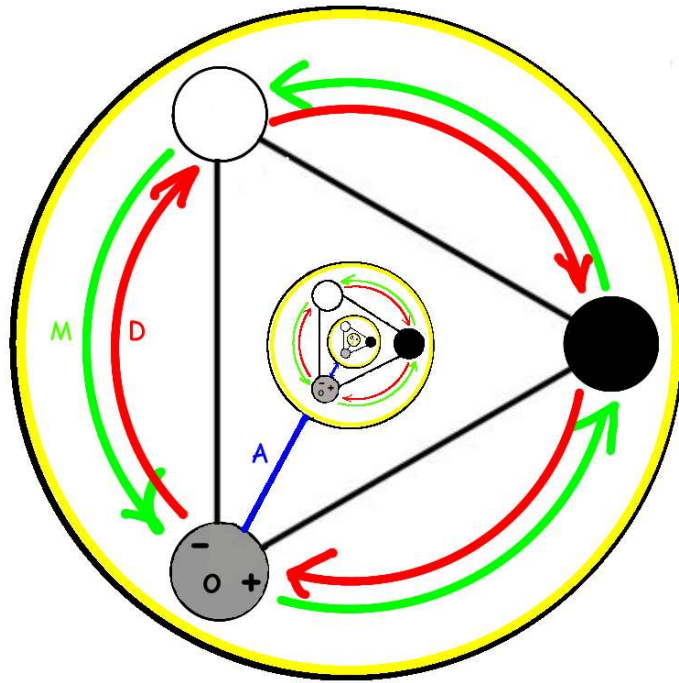


the
Time-Engine Music Curriculum

A flexible and focused way to learn music
(by Kai Eckhardt)



Summary of chapters:

- I. List of Subjects
- II. Ways to approach learning music
- III. Time Management
- IV. Setting goals
- V. The five things you control
- VI. Intelligent limits

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I. List of Subjects

- AR - Arranging
- CO - Composing
- DM - Dice method
- ET - Ear-training
- HA - Harmony
- RE - Reading
- RS - Rhythm Studies
- SC - Scales & Modes
- ST - Standards
- SY - Symmetry Studies
- TE - Time Engine (Kai's Technique)
- TR - Transcribing
- TS - Traditional Styles

TY - Technology

WR - Writing/Calligraphy

BB - Beginner Basics

Arranging (AR)

This field of study explores ways in which a composition comes to life by being assigned to a range of different instruments. Simple melodies can become intricate string or horn arrangements and small ensemble pieces can take on orchestral proportions. We begin with small steps by learning how a certain instrument is transposed and progress towards arranging skills from the world of the modern jazz orchestra covering traditional voicings as well as range and sound. Please note: Arranging is an advanced field of study and will only make sense if you have a solid understanding of basic jazz harmony and notation skills.

Composing (CO)

Our objective is to provide step by step guidance in what may amount to anything from a simple line of music to a work of high complexity. Starting at the very beginning you will learn how to choose meaningful ingredients and bring them together by testing their relationships to one another. The goal is for you to express your original idea which can be anything from a personal sentiment to an academic study. This course will explore how tensions resolve and how emotions are reflected in music giving you a solid background for gradual expansion into larger and more sophisticated musical territory.

Dice Method (DM)

In this study method a six sided die is rolled several times to determine the rhythm you will play and a twelve sided dice adds the melodic component. The degree of difficulty can be set in advance by choosing a "container" which determines the size and meter of a randomly chosen line of music. A single digit on

a die can be allocated to any value such as an 8th note, a 16th note or an eighth note triplet. The 12 sided dice gives you access to the chromatic scale so you can randomize the choice of rhythms and tones as well as create unusual modal harmony. Working this way greatly expands your musical horizon into unfamiliar territory in a challenging and fun way.

ET = Ear-training

Divided into little courses from beginner to advanced, you will be listening to audio files and writing down what you hear in real time. Each course has a master sheet that shows the correct answers which you will compare to your written results after the audio file has finished playing. Over time you will keep repeating the process until you have reached 100 percent in accuracy. After that you can move to the next course. At the beginning you test yourself on hearing single intervals and at the end you will be able to identify full chords in different keys.

