between the sound
of their instruments and his own.

The pre-band instrument was mentioned in detail in the
previous chapter as a means of fostering interest in band in-
struments. Nothing, however, was mentioned about the use of
the pre-orchestral instrument. What is there that can be used
as a pre-orchestral instrument? The Psaltery has strings that
are strummed in the same manner as those of the zither or the
guitar. There are very few identical elements which could be
later transferred to the study of the violin. A short time
ago an instrument known as the fiddle-ette was devised. It
was modelled after the violin, but so exactly as to eliminate none
of its complexities. It consisted of four strings and a finger-
board and framework over which the strings were stretched.
The resonating body of the violin was simply eliminated. The
purpose of this instrument was not so much that of being a
pre-violin in the sense of the aforementioned pre-band in-
strument, but that of being an economy measure.

No instrument has appeared commercially that can be truly
called a pre-violin instrument. Such an instrument would have
many elements in playing and in construction that would be
identical to those features of the violin; but many of those
complex factors which cause difficulty in the playing of the
violin would be eliminated. The only recourse therefore would
be to devise an instrument meeting the requirements of the pre-
violin. Such an instrument would have a sound box, a finger board, and one or more strings. However, its exact size and shape would be determined by taking into consideration a great number of factors which will be discussed in the following chapters.
CHAPTER VI

DEVISING THE GENERAL PLAN FOR THE PRE-VIOLIN ACCORDING TO THE REQUIREMENTS FOR SUCH AN INSTRUMENT

Keeping the principles of transfer ever present in mind, the immediate problem is to narrow down still further the general outlines of what the pre-violin should actually be. We know that the pre-violin must be modelled after the violin and there should be many points of similarity between the two instruments. The major problem for designing the pre-violin is the elimination of as many difficulties of the violin as possible, yet not simplifying to the degree that all elements common to both instruments are removed, or that musical tones cannot be obtained from the pre-violin.

The violin is made up of four major elements. They are strings, a sound box, a fingerboard, and the bow. In making up the pre-violin, each of these four elements found on the violin are simplified. Playing on and tuning four strings is a problem that could be partially eliminated by using only one string. The body, or sound box, of the violin should be retained but in a shape that might be easily constructed. The fingerboard is made easier to comprehend by the installation of frets. Finally the bow should be a small sized violin bow.

The overall size of the pre-violin should be no larger than the half size violin. For the third grader the size of the instrument may mean the difference between success and failure in terms of skills to be learned. The fingerboard
especially should be small enough to fit the hand of the eight year old child. The probable effect of these simplifications should be considered quite carefully. The elimination of all but one string will simplify the coordination of both hands. With one string it is impossible for the student to place his fingers on one string and the bow on another string. The sound box or resonating chamber is retained so that the child may like the tone of the instrument. However, the shape of the sound box would differ from that of the violin for the reason that the construction of a regular violin sound box would be too costly and difficult to make. The fretted fingerboard would eliminate one of the greatest problems faced by beginners on the violin. This problem is the accurate spacing of fingers in order to play in tune. With frets, a great deal of guess work would be removed and intonation would be as accurate as the spacing of frets can make it. Intonation therefore would become a construction problem rather than a playing problem, yet the training of finger spacing would be definitely established. The half size bow would be lighter and easier to handle than the violin bow, but the hand position for the smaller bow is the same as that for the larger bow. The muscles necessary for control of the larger bow with good hand position would be partially developed by handling the smaller bow.

The instrument would be pitched in C in order that it might be used in coordination with other pre-band instruments.
such as the tonette, song flute, melody flute or flutophone all of which are pitched in the key of C.

Thus, following the theory of identical elements of transfer, the points of technique that can be transferred are:

1. Tuning and handling of a string
2. Correct finger spacing
3. Position for holding violin and bow
4. Coordination of finger movement with activating the string by either a bow or plucking
CHAPTER VII

THE CONSTRUCTION OF THE PRE-VIOLIN INSTRUMENT:
THE DESCRIPTION OF THE EXPERIMENT

Since the pre-violin was conceived with the violin as a model, the two main elements of the violin, namely the sound box and the fingerboard, were the two construction problems dealt with first. For the sound box, a cigar box of standard size was obtained. At the end of the box a nail was driven to act as a protuberance to which a string could be later attached. A circular hole two inches in diameter was cut in the center of the top of the box. At this time it was discovered that the box was made of cardboard, rather than wood as was supposed. This, it was thought, might considerably affect the tone, but since the whole project was to be of an experimental nature, work was continued with this box with the idea that a wooden box would be constructed when most of the problems of the fingerboard would have been solved. Within the box, a sound post was affixed to a spot approximately one-eighth of an inch directly behind the place where the bridge would be put. The following diagram is the result of the first phase of the experiment.

