

THE ESSENTIALS  
Of  
KEYBOARD PEDAGOGY

A series of 10 monographs on basic elements of piano instruction

By

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Second Topic:

Improvisation and Creative Problem-Solving

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# IMPROVISATION AND CREATIVE PROBLEM-SOLVING

ROBERT PACE

Over the years I've often asked parents, "what do you want from your child's piano lessons-- or for yourself?" Almost without exception they have two similar wishes--first, that their children could read music well enough to be able to play for their own personal enjoyment, and second, that they could create their own music, or "play by ear." As the first Monograph addressed issues for developing functional keyboard reading skills; this second paper look at the dual benefits of teaching improvisation--how keyboard improvisation imparts real personal satisfaction, and the benefits of the "creative problem-solving" techniques it develops. Lastly, I will indicate how improvisational music activities fit into the larger notion of creative problem solving in academic subjects and the responsibility of the educational system in teaching children the skills of creative problem solving.

There are relatively few children between the ages of six and twelve taking piano lessons who can create their won music at the keyboard. It is as if the ability to improvise music were a special gift bestowed on a chosen few--and that if one had this talent it would simply emerge on its own. This assumption is fallacious. It precludes millions of students from realizing their creative potential in music, and perhaps in other educational disciplines. In practice, every conceivable way to discover and provide opportunities for our children to develop their creative potentials should be explored. Let us not assume that latent talent will emerge on its own.

Early in my career, the writings of psychologist Abraham Maslow stimulated an interest in "self-actualization." For piano teachers this means enabling students, through *growth motivation*, to strive continually to achieve their real potential. During my many years of teaching and collaboration with colleagues, I have observed that everyone--from the slowest learner to the most gifted--can create some music at the keyboard. Two things are required of the teacher--continuous opportunities and proper encouragement. Through improvisation, students soon realize that they can crate something that is uniquely their own as they are naturally involved with their own processes of creative problem-solving.

## **Creating daily opportunities for creative problem solving**

As professionals, we should provide optimum opportunities for students to develop creative problem-solving techniques in their daily practice sessions. Since the keyboard uses all three educational senses (sight, touch, and hearing), it is the ideal vehicle for the creative exploration of music's basic elements of melody, harmony and rhythm. Students can actually see, feel, and hear the music they are creating at the keyboard.

## **Thinking in Motion: Improvisation and the Creative Impulse**

For the purposes of this paper, improvisation will be defined as "the spontaneous performance of music, without the use of notation or having been previously memorized." One might also describe it as being *impromptu* or *extemporaneous*, rather than being practiced in advance. In reality, it is "thinking in motion" since one must deal with many things simultaneously, and make split-second decisions without hesitation or stopping to consider what has just happened or what may lie ahead.

Keyboard improvisation is an intricate melding of the cognitive, affective, and psycho-motor domains of human behavior. Improvisation is an ideal arena for developing our creative problem solving skills. Creativity can manifest itself in any number of ways. For example, "creative thinking" helps us anticipate that which we have not yet seen, touched or heard, and prepares us for decisions that are still around the corner or just over the horizon. We must not assume that creative behavior will emerge

automatically--quite the contrary, we must constantly nurture creative responsiveness with an infinite variety of ongoing opportunities for expression and development. In science, business, and government as in music, the ability to *think in motion*, is a skill often associated with leadership, innovation, and success.

I have observed that young children become less and less creative as they become more and more enmeshed in the daily learning routines of our educational systems. In the U.S., education has become synonymous with the classroom pressures to "memorize this" or "remember that." The standardized tests we administer to predict future performance are prepared for rote learning activities, with little or no room for creative responses. If we accept the notion that everyone has some spark of creativity, we then have a mandate to provide continued opportunities for those sparks to ignite more acts of creative musical exploration. It should never be a matter of our waiting to see which students will somehow demonstrate an innate ability to create music.