HA = Harmony

The subject "harmony" begins by laying out the names of all 12 intervals which are the building blocks for all chordal harmony. After mapping those out on the instrument, we learn how triads, seventh chords and chords with extensions are built. Next we dive into a study of functional harmony which is how chords are traditionally assembled according to modes and styles. Besides the theory of chord progressions we look at different ways chords can be laid out on the fretboard of the bass guitar to produce interesting sounds. The final study ends with learning how to move chords gradually by moving one or two voices at a time.

Reading (RE)

Reading music is the study of character symbols for the purpose of documenting and sharing musical works with precision. Unlike written language, reading music adds extra layers of complexity such as keeping tempo, following road maps or articulating dynamics on a designated instrument. Because of the learning curve

many modern musicians tend to rely on crutches like "tab" or various computer software. This is a shame because we humans are very well capable of learning the real thing. Those of us who make the effort are rewarded with a much more satisfying experience. We can tap into a vast universe of collective musical heritage, save time and gain employment opportunities as well.

Rhythm Studies (RS)

While meter studies focus on timekeeping within the foundation of rhythm, the subject of rhythm studies breaks down the science of subdivisions, syncopation and polyrhythm. Just as odd meters can be made to feel "even," complex polyrhythms can be simplified by understanding the rhythmic universe in which they are all connected. In this course, theory and practical application will always go hand in hand to help you gain intuitive understanding of how rhythm is employed to its fullest effect. Equally important is the aspect of "phrasing" which entails the beginning and ending of every rhythmic statement.

Scales and Modes (SC)

Before getting lost in the jungle of this vast field of study you will learn to understand the concept on which all modes are built. Despite their different emotional characters, all scales relate to their modes in the same way. The same goes for the way they relate to chords. Cut from the same cloth, scales are horizontal and chords are vertical. Once that is understood we move along to appreciate the larger scope of traditional and non-traditional material. The second part of this study focuses on seeding scales with particular intervals to create patterns and interesting gaps in order to highlight the rhythmic aspect of scale improvisation.

Standards (ST)

When the "Real Book" first appeared in the 1970s a library of popular and artistic jazz tunes became enshrined in this historic underground publication, allowing for

the passing of cultural heritage between generations. We pick up this material in our subject field by allowing you, the student, to choose a song you care about for starters. This song provides your entry point into a rich cultural musical landscape where the older generation happened to preserve its language for you. . Learning to play the "head" of a jazz tune as well as walking bass through an AABA form, are part of this course's objectives. We eventually gear our studies towards melodic improvisation over chord changes, from baby steps to "Giant Steps".

Symmetry Studies (SY)

Exploring symmetries inside of music is an incredibly rich subject with infinite possibilities for making novel discoveries and expanding your musical horizon. The 12 notes of the chromatic scale for instance can be represented as 2 hexagons, 3 squares or 4 triangles. When you assign any of those shapes to key signatures you can compose music akin to Coltrane's *Giant steps* based on the '3 tonic system' - aka *one of those mentioned triangles*. Symmetry employed in the world of intervals introduces designer scales by virtue of lining up fixed sequences of repeating intervallic steps. When assigned to rhythm we discover novel structures best represented by applying South-Indian Konakkol, a language all my students will learn in its basic form. Symmetrical studies in music sit on the cutting edge of beautiful music yet to be explored and you will have a guarantee of never running out of substance.

Time-Engine (TE)

Time-engine is the name for my home-grown conceptual style of playing the bass guitar which happens to be my principal instrument. I have gained international recognition for this style over the years and decided to further develop this technique into a musical language. Students of other instruments who are interested in this experimental non-traditional approach will be able to benefit from adapting my style's architectural blueprint into their own technique. Developed over several decades, my style includes elements from Indian classical

music, jazz harmony, flamenco and slap technique. I present TE step by step in a multi chapter series of instructional videos along with scores and midi-files.