Diagram I

\[ \text{Diagram Image} \]
The first fingerboard was twelve inches long and set in a wedge shaped slot in a base eight inches long. The fingerboard was designed to slide back and forth in the slot so that the length could be adjusted later, after experimentation with the string. The reason for the wedge shaped slot rather than a square one is that the tension of the string would keep the fingerboard from sliding forward once the length has been adjusted. At the back end of the fingerboard, a regular violin peg was inserted through a three-eighth inch circular hole drilled there for that purpose. The following diagrams illustrate the second phase of the experiment:

Diagram II
Assembling the sound box with the fingerboard was a fairly simple task. The sound box was opened at the top end and two nails driven through one end. This in turn holds the base to which the fingerboard is attached. The top was then closed and glued into position. However, in putting on a string, it was discovered that the violin strings were all too short to fit the over-all length of the instrument. The problem was solved by obtaining a viola string which was long enough to fit the over-all length of the instrument. The following diagram will illustrate the result of all parts being assembled.
The result being an instrument of a sort, the next step was to test its playability. Almost immediately evident after fingering the instrument was the fact that the string was too high above the fingerboard. The distance between the string and the fingerboard was so great that depressing the string to the fingerboard produced a tonal interval in excess of two diatonic steps. The situation was not alleviated as fingers were put down in sequence because the fingerboard slanted downward toward the sound box. The chief factor causing the too great distance between fingerboard and string was the position of the peg.

The fingerboard was then removed from the slot and a new fingerboard inserted. The new fingerboard was to be a straight piece of wood, the end of which was to be cut off at a thirty degree angle. A hole was drilled through the bevel created by this angle and the peg inserted. The result of this was satisfactory in that the top of the peg was situated below the level of the fingerboard. The new fingerboard as it appeared assembled is illustrated below:

Diagram V
As can be noted in the above diagram, the string clears the fingerboard by a fraction of an inch, and the fingerboard itself is joined to the sound box in such a way that two-thirds of the fingerboard is below the level of the sound box, and one-third above. The bridge was adjusted to meet the new height. The string thus cleared the sound box by three-fourths of an inch, which was ample clearance for use of the bow.

Further experimentation with this new fingerboard showed that the interval between fingers was more than one inch. This interval is obviously too large for eight and nine year old children to reach comfortably. However, continuing to experiment, it was discovered that the intervals grew gradually closer together as the string was depressed further down on the fingerboard. At a distance of two-thirds the length of the fingerboard, tones of the diatonic scale could be produced by depressing the string at intervals of one-half inch apart, rather than one inch at the end of the fingerboard. This distance could be easily negotiated by the third grade child.

Accordingly, the fingerboard was shortened to a length of six inches which in effect brought the end of the board to a point where the interval between diatonic tones is the same as it was at the lower one-third of the longer key board. The appearance of the pre-violin at this stage is illustrated below.
This instrument could produce five diatonic tones quite satisfactorily. The five tones are produced by depressing the string with each of four fingers in a sequence that is exactly the same as that used by the violin. An additional four tones could be produced by placing the hand in what would correspond to the fifth position on the violin. These additional four tones would thus give the pre-violin a range of nine tones starting at C and proceeding to D'.

The upper four tones however would have to be produced at a position that would bring the hand almost over the body of the violin. The very fact that the hand would have to move out of first position to play more than five tones might pose a problem and lead to countless complexities in playing songs with a wide variety of skips above and below E (played with fourth finger, first position).

There are two recourses to the solution of this problem.
One is to add another string pitched in A (represented by E on the staff). This would increase the range of tones to nine diatonic tones all played in the first position. The accompanying disadvantage would be the fact that a change from one string to another might be a source of confusion. The other recourse would be to leave the instrument alone, but design the method so that the entire scope of the instrument would be limited to the first five diatonic steps. For the greater part of the method all exercises and songs would be in the first position and at approximately two-thirds of the way through the course four additional tones in the fifth position may be presented. The material used at this point should be carefully selected. The intervals of the music should not be such that a constant shifting of position would be necessary.

In view of the fact that the pre-violin should not be considered, an end in itself but should lead directly to the study of the violin, the latter course would seem to be the wiser one to follow. Therefore, the only change necessary would be to substitute a wooden sound box for the one already in use.

The installation of frets on the fingerboard was postponed until the general outline of the instrument has been fully determined. For accurate spacing, the Stroboconn will be used. This instrument determines more exactly than any human ear the pitch of any tone. Once the spacing of the frets shall have been accurately determined, the only problem of intonation will be tuning.
CHAPTER VIII
DEVISING A METHOD FOR THE NEW INSTRUMENT

Although the instrument is to be pitched in C, the musical notation for it will be in A. The reason for this is that the notation for the violin, in many beginning methods, usually starts on A. Thus the probability of note to finger association being transferred from the pre-violin to the violin would be more likely. At the same time the instrument may still be used with the other pre-bend instruments. Although this in effect makes the pre-violin a transposing instrument, it should not be detrimental to the great majority of pupils who have a relative sense of pitch rather than an absolute sense of pitch. There is yet another disadvantage in that music for the pre-bend instruments and the pre-violin will not be interchangeable. However, the fact that all these instruments are aimed at the study of the legitimate instruments after which they are modelled, makes the inclusion of as many identical elements as possible of paramount importance.