Music history books contain fascinating accounts of the improvisatory prowess of keyboardists from the early Baroque period into the nineteenth century, including Bach, Handel, Mozart and Beethoven. Even Franz Liszt, who has been credited with giving the impetus for performance from memory, was a skilled improviser. Early keyboard performers recognized that improvisation was a "must," since most often their job was to "realize" the figured bass in ensemble with other musicians. With that being so important to the everyday practice of the periods, learning how to improvise must have been an integral part of the keyboard student's instruction. Consequently, instructors must have possessed considerable expertise in order to teach it.

The importance of teaching improvisation may be seen in what is lacking in some of today's most accomplished teachers. Many keyboard teachers have limited improvisational abilities since the emphasis in their own early training was on memorizing repertoire and developing technical skill. Even though improvisation may have been taught to students in college keyboard harmony classes, it rarely became an integral part of their musical experience since it was most often "too little and too late." In general, we tend to shy away from activities for which we have limited knowledge or skill, in favor of the "tried and true" as a matter of our own sense of security. Unfortunately, memorizing repertoire will continue to receive a higher priority than using a creative problem solving approach, until teachers have a better understanding of the benefits accruing from keyboard improvisation.

Some teachers actually discouraged improvisation, believing that students who "played by ear" did not develop good reading skills. To substantiate this, they cited examples of the person who played any number of pieces "by ear," but could barely read musical notation. True, most of us have seen students struggle painfully with a new piece because they were trying to play it "by ear" instead of reading the notation on the page. But those problems were due to inadequate reading skills, not as a result of the ability to improvise and create music.

Ironically, improvisational skills can actually facilitate sight-reading and the performance of repertoire. Being able to improvise on the harmonic patterns of a piece expedites the learning of that repertoire, since students gain skill in identifying key elements. This also increases their confidence in performing without fear of memory lapses. Just as one develops the "eye that hears," for good reading, the "ear that sees" (a product of improvisation) will also enhance reading skills.

As keyboard teachers realize the importance of integrating creative musical activities into their teaching, the question arises, "How, when, and where shall I begin?" For teachers of students from pre-

school to college age, the answer is identical: "Begin at the beginning, regardless of the student's years of study and level of repertoire." All students need an introduction to a sequential program that provides common musical knowledge yet allows for unique and diverse responses.

I stress this point since some teachers have experienced problems with intermediate and advanced students who wanted to sound big immediately, but got "turned off" when they couldn't do it. These students needed to realize that playing piano, like all human learning, involves a series of prerequisites or "stair-steps," i.e., one must develop knowledge and skill at the first level in order to advance to the second level. Bruner stated:

"To begin with, virtually all powerful human skills involve the mastery of a series of prerequisites. One learns something in order to learn something next. One major function of human pedagogy is to develop and provide means that allow a learner swiftly and surely to run through various prerequisite series and thus to achieve a full and early use of the culture and its technology."

Bruner's statement on the function of pedagogy to enable students to move through the various prerequisite series is particularly striking in keyboard improvisation where one must first conceive a plan, then bring appropriate psycho-motor skills into action and finally make everything happen without faltering.

Particularly important is the uniqueness of these creative experiences in human problem-solving since they exist only as intangible ideas manifest through performance of musical sounds in a time continuum. This is in sharp contrast to graphic forms as would occur in science, linguistics and other disciplines. Improvisational skills on the keyboard begin with easy microcosms of musical sounds and patterns, advancing in complexity as students develop adequate tools for comprehension and performance. At each successive level, students must understand that the subject matter is not "baby stuff" --rather, it is a pre-requisite for success at the following level. This same process recurs at each successive level as preparation for the next "step up the ladder."

Just how rapidly and successfully older students can play "catch-up" through these various stages is largely a matter of commitment. Acquiring improvisational skill requires thoughtful practice over time which there is no substitute or short-cut. Therefore, the real lesson to be learned here is that teachers can and must avoid this type of problem in the future by including creative activities as an integral part of all lessons from the very beginning.