Transcribing (TR)

Transcribing in its original form combines ear-training with writing skills for the purpose of translating an audio recording into written music. However, in recent times the term has been used to describe the process of committing music directly to memory from an audio recording. In the beginning you get to choose a worthwhile piece of music. Alternatively you may ask for a recommendation. This serves as an entry point to finding out where your skills end and your knowledge gaps appear. As a teacher, I will help you fill those knowledge gaps and provide you with the necessary skill set in this step by step process.

Traditional Styles (TS)

This subject focuses primarily on the unique character of musical styles as they have organically evolved over time across genres. Students may pick one genre at a time to be explored in depth. You will be asked to anchor your quest around a recording by one of your favorite artists of the genre. Beginning from this source of inspiration you will be able to zoom in on the inner workings of your chosen field of study. We will also research the work of those artists who became noteworthy proponents of the style we are studying. Historically speaking, older styles often morph into new ones, leaving some things behind and bringing some things forward into the present. You will know the difference.

Technology (TY)

In today's day and age the abundance of digital programs designed to help you is impressive. The most helpful and widespread ones are recording, notation and transcription software followed by ear training, podcasting and video editing software. This course aims to bring you into a harmonious work-flow with your gear of choice by helping you flush out the right proportions between your creative vision and the technical learning curve required to master your software. Many musicians have come to the realization that technology and creativity often do not pull in the same direction. Rather, they cancel each other out. To detangle this conflict, special attention has to be paid to your creative priority. This in turn allows you to bring technology into the fold without having it becoming center stage by accident.

Writing / Calligraphy (WR)

Bringing music from your mind directly onto manuscript paper with only a calligraphy pen is one of the most elegant things you can do as a human. The popularity of highly convenient notation software however has almost completely relegated this formerly essential art form to the paper baskets of history. For those of you who care to learn this elegant and old-fashioned skill, welcome aboard. We start by assembling our three basic tools: calligraphy pen, manuscript paper and triangular plastic ruler. Just like in music practice, learning the characters by ways of repetition is the way to go. You will learn how to write notes, rests and bars as well as special characters like codas and segnos to map out the form of your piece.

Beginner Basics (BB) - for electric bassists only

If you are a complete beginner with a genuine interest in learning the fundamentals of the bass guitar you are welcome to come aboard. We will explore how the frets are laid out, where basic notes are found and what the electronic buttons do to the sound of your instrument. Changing strings and getting in tune will also be demystified. After that you are ready to play some music! Just as the physical instrument is made of basic components, so the music itself is made of beats,

tones and space. "Beginner basics" explores the relationship between those foundational elements and points you in the right direction for a healthy start.

II. Ways to approach learning music

e = Exploring

p = Preparing

s = Shedding

t = Testing

i = improvising

r = Recalling

a = Archiving

Exploring

Exploration exists for the purpose of getting us inspired, to seek out inspiration and to help us gain new perspectives. Broad in nature this umbrella term includes taking lessons, reading literature, watching videos, attending concerts or listening to recordings. Often topics outside of music - such as nature, science and philosophy - further enrich the spectrum of one's cultural bandwidth. Exploring quality material must always be an aspect of a rich musical diet. Understanding the larger scope of one's field of study also implies the inevitable question: What contribution may you wish to make? Follow your bliss to find out but make sure you explore what else is out there before you dive in!

Three ways to explore:

e1: Emotionally - Absorbing an experience with an open mind.

e2: Mentally - Thinking about what it is you are experiencing.

e3: Interactive - Exploring a topic together with others.

Preparing:

Preparation includes everything you do before engaging with the repetitive process we call "shedding" (a musician's term for repetitive practice). Start by sorting out the right material in line with the general direction you wish to pursue. Then narrow your activity down to a single exercise. To master this exercise will make up your first goal. Always simplify your exercise's layout as much as possible by choosing an easy stressless point of entry. When facing multiple options, make up your mind swiftly and commit to one final version. Arrive at a version that no longer fluctuates before moving to the next phase.