To further eliminate technical problems which would be detrimental to the immediate successful playing of the pre-violin, the first section of the method will be so designed that the strings should be plucked rather than bowed. However, the use of the bow is only postponed and not eliminated. When the four fingers have been provided with enough exercise to be able to move scale-wise, and in skips of thirds, in rhythm not more complex than one tone to a beat, first exercises for the
use of the bow will be provided duplicating for the most part the plucking exercises found in the first section.

All exercises will be so designed as to be in good rhythmic balance, and as the use of more and more tones come within the capabilities of the student, tonal balance will be stressed. The very first exercises should be quite short in length in four-four time. There should be an attempt to have the student feel a sense of accomplishment from the very beginning. Feeling of success should be engendered by every teacher of every subject, for this is as important to mental health as milk is to physical health. The sense of success thus gained on the pre-violin will assure interest.

The format of the book should give the appearance of being simple. The staffs and notes should be large. Each exercise should be named as imaginatively as possible, no matter how simple or tonally uninteresting from the adult viewpoint. As many songs with a five tone range as could be gathered should be included in the first section. Rhythmical or tonal adaptations could and should be made to put more songs within the scope of their technique. Each page should be well illustrated with cartoon-like figures all playing the pre-violin, which would be held in such a manner that each finger position can be plainly seen. The purpose of the illustrations would be twofold; entertaining and instructing.

Thus two factors, the construction of the instrument and the design of the method, have been so deliberately simplified
that the student will have the maximum amount of success within the limitations of the pre-violin. It is quite possible that other factors, such as inadequate time for practice or inept instruction, may work to the detriment of the goals set forth. But those problems are to be solved by administrative officers of the schools wherein the pre-violin may be taught, and will not be considered within the scope of this thesis.
METHOD
for the
PRE-VIOLIN
LESSON I

The instructor should show by explanation and demonstration how to hold the instrument. The position for holding it should be accomplished in three steps: one, placing the pre-violin on the lap with the back side towards the player, two, placing the index finger in the second fret, three, placing the end of the sound box under the chin in such a manner that the string appears to the right of the chin and, at the same time, retaining the finger position of the second step.

The next step is to have the whole class activate the string at the same time. In order that they all start together some word signal should be used. A very common one that would be quite adequate is the combination of "ready", "play". Drill will be necessary to have students pluck the string only on the word "play" and not "ready". Establishing this discipline the very first lesson and continuing it throughout the course will give the teacher the control needed for class instruction and be an invaluable aid to the instrumental director in class and to the orchestral director in the future.

After the class has had experience plucking the string in response to oral command, the first experience of written command should be given. The quarter note and quarter rest should be reviewed and represented on the blackboard. The staff should then be put on the board with special attention directed to the second space. Shading in the space might be a good device for making it stand out. The class should be told
that the space has a name and that name is A. The name of the
ing string is A, and when a note is put on the second space they
are to pluck the string. Put one note in the second space and
have them play it. Put several notes on the staff and have
the class play them.
LESSON II

Review salient features of Lesson I, namely, the quarter note, the quarter rest, and the second space of the staff, A. They all play the first song of the method, "The Clock Strikes Five".

All the songs in this lesson are on the open A string. The second space is shaded.
THE CLOCK STRIKES FIVE

THE CLOCK STRIKES SEVEN

THE CLOCK STRIKES THREE TWO TIMES

THE CLOCK GOES AND STOPS

THE CLOCK STOPS AND GOES

THE CLOCK GOES CRAZY
LESSON III

The purpose of this lesson is to acquaint the pupils with a new tone, B, as represented by the third line of the staff. As in the previous lesson, some means should be used to bring the third line of the staff to the attention of the students. Making the third line a little heavier and extending it beyond the other lines of the staff might be such a means.

