THE ESSENTIALS
Of
KEYBOARD PEDAGOGY

A series of 10 monographs on basic elements of piano instruction

By

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Third Topic:

Keyboard Technique
And
Effective Psycho-Motor Skills

KEYBOARD TECHNIQUE AND EFFECTIVE PSYCHO-MOTOR SKILLS
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Introduction

The first two monographs of the "Essentials of Keyboard Pedagogy" series focused on basic concepts of sight-reading, and keyboard improvisation, with the premise that performers should have the necessary psycho-motor skills to cope with the technical problems of the repertoire being studied. This third paper will examine the crucial role that psycho-motor skills play in every aspect of keyboard learning, and how they ultimately limit or enhance the pleasure to be derived from musical performance on this instrument.

Most people have heard a musical performance at some time that was literally perfect, with each note in its place, and every nuance beautifully expressed. The feelings of pleasure and satisfaction on such occasions defy description. Hopefully, on occasion, we have also felt the same way about a performance of our own, whether it was just for ourselves or for others. These are "moments of truth" where everything depends on your fingers actually doing what you want them to do. When everything goes right, the inner reward is indescribable, and provides the ultimate answer to "why music?"

Obviously, there are a number of different factors that work together to help us achieve a beautiful musical performance, including knowledge of music fundamentals and the ability to deal effectively with musical symbols. However, since inadequate technique adversely affects the reading of musical symbols, theoretical knowledge will be of little help in achieving the desired results if fingers are unresponsive. Therefore, it is important for us to realize that good technical control will be a significant factor in the success or failure of everyone's musical efforts.

Some Basic Concepts of the Approach

The main concepts of the keyboard technique to be discussed in this paper grew out of my study with Josef and Rosina Lhevinne at the Juilliard School of Music. Although their hand sizes were quite different, both of these gifted artist-teachers approached technique in terms of "concentration of energy" and "economy of motion." It was interesting to watch Josef, with his large hand-span consistently perform with fingers close together, and also very close to the keys. Rosina, with a much smaller hand also kept the fingers close to the keys and had a dynamic range that would be the envy of any pianist. They took the approach that their technical energy should be concentrated in whatever finger was active at that split-second, and those fingers not in use should remain relaxed and close to the keys. This increased technical accuracy by reducing muscular tensions and unnecessary finger movements, and at the same time helped expand dynamic range.

Both of the Lhevinnes made it abundantly clear that every note of every passage must be clearly articulated, and at the same time, the melodic lines must "*sing*!" A daily routine of scales, arpeggios, and related exercises was prescribed to ensure that no area of technique was neglected. Since I had come from the "get your technique form the repertoire" approach, this very extensive program of technique presented a real challenge at first.

It is unfortunate that a large percentage of young students who begin piano lessons each year drop out before ever achieving any real expertise at the keyboard. Ultimately, many rationalize their failure on the basis that "music just wasn't for them!" However, my hunch is that there would be many more people of all ages playing and enjoying piano today, if somehow they could get the right notes and pleasing effects, instead of being frustrated by wrong notes and "clunky" sounds. Toward that end, it might be helpful to examine some problems one can encounter in trying to develop keyboard technique, and the best ways to go about achieving the necessary psycho-motor skills from the very beginning.

Technique Defined

For the purposes of this paper, we will consider *technique* as "the combined physical-mental-emotional capabilities one possesses to perform music at the piano keyboard." And, although there are divergent points of view on what constitutes *the best* keyboard technique, most will agree that those individuals who can get their fingers on the right notes at the right time with the right intensity probably will receive more pleasure and satisfaction from their keyboard efforts than would those whose fingers continually end up on wrong notes.

Over the years I have observed certain flaws that seem to be all too prevalent in many young piano students' techniques. Often they play too far out on the white keys with flat fingers and weak first knuckles. This results in a "bumping" action of the wrist which produces a percussive <u>non-legato</u>, sound. They seem oblivious to the idea that *legato* is actually the basic keyboard touch, with *staccato, portato, and non-legato* being the other touches to add color and interest to performance. Students with this type of technique are handicapped from the outset, with a slim chance of experiencing the satisfaction and pleasure that those with good technical control will enjoy. How can we be certain that these young people have the opportunities to develop the technique necessary for satisfactory keyboard performance? What are some of the musical and physical problems that need to be addressed?
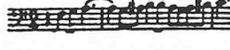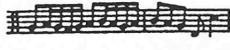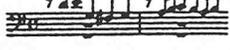
As background, it should be noted that the piano (originally known as *pianoforte*), is an instrument capable of a wide range of dynamics, and an infinite variety of interpretative nuances, when performers have the control to achieve the desired effects. This control, however, is not automatic nor something that will just "happen" over time. Students must be involved in on-going, meaningful experiences to develop responsive psycho-motor skills. For example, during the first year, students should learn how to:

a. Match the intensity of each tone in a series of tones, so that no single
   one is accidentally louder or softer than the other.