In kindergarten or first grade of the public schools, most children's musical activities commence in the form of classroom singing combined with bodily movement and/or eurhythmics. Opportunities for individual creative expression is usually limited although most children have, as two year olds, already created their own little musical bits and tunes. According to Gardner, "...by the age of three or four, the melodies of the dominant culture have won out, and the production of spontaneous songs and of exploratory sound play generally wanes." It is regrettable that we do not tap into these early musical experiences to keep alive and nurture children's abilities for musical self-expression.

To "begin at the beginning," there are many easy and enjoyable musical activities which can initiate and encourage musical creation, to be shared both by the pre-school child and parents. Numerous recordings of children's songs provide spontaneous "sing along" opportunities and exposure to a variety of melodies and musical sounds. Still other recordings invite participation by acting out the stories and words of the music.

### Freely structured activities

In the initial stages of music instruction, students should experience "freely structured" creative activities as well as those with a prescribed structure. An example of a freely structured activity is where the student first uses the keyboard to present his or her story in sound without any comment. As soon as the student has presented the story, other members of the group, teacher or parent, try to guess the story. Here is the notation for the sounds of a young student's freely structured musical "story without words," where he is walking along, is frightened by a big dog, and then quickly runs home. Most of these stories involve only two or three characters and are fairly brief. The plots, which evolve from both everyday happenings and free fantasy, allow very young students to explore the musical concepts of high-low, loud-soft, and fast-slow.



Other examples of freely structured musical activities come from variations of stories such as the story of *The Three Bears*, where students may create a motive for each of the characters. One person narrates the story as the others play their chosen motive when that character's name is mentioned. Here are examples of two different motives for each character of a "Three Bears" story. More characters may be added as variations of the basic "plot" are explored.



Desirable as "free-structured" activities may be, they run the risk of being viewed as "recreational activities," rather than "prerequisites of creative musical learning," which actually involves an interplay of the cognitive, affective and psycho-motor domains. Music is *cognitive* with its many well-defined structures, including the "longs and shorts" of rhythm, the "ups and downs" of melody and the "sonorities" of harmony. It is affective by virtue of the wide range of feelings one can experience in musical performances, with satisfaction from those performances being dependent on adequate psycho-motor coordination.

The underlying pulse of music is literally its "heart-beat," and when it is interrupted, the music ceases to exist. Therefore, from the outset it is extremely important for young children to learn how to keep the "beat" going as they experience different musical rhythms. Developing this skill can be done in a small-group lesson with teacher and students, and at home with parent and child walking and clapping the beat of the music being heard. Chanting words as they clap and march is also helpful.

As an extension of walking and clapping the beat, teachers should introduce the "Call and Response" activity where they clap short rhythmic pattern, followed by the students' response of clapping that same pattern. This should be repeated until coordination of rhythm and beat is secure. Soon, one student may give the "Call" as other students or the parent make the "Response." Here is a basic "Call and Response" for beginning students:

Teacher's Call	Student's Response
<u>Clap</u> <u>Clap</u> <u>Clap</u> <u>Hold</u>	<u>Clap</u> <u>Clap</u> <u>Clap</u> <u>Hold</u>

Next, put "Clap Hold" first, followed by "Clap--Clap."  
Clap Hold Clap Clap Clap Hold Clap Clap

"Call and Response" patterns (in both duple and triple meter) should be extended in length and difficulty *very gradually* to insure that students develop their ability to keep a steady beat while clapping and feeling a rhythm. Eventually, clapping will be replaced by simply playing the "Call" then the "Response" on the keyboard. All of this is preparation for the "Question and Answer" format of improvising one's own music.

In anticipation of these Question and Answer activities, concepts of High-Low, Loud-soft and Fast-Slow should be reviewed in musical game settings. As these concepts are experienced, students begin to attend to several things simultaneously, i.e. a particular melodic pattern might be high, soft and fast, while another is low, loud and slow. Being able to make "multiple discriminations" will play an important role in both improvisation and creative problem solving in music as well as other subjects.