Blackboard preparation should consist of review and playing the tone A as represented by quarter notes on the second space of the staff. A second staff should be placed on the board with the third line drawn more heavily than the others. The class should be told that the name of this line is called B. They should be shown that B is played with the first finger in the second fret. Have them play B to oral command several times. Have them play A to oral command. Ask if A and B sound exactly alike. Ask what the difference is in the sound of the two tones. Represent B by placing a quarter note on the third line and have them play. Add four more notes to the first and have them play.
THE BEE STINGS THE STRING

A COMES BEFORE B

A SWINGS TO B

BACK AND FORTH

A TAKES A REST, AND B TAKES A REST

OUR FIRST MARCH
LESSON IV

The next new tone to be presented is C# and there are several things which might cause confusion. The first of these elements is that C# must be played with the second finger which is placed in the fourth fret. The third fret must be omitted, and there is a strong possibility that many may not do this. Because of this, some students may mistake C# for A. These two sources of error should be anticipated by stressing exactly where to place the second finger and pointing up the fact that a fret is omitted. The difference in location of the second space and third space should be drilled at length.

The initial presentation of the new tone, C#, should be similar to that of presenting the tone, B. By explanation and demonstration the position of the finger should be shown, stressing strongly that the third fret is "skipped" and that the second finger must "stretch" to the fourth fret. When all have placed their fingers properly, an oral drill plucking the C# should be given. Further oral drill calling for B as well as C# should also be given. Have all check their own fingers to see if the third fret is omitted. C# should be represented on the third space of the staff. Have the class play it several times. Represent A on the staff and have them play it several times. Ask where C# is; ask where A is. Represent B and drill all three tones.
LOOK SHARP TO C SHARP

A AND C# MAKE A BRIDGE

SLIDING UP - SLIDING DOWN

SONG - BY THE LIGHT OF THE MOON
LESSON V

The purpose of this lesson is the consolidation of material already presented, and the lengthening of songs.
The object of this lesson is to teach a new tone, D. The presentation of new tones by this time might seem a little routine. However, in order that the use of the third finger in the fifth fret and the response to its representation on the staff becomes as strongly fixed within the minds of the pupils as are other tones, many more exercises using the D only will be provided before it is incorporated in exercises using other tones.
D DOES DING - DONG

THE CLOCK STRIKES THREE ON D

DING-A-DONG TO THE TUNE OF D

COUNT THE RESTS TO D

A B C# D, THE ALPHABET SONG
In presenting the new tone, E, there is a further opportunity to fix D, the tone presented in the previous lesson, more strongly in the minds of the students. This can be accomplished by following the pattern in which B was presented in Lesson III.

Blackboard preparation should consist of the review playing of D as represented by quarter notes on the second space of the staff. A second staff should then be placed on the board with the fourth space shaded and extended so that it might stand out. The student should be told that the name of this space is E, and that when notes appear on that space they are to be played by using the fourth finger in the second fret beyond the third finger fret. Have the class place all four fingers on the fingerboard checking each finger for proper position. Have them all play E to oral command several times. Have them play D several times. Have them play D followed by E several times. Have them play E by placing a quarter note on the fourth space. Add four more to the first and have them play.
E IS EASY

FUN WITH E AND RESTS

D IS THREE AND E IS FOUR

BACK AND FORTH FROM D TO E
LESSON VIII

This lesson should be one wherein all things taught and presumably learned up to this point should be consolidated. Review D and E on the blackboard and then proceed.
A B C# D E IS OUR MUSIC ALPHABET

THE ALPHABET TAKES A REST

BACKING UP

GOING UP AND DOWN THE MOUNTAIN

OATS AND BEANS
LIGHTLY ROW

[Music notation image]
LESSON IX

First use of the bow should be presented at this time, since all the five fingers have been put to use. In connection with the use of the bow, tones longer than one beat will be presented since tones on the pre-violin can be sustained with the bow.

The first problem facing the student is that of holding the bow. The bow used should be lighter and smaller than the standard violin bow. This in effect would tend to equalize the variations of the hand strength of the pupils. Two main rules that will help with the problem is the slogan-like phrase, "the tip of the little finger at the end of the bow, and the thumb is bent". Adjusting the other fingers once this rule is carried out is a simple matter. Have the class put the bow down and pick it up several times. Correct as many pupils as is necessary so that all will have the proper position.

The next step is to practice drawing the bow across the string. Demonstration and explanation are the means of getting this phase of playing across to the children. The explanation is simply that the bow must be drawn straight across the string, and that the bow and the bridge should be "even" meaning of course parallel. The bow should be first placed on the string at a distance of about one inch from the bridge. Have the class practice placing the bow one inch from the bridge at the end of the bow near the hand, near the middle, and at the tip and the same thing in reverse. Next at the command "down" have
everyone draw the bow from the hand to the tip; at the command "up" have everyone push the bow back to its original position. On the blackboard show the symbol for up (\(\uparrow\)), and the symbol for down (\(\downarrow\)). Have them draw the bow as you point to each. Place a staff on the board with five quarter notes on the second space. Place the symbols \(\uparrow\), \(\downarrow\), alternately over each note. Drill until everyone moves his bow down and up in unison.
LESSON X