b. Control the length of every tone in a series, so that all are of the desired duration.

c. Gradually increase or decrease the intensity of succeeding tones in a series,
   to achieve either a smooth *crescendo* or *decrescendo*.

Piano methods which rely heavily on white keys in the early stages of instruction impede the development of good keyboard technique. These approaches inadvertently encourage students to play on the front part of the white keys, rather than in the area near the black keys. Including black keys from the very beginning as a sort of *Braille* for finding one's place on the keyboard without looking at the hands, provides an immediate tactile reinforcement that will facilitate the development of effective psycho-motor skills.

Historical Perspective

In reality, keyboard literature has been "multi-key" since J. S. Bach created his 48 "Preludes and Fugues," which utilized all major and minor keys presented chromatically, not in the "circle of fifths." The key signatures of the following "Preludes and Fugues" from Book I illustrate the importance of being able to play "in and around" the black keys in order to perform these compositions.

Perhaps Frederic Chopin, more than any other composer of the eighteenth and nineteenth centuries, understood the vast expressive potential of the pianoforte. His love of lyrical lines prompted him to compose pieces with melodies that literally had to "sing," although the piano is a percussion, not a legato instrument. His Nocturnes are prime examples of piano repertoire with melodic lines that need to *sing*, and are major challenges of voicing and projection for anyone with limited technical control. In the following "Nocturne," the long sustained tones in the right hand must not be overpowered by the continuous flow of eighth notes in the left hand.

Chopin's opus 10 and opus 25 "Etudes" provide examples of what he must have considered to be essential techniques for playing the piano. Many of these pieces illustrate the necessity of keeping the fingers close to the keyboard surface, with the hand well into the black-key area, so that the thumb can move freely between black and white keys. The opus 10, #3 "Etude," which is an example of "split-hand voicing" (two different dynamic levels occurring simultaneously within one hand), poses considerable control problems from the outset. As the right hand plays both melody and harmony, the key of E major demands that the hand be positioned well into the keys near the fall-board, since the thumb must move form "G#" to "A" and back. Throughout the piece, using thumbs on black keys necessitates keeping both hands close to the fall-board.

The Etude, opus 25, #2, highlights the importance of keeping a "small hand" and concentrating on an energy flow from finger to finger with minimum finger motion. The use of chromatics in both parts necessitates keeping the hands close to or on the black keys.

Impediments to Good Technique

A "high-finger" action is a major roadblock in developing good keyboard technique since it involves extra finger travel "up" from the key-surface, then "back" to play each note. This greatly complicates performance, in that one must first raise the fingers away from the keys, then move them back to the original point in order to play each note. Josef Lhevinne, who had no patience with "flying fingers," would immediately call out, "Stop!!" Your fingers are going in the wrong direction. Put them back on the keys, and just play the notes." On the other hand, I recall several well-known concert pianists who used a high finger action, yet they were able to get beautiful effects in their performances. Who is to say, however, that maybe their performances were beautiful in spite of their high finger technique, and not because of it? With lots of practice time, the bright and gifted can accomplish almost anything!

The level of difficulty of repertoire can be another impediment, if students lack the technique necessary to play the pieces being assigned. Many are struggling with pieces that present technical problems which are much too complex for their expertise at that point. In reality, they are attempting to play 6th grade pieces with 2nd grade technique, so that it takes too long to develop the dexterity and coordination necessary to perform their particular pieces in a musically acceptable way. Most students eventually become frustrated by the meager results of their practice, and eventually opt out of piano lessons.

Where to Begin

An important concern of piano teachers must be how to insure good technique for every student, including the 99% who could play just for their own pleasure and enjoy music avocationally throughout life, and the 1% who might choose music as a career. Most people would derive real satisfaction from playing the piano if they somehow could acquire enough technical expertise to get the right notes. As a word of caution, however, few will continue to struggle with something which causes major frustration with relatively little reward.