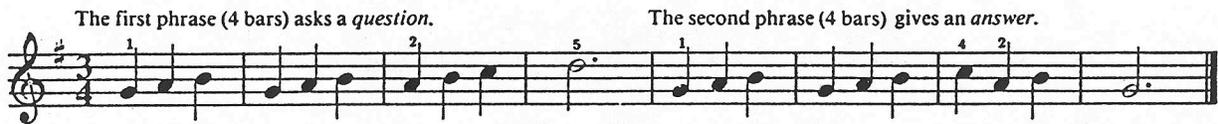
The ability to take a given musical idea, and change or extend it beyond its present state, is an important aspect of creative problem solving. For example, how many different ways can one rearrange the following three-note pattern, still using the same rhythm and three tones? Here are several possibilities.



In our everyday lives, when a question is asked, there is the implication that some sort of answer can be expected. While certain verbal questions might have only one appropriate answer, some questions could have several answers that are relevant, depending on the respondent's expertise and understanding of the subject. The notion that questions elicit answers is the paradigm for developing creative musical skills, since musical phrase structures function in a way similar to verbal questions and answers, i.e., a query in the first phrase sets in motion thought processes which will attempt to supply a cogent response.

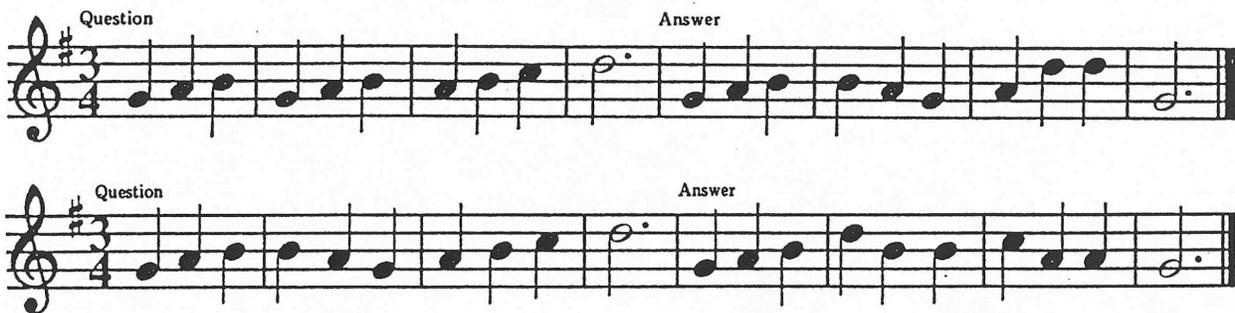
The potential for unlimited individual creative expression through musical "Question and Answer" becomes more apparent after teachers have used them with their students for a few months. For example, ten students could each improvise any number of Answers to a given Question without ever duplicating each other's responses. Likewise, in each successive year, ten more students could create all new answers to those questions of the previous year. The same musical ideas can come alive in new and varied ways, so that teachers, while covering the same concepts, are not forced to repeat themselves year after year. In this learning environment, students develop an appreciation of both the commonalities in what is being presented and the possibility for diverse responses.

In the beginning stages of teaching creative problem-solving with young children, it is important to establish parameters to avoid their being overwhelmed by "what to do next." For example, when the "Question" and the "Answer" both share the same motive (*a parallel period*), students need only create something in the second and third measures, since they have been given a starting motive and the ending tone. In fact, in this example, students change only the third measure because the motive was repeated in measure two.



Teachers should point out that the Question may end on different tones, while the "Answer" usually ends on "do" (the *home note*).

Initially, teachers should play several Questions followed by parallel Answers to illustrate what changes might occur in the second and third measures of the Answers. The following examples show some changes that can take place in these two measures.