Review the holding of the bow. Place four quarter notes on the blackboard with the symbols ⅛, □, over each alternately. Have the class say "down, up, down, up". Have the class play and say at the same time "down, up, down, up". Erase the symbols over the quarter notes and place two half notes directly underneath the first and third quarter notes. Review the half note, drawing from the class that each half note gets two beats and are equal to two quarter notes tied together. Tie the first two and second two quarter notes together. Put two down marks over the first two quarter notes and tie together. Put two up marks over the second two quarter notes and tie together. Have the class say dow-own and u-up. Have them bow dow-own and u-up saying and playing simultaneously. Place the same combination of symbols over each of the half notes and point to each having the class say and play dow-own, u-up.
THE BOW MAKES A SING

THE BOW MAKES B SING

THE BOW MAKES C# SING

THE BOW MAKES D SING

THE BOW MAKES E SING
LESSON XI

The purpose of this lesson is for further consolidation of technique of using the bow and playing half notes.
LESSON XII

This lesson introduces a new kind of rest, the half rest. Place two quarter notes tied on the blackboard followed by an equal sign and a half note. Directly underneath place two quarter rests followed by an equal sign and a half rest. Instruct the class to say "rest, rest," when they come to the half rest.
THE HALF REST SAYS, "REST, REST"

HAVING FUN WITH THE OLD AND THE NEW RESTS

MELODY

STATELY DANCE
LESSON XIII.

The objective of this lesson is that the class should learn to play the dotted half note and the whole note giving them three and four beats respectively.

Place six quarter notes on the board in groups of three with the symbols /, \, placed alternately over each note. Have the class say and play, down, up. Erase the symbols above the quarter notes, tie the first group of three quarter notes together, and do the same to the second group. Have the class deduce that the first group is played dow-ow-own, placing a down symbol over each note and tying them similar to the way the notes are tied. Have the class deduce that the second group is played u-u-up. Bring out the fact that they have just played two three beat tones. Erase quarter notes and substitute dotted half notes. Place three down symbols, tied together, over the first note and three up symbols over the second note similarly. Have the class play and say dow-ow-own, and u-u-up.
SWING AND SWAY

THE DOT MAKES THREE

ALL MIXED UP

MY FIRST WALTZ
LESSON XIV

The whole note is the problem of this lesson. The pattern for presenting the whole note is so similar to that of presenting the half and dotted half notes that some of the steps may be omitted.

Place two groups of four quarter notes connected by ties on the blackboard. Point out that the first group would be played dow-ow-ow-own and the second group u-u-u-up. Place two whole notes underneath each group with the appropriate symbols and drill several times. Review the half note and the dotted half note on the blackboard.
THE WHOLE NOTE CLIMBS THE SCALE

SLOW MELODY

MY FIRST DUET
LESSON XV

This lesson is logically one of consolidation, wherein the quarter, half, and whole notes can be better assimilated. Exercises contained herein will be melodic as is possible within the range of tones studied thus far.
MY FIRST DUET
LESSON XVI

The eighth note is to be presented in this lesson using the quarter note as the point of departure. There are many aspects of two eighth notes to the beat that, true though they be, may be a source of confusion in the understanding of the rhythm.

Two equal notes to the beat, the first of which is accented, is a good definition for the second rhythm but may seem like jabberwocky to be memorized by the third grader. In its stead, I would deduce that quarter notes are played at a walking speed. Place on the board:

```
walk walk walk walk walk walk walk walk
```

By adding little tails to the notes on the blackboard, we can make run notes out of the walk notes. The reason for this approach is that speed is a concept that is clear to the pupils.

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run run run run run run run run run
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Have the class say "walk" for each quarter note written. Instruct them to do this at a slow tempo (andante). Then have them say the word "run" at a tempo that the instructor shall have demonstrated. The tempo for the run notes should be twice that of the quarter notes. Have the class play quarter and eighth notes. Place a series of quarter and eighth notes on the board and have them say the word walk, or run, as the notes may indicate. Have them play the notes at the tempo they set when they said the words walk and run.
RUN, RUN, RUN, RUN, WALK, REST

JUMPING SONG

FLYING FINGERS

RUNNING BACK AND FORTH
LESSON XVII

This lesson should be one of consolidating materials and techniques presented. Review the eighth and quarter notes on the blackboard. Place a single eighth note on the board and ask whether that note will run or walk. When the correct answer is given place six more eighth notes on the blackboard. Have the class play from the board.
JINGLE BELLS
LESSON XVIII

The eighth notes having been presented and assimilated, the next logical rhythm to be presented is the dotted quarter and eighth note combination.

The problem in the presentation of this rhythm is in the utilization of techniques already known to gain new techniques. Since the dotted quarter note is to be taught as getting two counts, a review of the half note would best precede this note. In teaching the proper relation of the dot to the quarter note, a quarter note tied to an eighth note is used and thus the slur should be reviewed. One step can be eliminated by using two quarter notes tied together in place of the half note.