In formulating an approach to keyboard technique, teachers should be realistic and assume that very few individuals, including professionals, will actually have "enough" practice time throughout their lives. This certainly has been true in my own situation, and I thank the Lhevinnes for helping me develop an efficient technique which allowed me to perform with minimum practice and to survive musically. If professionals need technical efficiency because of time constraints, non-musicians have even greater needs for it, since they will have much less time for practice. Therefore, we must help them develop their keyboard technique that will provide optimal satisfaction with minimal practice time.

Rationales for Success and Failure

Being able to attend to several things simultaneously and to *think in motion* underscores the importance of deep concentration as we develop our psycho-motor skills at the keyboard. One cannot stop the music to solve a particular problem! Therefore, in developing technical skills, students must play no faster than they can get everything correct, since any wrong notes, rhythms, or fingering will quickly become ingrained as bad habits that are almost impossible to eradicate.

Vince Lombardi, the famous football coach, reportedly said, "Practice doesn't make perfect--only *perfect practice* makes perfect!" How true that is as applied to each student's keyboard practice in developing technical skill.

While there are some young students who seem to be endowed with a "natural" technique, many will have problems because of either short, stubby fingers, or the long thin, variety with the firmness of wet noodles. Over the years, I have probably come in contact with almost every type of technical limitation, including students who were spastic or brain damaged, to those who had one or more fingers missing. Regardless of any physical limitations, however, teachers must help every student develop sufficient technique to enjoy some degree of success at the keyboard.

The Concept of "Flow" in Technique

From the first lesson, technique should be presented as a *flow of energy* concept involving the body, arms and fingers, which combine to produce the desired musical sounds at the keyboard. To experience this concept physically, ask the students to pretend that they are preparing to row a boat. Have them hold both arms out at shoulder level with fingers extended, long enough so that the arms begin to feel "heavy." With the arms still extended, relax the fingers and notice how they automatically drop downward into a good keyboard "hand position." Next, relax both arms so that they fall naturally downward to the sides of the body. This will be the feeling the student should experience as the arm weight is being transferred from finger to finger on the keyboard. Go through this sequence at several lessons to reinforce the concept that the energy must *flow* from one finger to the next.

The inner-workings of a responsive technique are by no means simple. Most teachers are aware of the problems beginners encounter as they deal initially with finger-position, where the first and second knuckles must be firm, but there is movement at the third knuckle. From the first lesson, it is crucial that improper hand and finger positions be avoided, since students who play with weak knuckles will have very poor control and limited strength in their fingers. If they practice with depressed knuckles, even for a short time, that becomes the *accepted feeling* in their piano technique.

To avoid weak first knuckles, have students join the fingertips of one hand with the fingertips of the other, as shown in this illustration, then gently pull outward with a slight wrist rotation to help keep it supple.
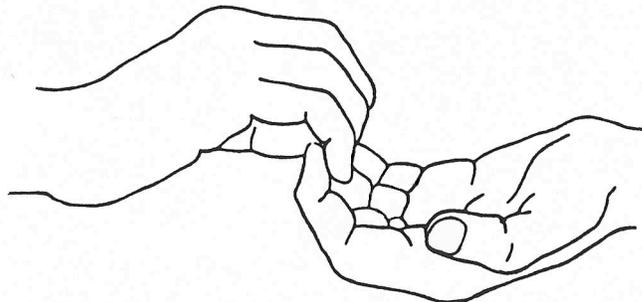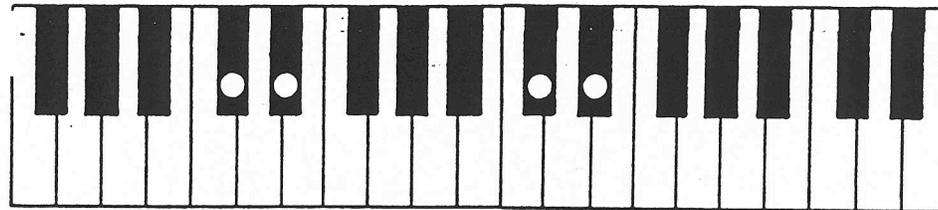

This should be done for a minute or two at each home practice session until having firm knuckles becomes "second nature." This will also help them get the feeling of weight in the fingertips, and at the same time keep the wrist supple. Remind students that developing a good technique depends on correct home practice between lessons.