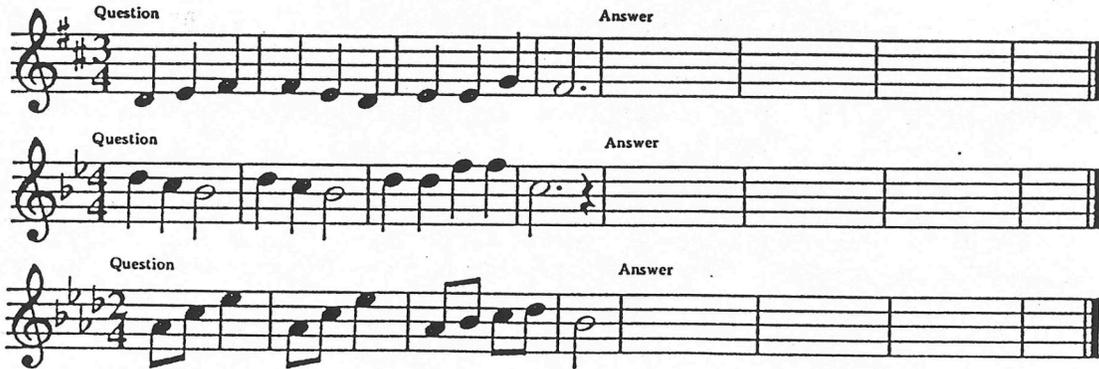
Before students begin to play the Question, they *must* decide what they want to include in their Answer. The most common error made by teachers during the initial stages of working with Questions and Answers is their failure to stress "planning ahead" for the Answer. Students should be asked what they want to do in the second and third measures, and be expected to give a response such as, "use a sequence in measure two, followed by skips in measure three." Creative problem-solving will help students realize that there are different options available therefore, they must select an appropriate one, and "make it happen" in performance.

Contrasting Answers should be introduced only after students are adept at creating parallel Answers and, although this dramatically increases the number of choices available,

- a. The rhythm is the same in both Question and Answer
- b. The motive in the Answer has been inverted.
- c. The second and sixth measure are the same.
- d. The direction of the melody in measure three of the Question skips up while the third measure of melody in the Answer moves up by a step.
- e. The Question ends on the third of the scale and the Answer ends on "do."



The potential for each student's creative development via Questions and Answers literally has no limits. The similarities and differences in the three-note motives of these Questions are indicative of the tremendous variety of source material available to everyone through this very simple musical structure. When one considers the many options available through different motives in parallel and contrasting Questions and Answers coupled with the different modes and keys, the possibilities for individual expression become mind-boggling.



An important facet of creative musical thinking is the ability to recognize and use the basic structures of music in one's improvisations. As students become acquainted with these structures, they begin to understand the "logic" of music and learn how to anticipate what probably will come next. For example, when the *tonic* and *dominant* chords (I and V7) are introduced in the piano lesson, students will use them to harmonize their Questions and Answers and explore the concept of *cadence*. As before, they must figure out the appropriate chord progression for their Answer even before they begin to play the Question. Otherwise, matching times of the melody with the proper chord will be a "game of chance." In this example, the melody and harmony of the Question suggest that the Answer might also use the same progression:



"Question and Answer" is also a convenient way to explore traditional compositional techniques such as this review of bass patterns.



As students progress up the "learning spiral," they become more proficient at doing several things simultaneously, and making the necessary projections and evaluations as they "think in motion." Here are typical points for students to consider before beginning their Question:

- a. Will this be a parallel or contrasting period?
- b. What chord progression shall I use?
- c. Which bass pattern would be most appropriate?
- d. Do I want to use repetitions, sequences, inversions, chord tones, passing tones, repeated tones, etc?

The musical notation shows a piano exercise. The top staff is the treble clef, and the bottom staff is the bass clef. The key signature has two flats (Bb and Eb), and the time signature is 3/4. The 'Question' section (measures 1-4) features a melody in the treble clef starting on G4, moving up stepwise to Bb4, and then down stepwise to G4. The bass clef has a double pedal-point consisting of two sustained notes: G2 and Eb2. The 'Answer' section (measures 5-8) consists of empty staves.