The first thing to be placed on the blackboard are two quarter notes tied together followed by two more quarter notes. Have the class say "dow-own, up, down". Have them play this. Place a quarter, two eighth, and a quarter notes directly underneath the notes already on the blackboard. Have the class repeat after the instructor "dow-own, up, down", saying the eighth note quickly. Have them play the rhythm. Substitute a dot for the first eighth note. Have them say "dow-own, up, down". Bring out the fact that the dotted quarter note gets two counts and the eighth note is played quickly. Erase the symbols above the notes and place two bow marks followed by one down and one up bow mark. Have the class say "u-up, down, up". Have them play this.
Place the following on the board:

\[ \begin{array}{c}
3/4 & \text{\footnotesize $\times$} & \text{\footnotesize $\times$} & \text{\footnotesize $\times$} & \text{\footnotesize $\times$} & \text{\footnotesize $\times$} \\
\end{array} \]

\[ \begin{array}{c}
3/4 & \text{\footnotesize $\times$} & \text{\footnotesize $\times$} & \text{\footnotesize $\times$} & \text{\footnotesize $\times$} \\
\end{array} \]
LESSON XIX

This lesson is one of consolidation of materials. Review the dotted quarter and eighth notes on the blackboard.
LESSON XX

In presenting six-eighth time, other time signatures in simple time will be explained in detail. The class should be shown the relation between the word quarter and one-fourth. This can be readily done by asking the class how many quarters make a dollar. From this deduce that each quarter is one fourth of a dollar and that one-fourth or quarter may be used interchangeably.

Call the attention of the class to the time signatures at the beginning of music and that the four on the bottom in each case means that one-fourth or quarter note gets one push. Point out however that the upper number tells how many quarter notes can be put in one measure.

Put 4/4 on the blackboard and two measure bars. Place four quarter notes within the measure. Erase and place two half notes. Erase and put one dotted half note in the measure. Ask now many beats there are supposed to be. Ask what is missing to make four beats. Repeat the procedure with 3/4 and 2/4.

Exercise: Ask class to place measure bars correctly:

\[\begin{array}{c}
\text{\textbf{4/4}} \\
\cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\
\end{array}\]

\[\begin{array}{c}
\text{\textbf{3/4}} \\
\cdot \cdot \cdot \cdot \text{\textbf{2/4}} \\
\end{array}\]
Ask the class to play the above.

Place four quarter notes on the board and underneath each place two eighth notes. From this have the class conclude that two eighth notes get one beat. Circle each cuplet. Place the following on the blackboard:

Ask a member of the class to place in the measure bars.

The lesson should be terminated after playing a favorite song of the class.
LESSON XXI

Review time signatures in simple time. Deduce from the class that the upper number tells the number of beats to each measure and the lower number equals one fourth and receives one beat. Erase the four under the three and substitute an eighth. Ask what kind of a note would get one beat with an eight for the bottom number. Deduce that it is the eighth note. Ask if the eighth note will walk or run. Deduce that it will walk.

Place the following on the board:

\[ \frac{3}{8} \]

\[ \frac{3}{8} \]

Erase the three and the measure bars. Substitute a six. Deduce that there will now be six beats to the measure.

\[ \frac{6}{8} \]

\[ \frac{6}{8} \]

Have the class play each slowly. Ask them to push a little harder on the first note of each group of three.
LESSON XXII

The object of this lesson is to teach the value of the quarter note and the dotted quarter note in 6/8 time.

Place four eighth notes on the board after a 2/8 time signature. Connect with slurs placing symbols ⊗ and ⊕ over each group. Have the class say and play from the board.

Place six eighth notes on the board after 6/8 time signatures, in two groups of three. Connect each group with a slur. Place appropriate symbols above. Write a dotted quarter note under each group.
THE EIGHTH GETS ONE, AND THE QUARTER GETS TWO

THE DOT MAKES THREE

ROW, ROW, ROW YOUR BOAT
LESSON XXII

The object of this lesson is to present the dotted half note.

Place 6/8 time signature followed by twelve eighth notes on the blackboard. Tie each group together with slurs. Place appropriate symbols above each group.
DRINK TO ME ONLY WITH THINE EYES
Lesson XXIV

This lesson will present the sixteenth note for the first time. The idea of relative speed will be utilized mainly in the presentation of the new rhythm. The quarter note was considered a tone that proceeded slowly at a walking tempo and the eighth note a tone that ran.