Three types of preparation:

- p1: Conceptual - Envisioning big picture concepts with long term goals
- p2: Modular - Outlining smaller building blocks for short term goals
- p3: Interweaving - Connecting building blocks with one another in time.

Shedding

Shedding is the practice term from the jazz language (short for 'wood-shedding') It means repeating an exercise over and over until you reach your desired goal. For shedding to be effective you must aim to be flexible while keeping your attention on two things at once: the direction of your goal and the way you feel during the process. If you ignore one over the other you will get diminishing returns. You know you are ready when you can play your part right without feeling insecure. Shedding ends at the point where you feel ready to take a self test. This is necessary before you move on as you want to make sure your subconscious mind has picked up the material.

Three types of shedding:

- s1: Tempo - expanding the range of speed from slow to fast to elastic.
- s2: Dynamics - shifting between soft and loud without changing the tempo.
- s3: Feel - changing the subdivision or emphasis of beats and phrases.

Testing

Testing a skill level allows you to evaluate your progress with certainty. This lets you know if you are ready (or not) to move on to the next building block. Every discipline in music can be learned effectively by breaking large subjects into bite-sized drills. Each exercise has to successfully make the journey from short term to long term memory before it can function as a language in music. Your test is completed successfully if you can play your exercise cold from memory with no mistakes after taking a break of at least 30 minutes.

Three Levels of testing:

t1: (Level one) is passed when exercise is played flawlessly once only.

t2: (Level two) is playing flawless for the first time around after a long break.

t3: (Level three) is applying your new material in the context of improvisation.

Improvising

Improvisation is the most challenging and most rewarding way to practice an instrument. It is like composing on the spot by reshuffling elements you have previously learned. The more elements you have shedded and tested in the past the more avenues you can take to express your feelings through the medium of music. Making up music completely out of thin air is highly obscure and confusing. To make sense out of the complex processes we always begin by picking a few well established ideas and combining them into a framework where improvisation can take place. The ideas we pick can then be swapped out, modified, repeated or replaced in accordance with the emotions we wish to portray. The ultimate goal of improvisation is to reach the perfect balance between spontaneous impulse and conscious intention.

Three approaches to improvisation:

i1: Rhythmic style - Harmony improvises, rhythm remains fixed.

i2: Melodic style - Rhythm improvises, harmony remains fixed.

i3: Formal style - Rhythm and harmony improvise, form remains fixed.

Recalling

Recalling is the process of reviewing material you already know in order to refresh your memory and to further sharpen your skills for the purpose of collaboration, teaching or the use in the context of improvisation.

Reviewing your exercises periodically keeps your knowledge from collecting dust. The expression "use it or lose it" is real. You will notice that it is entirely possible to regress on material that you have already tested thoroughly. Revisiting older material comes with plenty of added benefits such as improving your emotional delivery, making your music more expressive and integrating the old with the new into a coherent language. Strengthening the relationships between memory elements is good for your mental health and helps you discover new ideas.

Three ways to recall

r1: Mental review - running the music completely in your head.

r2: Speed review- with very light touch at the fastest tempo possible.

r3: Musical review - just like in a live performance or a recording.

Archiving

There is no way for a practicing musician to objectively judge the works of music produced over the course of time. In some cases you may not like what you have produced - but someone else does. The reverse can also occur where you like what you did but others don't care about your work. In my own experience, there have been cases where my evaluation of the same piece of music has changed over time. To make room for this high level of subjectivity within the realm of original works I recommend observing three rules: first, choose the elements carefully before committing to hours of practice; second, always deliver your project to the finish line by well-documenting what you have created in written form, as a recording or

both; third and last, archive everything in a dedicated folder along with at least one backup in a separate location. This way you curate your artistic output for your own long term benefit and that of your family and community.

Three ways to archive:

a1: Basic: record your ideas with your smartphone and save your files.

a2: Solid: Pair a written transcription with a recording in a dedicated folder.

a3: Ultimate: Include CD artwork, liner notes, dates and credits.