While there is no magic trick to motivate students to develop good hand positions, I have found that scheduling two students in "partner-lessons," helps both realize almost immediately that a good hand position is not only achievable, but is actually "the thing to do," as they become good models for each other. One advantage of group instruction is that the odds of getting acceptable responses are much greater when several students are involved. Therefore, good keyboard technique should also be a high priority in the Musicianship Class (large group) as well as the Dyad (partner-lesson).

Basics of Finger Action

As mentioned earlier, all beginning students, (whether young or adult) must learn how to transfer energy from finger to produce the desired tones in the proper time sequence and dynamic levels. They should think of a "flow" from one finger to the next, rather than their fingers "striking" individual keys. The *Force* required to move any object, according to "Newton's law," is the product of the *Mass* times the *Acceleration* (F=MA). Since the mass of each finger differs, it is helpful to think of a "*combined mass*" of finger, hand, and arm, as the source of energy which produces tomes at the keyboard. Initially, have students experience this by simply transferring the weight back and forth from one finger to the next and back again, as shown in this example.

This slow, *trill* type exercise on two black keys enables students to concentrate on getting a good finger position as they transfer weight from one finger to the next. Also, it is easy to play without actually looking at the hands. Using the black keys as a sort of keyboard "Braille" both facilitates initial technical development and also gets reading skills off to a good start. Teachers should help students understand that practicing technique is a time for real concentration, not rote drill or daydreaming. Therefore, it is better to do their technique for a short period with full attention, than to practice with partial concentration over a longer period.

As soon as there is some success in playing the two-tone pattern, this three-tone pattern (still on the black keys) can be introduced.

When students can play the three-note pattern, let them try both of these exercises on adjacent white keys. Singing the finger numbers as they play reinforces the psycho-motor inter-action between *thinking* a finger number and actually *getting that finger to function.*

The basic skill process involved in playing these two and three note patterns will be applied over and over in the music that students will study. As soon as they can transfer energy in two and three note figures (with nicely curved fingers), the pattern should be extended to five tones using all five fingers. "Five-finger" exercises should precede the introduction of scales, since students need to develop strength in the fourth and fifth fingers for the performance of melodies and bass lines.

Good psycho-motor control enables students to play more expressively from the very first stages of practicing each piece. Therefore, their technical exercises should embrace a variety of dynamics and be practiced soft and loud, with crescendo and diminuendo. Here is an example of a five-finger exercise which encourages students to experiment with different dynamic plans:

Gently rotate your wrists in opposite directions as you play from the 5th fingers to the thumbs, then back to the 5th fingers, and again to the thumbs. In the last measure of each line lift your hands with a "down-up" motion and move to the next key. Here are several ways to practice SOFT AND LOUD.

1) Alternate soft and loud ("C"--soft, "Db"--loud, "D"--soft, "Eb"--loud)
2) Begin "C" soft and get louder. Then begin "Db" loud and get softer, etc.
3) First measure getting louder (crescendo) then next measure getting softer (diminuendo), etc.

Db major

D major

Creative thinking actually plays an important role in the development of a responsive technique, when students are encouraged to do their exercises in many different ways. Getting proper fingers to move by split-second subconscious responses to the various printed symbols is crucial in the early stages of keyboard learning. Initially, students sing and/or chant finger numbers while playing to reinforce the desired association between printed symbols and the physical response. However this soon becomes unnecessary, when students are able to think a finger number as that particular finger immediately responds.

In this same way, fingers must react to symbols indicating different dynamics or touches. The next example, while essentially the same as the previous one, begins on the thumbs instead of fifth fingers, and gives added attention to strengthening the third, fourth and fifth fingers. Students are developing both coordination and sensitivity to musical nuances as they continue to explore various ways to change dynamics and voicings.

As you play this, gently rotate your wrists in opposite directions and feel a slight pull in your fingertips. Keep your knuckles firmly curved and don't "bounce" your wrists as you get louder. Make each crescendo and diminuendo as smooth as silk.

Technique from Repertoire or Special Exercises?