The sixteenth note will be considered a tone that runs very fast. In facilitating the saying of the sixteenth notes, the syllable "a" will be used following the word run. Place four quarter notes on the board and ask the class to say, "walk, walk, walk, walk". To the quarter notes add flags that will change them to eighth notes. Ask the class what the flags will make them say. The answer should be run. Have the class say "run" four times, quickly. Add still another flag to each. Ask whether the extra flags mean that the notes will stay the same or go faster. The correct answer is faster. Add four more sixteenth notes and write the words run-a alternately under each of the notes. Ask the class to sing and then play.

\[ \begin{align*}
\text{quarter note} & \quad \text{quarter note} \\
\text{eighth note} & \quad \text{eighth note} \\
\text{sixteenth note} & \quad \text{sixteenth note} \\
\text{sixteenth note} & \quad \text{sixteenth note}
\end{align*} \]
OLD MAC DONALD'S FARM

THERE'S MUSIC IN THE AIR

SPEEDY SONG
THE FIRST FINGER PLAYS HIGH

PLAY, PLAY, PLAY, REST

COUNT THE RESTS

MAKING F# SING

F# WITH DOTTED HALF NOTES AND WHOLE NOTES
LESSON XXVI

The object of this lesson is to present G#. Have the class locate the F# fret with the first finger and have them place their second finger two frets away.

Instruct them to play four times at oral command. Tell them they have played a new note, G#. Place a staff on the board with four G#'s placed on the first space above the staff. Have class say it and play it.
THE G#/ sits on the staff

THE BOW MAKES G# SING

THE SECOND FINGER IS HIGH

F#/ and G#/ makes a high first and second finger

BACK AND FORTH IN THE SKY

MARCH WITH FIRST AND SECOND FINGER
LESSON XXVII

The presentation of A, the first line above the staff, is the object of this lesson.

Review F# and G# on the blackboard. Have the class locate F# on their instrument with their first finger. Have them pluck F# and G# as the instructor points to each note on the blackboard.

Draw another staff adjacent to the one already on the blackboard. Draw one ledger line quite heavily above the staff. Tell the class that the name of this tone is high A and when a note is written on this line they are to play it with their third finger. The third finger is to be placed in the fret adjacent to the fret played by the second finger. Ask the class to place their first and second fingers on the F# and G# frets. This having been done, ask them to place their next finger, or third finger, on the very next fret. Write four high A's above the staff while their hands are still in this position. Ask them to pluck high A four times.
MARKING TIME WITH HIGH A

F♯ AND A MAKE A BRIDGE

SLIDING UP AND DOWN

MERRILY
SKIPPING SONG

PRETTY MELODY
LESSON XXVIII

The object of this lesson is to teach a new tone, B. Here again, as in Lesson VI, the problem is to place the representation of B above the staff and its finger position to a point where it will be as strong as it is for F#, G#, and A.

Therefore, more exercises using B alone will be provided than for the other three tones. Use of the fourth finger is presented in a manner similar to A.
WE REACH THE TOP

THE CLOCK STRIKES THREE ON B

LING-A-DONG TO THE TUNE OF B

COUNT THE RESTS TO B

COUNTING FINGERS 1, 2, 3, 4

BOWING TO MAKE OUR TONES SING
LESSON XXIX

The object of this lesson is to bridge the gap between first and fifth position. Exercises contained in this lesson will be designed to give pupils practice in sliding from first to fifth position.
AFTER FOURTH FINGER COMES A SLIDE TO FIRST FINGER

SLIDES AND RESTS

SLIDING SMOOTHLY

A TO A IS THE SCALE
LESSON XXX

This lesson is an application of the newly acquired octave range.
OLD BLACK JOE

Slide

Slide Slide Slide

Slide Slide Slide 2

Slide 4 Slide 3

Slide Slide Slide 2
FINDINGS AND CONCLUSIONS

In a limited trial of the pre-violin in a third grade class of twenty-five pupils, the initial reception of the instrument was highly enthusiastic. The class seemed to take a greater delight in plucking the string in unison rather than individually, probably because the tone of the pre-violin is not strong when played individually.

Many of the class members already knew what a quarter note and a quarter rest look like and the value of each. They seemed anxious to play the first few simple notations placed on the blackboard. The lesson was brought to a close with a demonstration by the instructor playing "Mary Had a Little Lamb".

The next several lessons progressed with all members of the class making satisfactory progress, meeting each new problem with determination and apparently feeling pleased with their accomplishment.

Whether or not the use of the pre-violin would actually facilitate the study of the violin remains for further detailed study. Suggestions for such a study may be outlined as follows: Select two groups of students who are as nearly equal in age and ability as can be determined by examination of scholastic records and aptitude tests. Present the pre-violin to one group for a period of one school year during which time they shall follow the course of study prescribed in the body of the thesis. The next school year the violin should be presented to all of the pupils of either the pre-violin group or the control
group who may wish to study. At this point, the percentage of those in each group who want to study the violin should be noted.