III. Time Management

FXT = Fixed time

INT = Intuitive time

ALT = Alternating time

CTT = Counting time

Fixed time approach:

You, the student, pre-determine how much time you want to allocate in advance and stick to this schedule. The two questions you need to answer in the beginning are: How much time would I like to spend with my instrument and how does this time fit into the rest of my schedule? The fixed approach can be any kind of time arrangement, regular or irregular, but it has to be set in advance. People who gravitate towards a predictable schedule do well with this method.

Intuitive time approach

If your timeframe is flexible and you can afford to wait for the right moments of inspiration to come around, an intuitive approach is for you. You can pick up your instrument at the right moment and have quality time if you are sincere in your

intention to practice as much as possible. You should write down how much time you actually did practice and keep an eye on how it goes in the long run. The risk of not practicing enough is real, but not a given if you are naturally motivated to play. People with flexible schedules who are well in touch with their emotions do well with this method.

Alternating time approach

In this approach you add a second practice item to your current one and work on both in an alternating fashion. It can be applied in several ways. One way is to partner up your practice session with boring (yet necessary) tasks such as doing your taxes. Before you get worn out by one, you switch to the other (and then back again). Another approach is to pair up your practice session with your favorite form of entertainment, committing yourself to a one-to-one ratio in the amount of time you spend. As entertainment is likely to eat a lot of your time in an effortless way, you may find yourself practicing your music more than ever.

Counting time approach

This method applies when you set a fixed number of repetitions for yourself before beginning a given task. While it is a very effective way to train your long term memory it also provides you with a multitasking challenge. If you do not keep your mind and body synchronized during the activity, you will either lose count or your exercise will fall part. However if you stop and start your tempo each time between counts you will have an easier time when using this approach. In general, numbered repetitions are universal in music, sports, academia and other fields. They work very much hand-in-glove with the increasing physical adaptations of the body towards improvement. The better you get the less you need.

IV. Setting goals

- a) Sizing up the journey
- b) Designing the small hurdles
- c) Moment to moment advance

** For best results all three work hand in hand, one nested inside the other.*

Sizing up the journey

Consult your emotions. Begin by recognizing what you love and then ask yourself one question: What would it take to make you feel accomplished? Write that down. To determine an overarching worthwhile goal it is important to envision a definite recognizable future scenario such as the completion of an album. Simply wanting to get better at a style or wanting to be a better musician overall is not enough because both are too open ended. I have frustrated myself many times over by failing to define clear goal-states for myself. A half-dozen unfinished compositions collecting dust in my drawers serve as testimony. Even though my goal (to finish a song) had been established, the sub-goals had not been clearly envisioned. Two things happened as a result: First I lost my overall direction by wading into a swamp of sprawling ideas. Secondly, I fell to the temptation of starting yet another song on impulse. Both songs stalled as a result! The lesson I learned going forward highlights the importance of establishing smaller nested goals as stepping stones in the direction of a final goal. This gives you several advantages: It helps you stave off the temptation to "jump ship" and keeps you on course towards your final goal. Once you begin to employ yourself in that direction, hard work will become enjoyable.

Designing the small hurdles

Next it is time to employ your faculty of reason as you map out the small steps towards a destination you love. This second phase of goal setting does well with a good dose of patience and humility with flexibility for adjustments. You don't want to rush and you don't want to drag in this process. Always find the right natural tempo, like recognizing your own pulse from time to time. As an example from my own practice journey, my overall goal has been to develop a new style on the electric bass that combines slap technique with jazz chords and odd meters. My final goal is the release of a solo album to showcase my work. I then divided the work load into 7 time signatures and 84 rhythmic variations to memorize. My hurdles were then definable, organized in groups from simple to complex. I will help my students with this process. Another key factor in setting smaller goals (a.k.a. hurdles) is self-testing. Do not allow yourself to move to the next level unless you have mastered the previous material. Passing benchmark tests before moving to the next hurdle gives you a sense of accomplishment and motivation as you continue your journey.