As students explore different harmonic and formal structures of music, they should also expand their improvisational skills to include scale systems such as pentatonic, whole-tone, blues, modes and twelve-tone. While the sound of each of these systems is different, the problem-solving techniques for all of them are conceptually the same. Here are examples of several important scale systems:

The Pentatonic (5 tone) scale can be found in musical systems worldwide, therefore it is historically quite significant. Because it has no leading tone, it offers ultimate freedom for melodic improvisation. Here is a simple Pentatonic melody being harmonized by a double pedal-point in the bass.

The musical notation shows a piano exercise. The top staff is the treble clef, and the bottom staff is the bass clef. The key signature has two flats (Bb and Eb), and the time signature is 3/4. The 'Question' section (measures 1-4) features a pentatonic melody in the treble clef: G4, Ab4, Bb4, C5, Bb4, Ab4, G4. The bass clef has a double pedal-point consisting of two sustained notes: G2 and Eb2. The 'Answer' section (measures 5-8) consists of empty staves.

Our major and minor systems (Ionian and Aeolian Modes) have been an important part of western music for centuries, with both sharing the same dominant 7th chord. The Answer to this Question in c minor (Aeolian Mode) may be harmonized with either a i i V7 i or i V7 V7 i chord progression. Working with these chord progressions will give students insight into the construction of much of our music literature.

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Jazz is recognized throughout the world as a musical genre where personal expressiveness and creative skills go hand in hand. Therefore, the sounds of jazz with its "blue-notes" should be an important part of every piano student's musical leaning experience. This "blue-note" Question and Answer, harmonized by a simple ostinato, will provide opportunities to explore all tones of the blues scale in contrasting Answers.

Question Answer

Modes have been part of our musical heritage for centuries, yet few piano students know how to recognize or use them. Students should have opportunities to create Questions and Answers in any given mode, then transpose up or down to adjacent modes. For example after playing this Question and Answer in Phrygian mode, students can transpose everything down one step to create more Questions and Answers in Dorian mode. In this way, they can eventually explore all the modes.

Question Answer

When students have limited exposure to the sounds and structures of the various scale systems, teachers are severely restricted in what they can offer as new materials. Students often reject new pieces simply because they do not like their sounds. Actually, it is not so much a matter of "liking or not liking" certain pieces, as it is a problem of students being unfamiliar with certain sounds, and therefore lack an adequate understanding of that musical system. As students improvise their own Questions and Answers using a particular mode, they develop a working understanding of that system, and are then able to make more intelligent decisions as to whether they like or dislike it. Additionally, students are more likely to relate to the sounds of their own creations, rather than those composed by someone else.

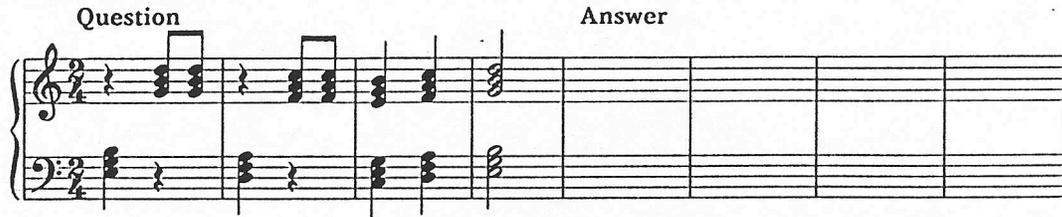
One aspect of creativity is "doing the usual in an unusual way." In daily living, this could be finding ways to vary routine activities so that they do not become dull, repetitive chores. In music, it could be doing something out of the ordinary with diatonic triads. For example, one could get some fresh, new sounds by harmonizing a diatonic melody with a triadic ostinato instead of the traditional I and V7 chords in the bass.

Question

Triads moving from one hand to the other in Phrygian mode and 5/4 meter is another way of doing something that is "different."

Question

Wonderful new bi-chordal sonorities can be experienced when different triads are played simultaneously.