Over the years, there have been two divergent opinions on how to acquire the keyboard skills necessary for satisfactory performance at each level of advancement. One approach maintains that the learner develops the necessary keyboard skills to perform each piece simply by practicing the passages in which the problems exist. The other approach believes that the essential keyboard skills should accrue in advance through daily practice of certain basic technique, so that students can concentrate on interpretative aspects of learning the piece, rather than continually dealing with technical deficiencies.

Those who advocate getting technical proficiency from daily practice of repertoire only, cite examples of minimal transfer of learning from Hannon and Czerny exercises into sonata literature of Mozart or Haydn. Proponents of the other approach, however, point out that most of the musical problems students experience are caused by insufficient technique to deal adequately with assigned repertoire. Obviously, there is some merit to both arguments.

In recent years, research relating to over-all physical fitness as a factor in maintaining good health has produced some persuasive evidence in favor of daily exercise. Just as most people seem to "feel better" when they do systematic exercise involving the various muscles of their bodies, one's fingers should also feel better and be more responsive with daily technical exercise. Perhaps, for those who argue that it is possible to keep the sharpness of one's keyboard technique by practicing repertoire only, that could happen if one were sure to practice repertoire that contained a balance of different types of technique, including scales, arpeggios, trills, and octaves in a variety of keys. On the other hand, it is more likely that while one might be practicing excellent repertoire daily, it simply would not represent the variety of techniques necessary to keep finger dexterity at the desired level.

In the final analysis, a responsive technique should both enhance the students' ability to play more expressively and also help them play with greater facility. Therefore, it is important to consider both the nature of the technique being practiced and in what way it can be applied to repertoire. It should enable students to play more accurately with clean articulation and also give them better control of phrasing and dynamics. Practicing the following type of exercise can help beginning level students gain expertise in changing their dynamics to play more expressively, and at the same time maintain a steady tempo.

In music reading, as the eye recognizes the various symbols for sound (notation), the psycho-motor domain responds by sending messages to the fingers to produce the desired sounds. Musical symbols on the printed page may actually convey several messages which must be processed simultaneously, such as pitch, duration, and the intensity of a tone to be sounded by a certain finger on the keyboard. Getting fingers to respond successfully with split-second timing requires attending to several things simultaneously. Therefore, good psycho-motor interaction, with the cognitive and the affective domains, becomes a critical factor in all keyboard performance.

When first-year students have gained enough control to get acceptable *legato* effects with dynamic variety, the concept of *staccato* should be introduced. Since the staccato mark shortens a note by one-half of its original value (a staccato quarter note becomes an eighth note followed by an eighth rest), teachers must be sure tat students understand this concept, and develop a very precise "down-up" wrist action to perform it accurately. This exercise could be practiced both in parallel and contrary motion.

The same types of dynamic changes practiced during the legato exercises should also be applied to staccato exercises. (crescendo--diminuendo, one hand loud and the other hand soft, etc.)

It has been my observation over these many years that scales are frequently introduced much too early with negative results (or at best, a very limited positive effect) on most students' technical development. Practice time would be more wisely spent on a variety of 5-finger studies to develop better coordination between the third-fourth and the fourth-fifth fingers, since they are so important in projecting the bass lines in the left hand, and the melodies in the right hand. After students become adept at transferring the energy smoothly from finger to finger, the problem of getting the thumb under the third finger and/or the third finger over the thumb, can be tackled in a one-octave scale.

Students should understand the basic patterns for fingering scales, i.e., a grouping of three then four, or vice versa, within the seven different tones of each diatonic scale. They should be able to play one-octave scales <u>with real precision</u> before attempting two, three, and four octave scales, which involve moving the thumb under the fourth finger or the fourth finger over the thumb. The ultimate goal is to make scales as smooth and even as a glissando.

The rules for sharp scales are:

a)   In the right-hand there is a group of three, then a group of four--
        the fifth finger is a substitute for the thumb.

b)   In the left-hand there is a group of four, then a group of three,
        except B major, (group of three, then four)

1. The left hand of B major is an exception to the fingering rules for sharp keys,
   since it begins with the group of three, followed by the group of four.

The rules for flat scales are:

a)   For the right-hand, use the Db major scale to locate the beginning finger for each scale, i.e., Db starts with the second finger, Eb major--the third finger, F major--the first finger, Gb major-- the second finger, etc. Notice that the fourth finger is always on Bb.

b)   In the left-hand, begin with the group of three, then a group of four (except Gb major). Try it for F major--you may like it.