The method for study of the violin should be the same as for each group. The week to week progress of all individuals should be carefully recorded in every aspect. At the end of the second school year following the start of the experiment, the progress of each group should be tallied. Elements to be considered are technique, tone, dynamics, rhythm, intonation, and reading. The number of students who drop out should be incorporated into the record.

The final step would be to show the correlation of progress on the violin to the study of the pre-violin.
Interest in strings has decreased concurrently with the increase of popularity of band instruments in the United States. Many music educators, aware of this, have been taking steps to counteract this trend by means of new methods of teaching and through discussion of the problem at string clinics.

The pre-violin is an instrument designed with a purpose similar to that of pre-band instruments but has more significance in that it would foster interest and technique in a branch of instrumental study that especially needs it.

The principles behind the use of pre-band or pre-orchestral instruments have been established by studies of transfer by many eminent psychologists. The major premise is that much of the work to be done on the pre-band or orchestral instruments can later be transferred with little loss of technique to legitimate instruments. Although no scientifically accurate experiments with transfer of training using the pre-instrument has as yet come to light, the theories of transfer discovered in other experiments can be readily applied to the instrumental field.

In all of the experiments the amount of transfer discovered has a very wide range. Numerous factors influenced the result. A few of these factors may be listed as follows: The intelligence of the pupil; the nature of the task; the period of training; the age of the pupil; the interest of the pupil; the personality of the instructor; the method of presentation;
the time lapse between the end of training of the first task and beginning of training of the new task; and mental interference caused by slight dissimilarities between the two tasks.

With the use of pre-instruments in the public schools, the only factor which is controlled is the nature of the instrument. The pre-band instruments are all modelled after some legitimate instrument in general outline of appearance and in many factors of technique. However, there is a balance between the amount of similarity between the pre-instrument and legitimate instrument, and the simplification of problems found on the legitimate instrument. The instruments are provided to all pupils regardless of intelligence and interest. In this way, the music instructor has an additional means of determining where instrumental talent may exist.

The principles of the design for the pre-band instrument has been applied to the conception and construction of a pre-violin instrument. The major problem was the decision of just how much to simplify the violin. The more the instrument is simplified the less the range and scope will be. The more the range and scope is increased the greater the problems of technique will be. The decision made was that there were more advantages to be gained by erring on the side of over simplification. This was done with the idea in mind that the instrument is not an end in itself but is to lead to the study of the violin.

The actual construction of the pre-violin determined in
an experiment consisting of three phases was as follows. The first phase was to put together all the elements of the violin, namely, the sound box, the fingerboard, the bridge, peg, and a device for attaching the string. The second phase was to correct the design of the fingerboard so that the peg would fit at a point below the playing surface off the fingerboard. The third phase was to shorten the fingerboard so that the spatial interval between fingers necessary to produce diatonic intervals would not be too great for the third grade pupil.

Other features were incorporated that are not a part of the violin. These features were determined by classroom exigencies and one of the complex features of the violin fingerboard. Frets were installed to aid the correct position of fingers, and the pre-violin was pitched in C so that it may be used with other pre-instruments.

Although the instrument is to be pitched in C, the musical notation for it is to be written in A. This was done because an association which is to be built up between notes and fingering can be more readily transferred to the violin. The fact that this would make the pre-violin a transposing instrument is recognized, but is considered negligible to the great majority of pupils who do not have an absolute sense of pitch.

The method for the pre-violin is as essential to the thesis as the construction of the instrument. Since the pre-violin has only a limited range of five tones, all the tunes and problems had to be presented within that range. Certain
familiar songs were altered in order to keep them within the
limit of the instrument. The format of the method is designed
to make the music seem as attractive as possible. This is in
keeping with many of the song books used in the third grade for
vocal work.

The success of the instrument and method could not be
fully determined within the scope of this thesis. The whole
project may seem worthwhile only on the basis of the premise
that since transfer has been recorded in other experiments, and
that the principles used in those experiments have been followed
here, transfer will take place between the pre-violin and the
violin. However, future and detailed study may more fully
determine the extent to which transfer may take place.
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SUPPLEMENT

In carrying on a further experiment with the pre-violin after the completion of the thesis, it was found that grooves rather than frets better suited the purpose of the instrument. Although frets would aid pupils to play with good intonation, the exact placement of the fingers would not be required. The correct tone can be produced by stopping the string anywhere within the fret. This however may lead to haphazard consideration of finger placement on the part of the pupil.

Replacing the frets with grooves corrected this fault and still maintained accuracy of pitch. The grooves are deep enough to be felt quite easily so that the fingers can find the exact place on the fingerboard for the production of each tone. This exact placement of fingers should be an invaluable aid in the future study of the violin.

Throughout the thesis there is a frequent reference to frets. If the reader would mentally substitute the word "groove" for the word "fret" he will then have a true picture of the pre-violin as it is in its final stage.