The moment to moment advance

The final stage of setting your goal(s) is being a superb guide to yourself during the process of practicing your instrument. You must become a watchful and alert guardian of your own learning process. Assist yourself in mastering the small steps one by one, constantly vigilant, constantly micro-adjusting your attitude and technique. Envision yourself being like a surfer who glides not on water but on the waves of emotion produced by the music you play. Consider it normal for these feelings to change from moment to moment. I progress when I apply the right amount of pressure, catch myself immediately after a fall and keep my eye on the overall destination. There is no substitute for paying attention. Attention is the true currency of the Universe! Around 1986 during my studies at Berklee College of Music in Boston I began to develop tendonitis. I thought it was from overplaying my instrument. Deeply concerned I decided to watch myself carefully while playing. To my surprise I discovered a different cause. The pain in my hand

arrived in the form of tiny electric shocks which happened only when my mind began to wonder. After committing myself to paying closer attention to what I was doing, I reduced the amount of nervous aggravation to a level where the tendonitis went away. Had I not discovered this early I would have injured myself to a degree where no amount of paying attention would be able to reverse course. This highlights the importance of paying close attention during moment-to-moment advance. There are five key anchors to help you with this process, each of them like adjustable knobs on a radio helping you dial in the perfect frequency for the task at hand.

V. The five things you control

(Guard rails to keep your moment to moment practice on point)

- Tempo
- Duration
- Intensity
- Accuracy
- Gaps

Tempo

Let's suppose you have prepared any given exercise to the point where you are ready to start shedding. To find the right starting tempo, understand that *too slow* means your exercise falls apart. Too fast on the other hand leads you to struggle with tension. Always set the starting tempo at your comfort zone. You will know it's the right tempo when you feel relaxed with a bit of headroom to go faster if you want to. Never start by pushing the tempo or struggling in any way

right out of the gates. It is long term flawless and relaxed playing that allows you to speed up your exercise to higher tempo markings. Slow and steady does it. A lot of stop and go is a sign of bad practice. Sometimes you may deal with material that is tough to play even at slow tempo. In this case, there is an alternative approach to slow and steady I call "wobbling". Allow yourself to play the way a toddler learns how to walk by "hearing" the exercise perfectly in your mind while allowing your body to catch up. Keep your sequence of notes in the right order while allowing notes to fluctuate in time as if flexing and relaxing a rubber band. . Seek to even out your notes over time as you become more comfortable. Then return to slow and steady. It is imperative for you to keep time with your foot when practicing alone or using a metronome. Both body time and time from a metronome have merits to offer. Embrace both methods alternatively as part of your skill set.

Duration

This answers the question how long you should practice something before you are ready to move on to the next. There is no fixed amount of time recommended for the average person. Everybody differs in their speed of apprehension, but we can say for sure that the goal is the same, namely mastering the exercise. First of all, understand the goal is always to demonstrate the ability to play from body memory instead of your rational mind. No matter how small the exercise, there are always three steps you need to complete. First to prepare the exercise, then to shed (repeated practice) and then to test. The optimal duration of your practice session amounts to the shortest way to reaching the third step. While you engage in the repetitive process your mind should monitor but not interfere with your hands. Follow the steps outlined in the previous paragraph about tempo.

When you feel relaxed about your playing and the music no longer skips or wobbles you are ready for the test. The test is simple: Play your exercise for 3 minutes in a row without making mistakes or feeling anxious. The anxiety factor is important to recognize independently as a negative factor. Our memory records not only the music played but also the way we feel when we do it. When we sit down for the next practice session the memory of that feeling will linger, isolating you from the

positive feeling of playing your music. You want to practice feeling good as well as playing the right notes. One without the other is not enough.