3. In your right hand, use the fingering of the Db major scale to find the beginning finger
   number of each remaining flat scale. The left hand always begins with the 3rd finger (a
   group of three, followed by a group of four), but F major may also be fingered like C major.

Introduce *parallel* minor scales before *relative* minors, since the parallel minor has the same beginning tone as the major key, and is the same scale, except for the lowered third and sixth degrees. Repeating each scale several times before going to the next one provides opportunities to vary the dynamics from day to day, to include playing one hand loud while the other is very soft, or make steady crescendos and diminuendos without tempo changes.

While daily scale practice is included to improve finger dexterity which hopefully should result in a more responsive technique, special exercises involving all five fingers are also very beneficial. There are excellent "multi-purpose" exercises, which both alternate touches (particularly legato and staccato) and vary the dynamics. The following exercise is designed to improve control of both legato and staccato as students must also vary their dynamics (C major--soft and legato, Db major loud and staccato, etc.)

As students progress in their keyboard studies, musical knowledge and technical skills should accrue. Their years of lessons should ultimately give them the expertise to "go on their own" confidently and enjoy music in whatever manner they choose. This would imply that, as the repertoire became more complex, the necessary psycho-motor skills were readily available to insure a reasonable satisfying performance. Metaphorically, this is the money one puts in the bank to have available when one wants to draw on it.

The concept of "ready technique" brought me to the realization many years ago that it was essential for students to develop a *reservoir of technique* in order to deal immediately and effectively with various technical problems they encounter. Special attention, therefore, should be given during the initial year of lessons to developing individual finger strength, devoid of extraneous movement or tension. Five-finger exercises done chromatically in all keys with different touches and dynamics help students get their fingers on the right notes at the right time with the appropriate tone quality. A big "plus" here is that there are not many exercises to learn--rather a few simple ones done in an endless variety of ways.

In addition to five-finger exercises during the second year, technique should include one octave major and minor scales. In the third and fourth years, two, three, and four octave scales are assigned. Eventually, four octave scales are practiced in thirds, sixths, and tenths in a variety of dynamics and rhythms. For advanced students, this also should include scales in double thirds, as well as major and minor double octave scales.

Related major and minor arpeggios would also be assigned. Five-finger exercises arranged both chromatically and in the "circle of fifths" continue to be important in developing finger strength and independence. Single and double-note trill exercises practiced chromatically are effective preparation for the technical articulation of compositions from the Classical and Romantic periods. A variety of diminished seventh exercises in both single and double notes will find many applications in Romantic composers such as Schubert, Mendelssohn, Chopin, Schumann, and Brahms.

SOME OBSERVATIONS AND CONCLUSIONS

Years ago, it became obvious to me that everyone studying piano must have the psycho-motor skills, or *technique*, commensurate with the technical problems of the assigned repertoire, in order to derive any appreciable satisfaction or reward from keyboard performance. Each person's technique should be the least complicated and most efficient approach, without needing to be fast or "brilliant." Rather it should demonstrate the control necessary at a modest tempo to get the correct notes and rhythm, with all of the basic phrasings, touches and dynamic changes.

Expressive performance should take precedence over flashy playing, as the cognitive helps facilitate psycho-motor development. Good reading skills shorten learning time, allowing for more immediate satisfaction and pleasure. However, because of time constraints and different levels of commitment, only a few students will develop technical skills for advanced level repertoire such as the late Beethoven "Sonatas," Chopin "Scherzi," or the Grieg "A minor Concerto." But, many could handle kinds of repertoire such as movements of Bach "Suites," easier Haydn and Mozart "Sonatas," Chopin "Mazurkas," and a host of other keyboard solos, plus an endless supply of ensemble materials from the various periods of history.

As stated above, everyone studying piano needs the proficiency to deal with the technical problems of the pieces being practiced, if they are to derive satisfaction from their efforts. And there are certain technical "stair-steps" to master in order to move successfully up the "musical road" of more and more complex repertoire. Eventually, everyone will encounter a "fork" in their road, which will demand a decision that will be a major factor regarding how and if music will be part of their lives in the years ahead. One fork continues up the road of progressively more complex repertoire, which is essentially the route the aspiring young concert artist will pursue. The other fork has a sign indicating that along this route there is an unlimited array of pieces, none of which will get appreciably more difficult, but all are of excellent aesthetic quality. This is the route that the vast majority of students should take, since they could learn these pieces easily "on their own" or with the assistance of a teacher.