One Question and Answer may be combined with another "in series" to form a larger musical system. An example of a "3 Part Form" would be where students improvise a Question and Answer for the first section (A), followed by a different Question and Answer for the second section (B), then return of the first Question and Answer (A B A). A "5 Part Form" can be created with the addition of a 3rd Question and Answer (C) followed by the return of the "A" section (ABACA).

The few examples presented in this paper suggest some ways to make creative activities and keyboard improvisation an integral part of piano instruction. If students are to realize their individual creative potential however, they must think and problem solve effectively. As indicated earlier in this paper, the only limitation for the development of improvisational and creative limits on what individuals can eventually accomplish, either by achieving a particular skill level and electing to broaden their expertise at that level, or by continuing to advance upward to probe more difficult skill levels.

### **Implications for the traditional classroom**

For years, music has been considered an "enrichment," taught as an "elective" or offered as an "extra curricular activity" --not an integral part of the "core curriculum" of the educational system. Further, the practice of grouping mathematics, science, linguistics, literature and social studies as "core subjects" to receive the major time and emphasis in the school day has been routinely unchallenged. In fact, many students may not be able to take music classes, since the "required courses" consume all of the days schedule.

In spite of the great emphasis placed on academic achievement in these "core courses," the overwhelming evidence today is that a large segment of our population is functionally illiterate, with only a few students developing any semblance of creative problem-solving skills. Unfortunately, these rigid educational systems unwittingly thrust students into learning environments with little concern for individual creative thinking, so that students are often incapable of relating to the subject matter being presented. Many school systems are more concerned with test scores (products) than they are with the process that go into developing the students' thinking. It is painfully obvious that under-achieving students are ill-equipped to deal with intangibles, to cope with several things simultaneously, and to "think ahead" as is necessary in the processes of making critical decisions.

The creative problem solving skills inherent in keyboard improvisation would greatly enhance classroom problem-solving skills, since in music, students are asked to deal with several components simultaneously in a given time frame. Creative musical activities should be an integral part of every stage of human learning, since music is actually the "mirror" of life itself. Outside of the classroom, nothing exists in total isolation nor can the time-clock be stopped to examine alternative situations prior to making

a decision about what to do next. We are involved in a "time flow," which is continually moving and changing. Creative thinking, as the generating energy source of creative problem solving, becomes the "flow" which enables individuals to effectively probe, identify, synthesize and evaluate the elements in the on-going situations of our lives.

Keyboard improvisation is a natural and powerful way to experience this "flow" as we are actually practicing *thinking in motion*. Recent research presents exciting new data indicating that literally the entire cerebral cortex is active during musical performances with the implication that practice of this sort enhances brain function. Students who develop creative problem-solving processes through keyboard improvisation are better equipped to deal with several things occurring simultaneously in a time continuum because of their experience with the psycho-motor component. The keyboard provides unique opportunities on learning how to attend to several things simultaneously, i.e. the right-hand melody has a certain rhythm, touch, and dynamic level, at the same time the left hand provides harmony, or a counter-melody bass line, different rhythm, touch and dynamics.

Current researchers should continue to gather data on the positive effects of music during the early years of life, thereby correcting the misconceptions about the place of music in the curriculum. There is also a need to study people, both young and old, who have a rich background in creative musical experiences, and compare that data with information with those who are lacking in creative expression. Since some keyboard teachers have made musical creation an integral part of their students' learning experiences for almost 50 years, there are by now a significant number of 30, 40, and 50 year olds who should also be studied to ascertain what roll "creative musical thinking" has played in their lives.

There is an urgent need to increase the number of three, four, and five year old children who will have creative musical experiences as an integral part of their learning this fall. How can we make this happen? Some of the ideas covered in this paper can assist teachers in taking the first steps with their students. Help children discover that there are no limits on what they can create and, that the more they create, the easier it becomes. Just as there are many unique ways to express ourselves musically, there are also numerous musical concepts which should be shared by everyone. And, as we share in the improvisational and creative problem solving experiences of our students, we will also be gaining new expertise for our own personal and professional growth. Just remember that our only limitation will be time.

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