It is of critical importance for teachers to sense where and when the student might be approaching the fork in the road. The real danger here is to permit (or encourage) students to pursue the "progressively more complex" route when realistically, they should be on the "same level" course. They have nothing to lose by going the "same level" route, since they are broadening their acquaintance of keyboard literature and can switch t the other route at any time. The "more complex" route can end in frustration and failure if students don't have sufficient time and commitment.

In the course of this paper, we have discussed two different "phases" of technical involvement as regards the students' psycho-motor development. The first phase might be called "growth technique," which includes the evolving psycho-motor skills all students begin to develop in order to achieve successful performances in progressively more difficult repertoire. This embraced the various facets of technique up to the "fork in the road" and in effect, was the gradual filling of the student's *reservoir*. For some, the reservoir could be filled at the third or fourth level, since their musical aspirations in terms of difficulty of repertoire had been met. While they would take the "fork" which allowed them to broaden without moving to more technically advanced material, others would elect to continue with the "growth technique" for a number of years to the advanced professional level.

Many individuals who do not want to continue learning harder and harder pieces (or do not have the time to do so), would experience real personal satisfaction from keyboard performance if they had enough technique to get musically satisfying results. Fortunately, the second phase called "maintenance technique," keeps one's psycho-motor skills at a high enough level to get reasonably good sounds in performance. For professional musicians who need to perform, yet have very limited practice time, this becomes a means of "musical survival." When there is only a half hour for practice, the time spent on "maintenance technique" will keep the fingers in a "near ready" state, so that when more time is available or as performance become imminent, the technique will quickly respond.

A thirty-minute sequence of "maintenance technique" might include some of the following:

a)   Single note diminished 7th chords twice on each tone slowly--up by half steps.
b)   Same routine for double note diminished 7ths, and alternate with other diminished 7th combinations.
c)   Half step trill exercise involving each pair of fingers--both hands same time.
d)   Double trills--different key each day--both hands together.

e)   Major and minor scales--4 octaves in 3rds, 6ths, and 10ths. Number of keys as time permits. Also include scales in double 3rds.

f)   Arpeggios--4 octaves--alternate flat and sharp keys or chromatically.

g)   Octave scales--major and relative minor--alternate sharp and flat keys.

h)   Hanon type--5 finger--different dynamics and keys as time permits.

The items suggested above are constantly varied with others to avoid doing technique as a mechanical routine.

A discussion of the many topics within the broad subject, "Keyboard Technique," could fill volumes and still only scratch the surface. However, before concluding this paper, there are several persistent questions which should be addressed to see what options are realistically available to people who want music as part of their over-all lifestyle, yet have a very limited amount of time to gain and/or maintain technical proficiency. Why do so many adults comment, "I had piano lessons for 'x number' of years as a youngster, but today I can't play a note?" Why can't these individuals play piano for their own enjoyment? Is it true that only a gifted few will ever be able to play the piano well as adults? Is it all that difficult to get your fingers and the piano keys to work together?

The answer to the last question is that most people would be able to play piano reasonably well as adults if they had developed their combined cognitive and psycho-motor skills as young students, instead of memorizing a few pieces by rote to play in spring recitals. Essentially, they lack the knowledge and skills to work independently, both now and in the future. An answer to the second question is related to the first, in that the results one obtains through rote learning quickly vanish when repetition ceases, so that most of the musical expertise that may have accrued is lost soon after lessons cease.

Over the years, I have kept in contact with individuals who, as former students, were involved in "learning about learning" and through those experiences, gained the necessary knowledge and technique for a lifetime of musical activity and enjoyment. When soft, quiet sounds are desired, they have the technical "know-how" to achieve those effects. If an accent is wanted, they have the control to bring out just that particular note. When the music calls for *staccato* or *portato*, they have the coordination to get the proper articulation and/or separation of notes. In scale passages, they can recognize the appropriate "finger-groupings" necessary to negotiate successfully a series of "thumb-under" or "finger-over" maneuvers. In short, these people realize that their psycho-motor skills are the means of achieving ultimate musical satisfaction. They are individuals who can savor the personal satisfaction of good performance, and therefore will have more incentive to include music as a vital part of daily living. They are the lucky ones who have discovered the answer to "why music?"