Intensity

There are three measures of intensity. How hard you play, how soft you play or how much intent you put behind your music. The latter requires more skill than the former two. You should always strive for a serious intent behind your music as it allows you the ability to control your dynamics from soft to loud without fluctuating in tempo. You will notice that involuntary fluctuation takes place when your intent is not strong enough. Building strong intent behind your playing is taking control of an invisible force. You build that by playing for long stretches of time with medium dynamics while you micro adjust for precision. The metronome is a good help here as it never fluctuates. A second helpful technique to build strong intent is to let your fingers bounce on the instrument like little dancers. You want to harness gravity like someone bouncing a tennis ball. Instead of you pushing all your effort into your muscles and tendons, look for and repeat the kind of "feel" where the effort is shared between you and your instrument. Instead of viewing yourself as playing the instrument, view yourself in collaboration with your instrument. You are playing together. I cannot describe this process any further as you will have to feel where the sweet-spot lies and then stay in there as long as you can. A great player over the years can thus develop a kind of "nuclear feel" which translates the music to the listener in a compelling way. The importance of taking the time to work on these subtleties cannot be overstated as there is always the danger of succumbing to impatience and the urge to move on quickly. Once you accomplish the bounce and the nuclear feel, controlling dynamics becomes easy. All you have to do is gradually increase muscle tension or release it.

Accuracy

Accuracy is good and you should always strive for it. Sometimes people will criticize a type of playing as being "too accurate" as in mechanical sounding. A drum machine sounds mechanical because every beat lands in exactly the same place. To attain the best live, natural and human sound do not concentrate on the subdivisions as much as the arch of the line you are playing from one beat to another. Be able to be as precise as a machine if you want to and then add your own swing to it. If you are fond of "laying back" in time or "playing on top of the beat" know that being able to play right on the beat is a prerequisite for both. Training yourself to hear microscopic differences between your notes and the stated time feel (be it metronome, drum track or your foot) is the key to improving your accuracy on the instrument. This, in turn, becomes second nature allowing you to experiment with a variety of interpretations of the groove, allowing you to lay back or play on top of the beat - if you choose to do so. A separate category of accuracy is conducted, or elastic time. In a classical orchestra instruments often speed up and slow down together, more like birds in a flock. This can also be done alone when you allow yourself to time stretch an idea. This is prioritizing lyricism instead of groove and requires a different kind of training. Start by listening to conducted music to get the idea. In both cases however, fluid feel and groove music, the beginning and endings of the inflection points are non-negotiable. Be it a small or a large phrase, the beginnings and the endings have to sound together with no discrepancies tolerated. The approach to accuracy in both cases is the same.

Gaps

The process you engage with when memorizing new material or developing new skills follows the ebb and flow of your life's natural rhythms. Like the sleep and wake cycle, there are smaller cycles involved on the road to committing new material to your intuitive repertoire. The gaps between practice sessions are important and necessary for you to digest what you have newly learned. Setting those gaps in a sensible way has a great deal to do with how well you absorb that which is new. It is generally understood that higher complexity translates into bigger learning

curves. In addition, however, your success depends on how often you step away from your practice to return to it. Brain science supports this even to the point of demonstrating how we learn in our sleep. I have experienced that several times during my practice when a goal could not be reached before heading to bed. First thing in the morning I took a test and passed. How often you should take gaps between practice and how long those gaps should be is a matter of trial and error left to the individual to explore. One thing is clear: frequent going away and coming back has the effect of "massaging" the information deeper into your intuitive memory. Information that is well established can be retrieved after years of no practice. If you move too fast from one thing to another you have a higher chance of forgetting what you wanted to remember. As a rule of thumb I recommend 3 levels of testing the solidity of deep knowledge.

Level 1 Testing

The first level is complete when you can repeat your exercise for 3 minutes in a row without mistakes.

Level 2 Testing

The second level of testing is complete when you can play your exercise "cold" first thing in the morning right out of the gates. This level does not require you to play prolongedly since you have already demonstrated that in level 1. The point of playing something correctly the first time around after a long break is to test your ability to recall the information instantly. You will notice that new information usually enters your brain *indirectly* by first linking up with adjacent ideas functioning as a mental bridge. This means when you sit down to remember your new material you will find yourself digging for it like someone who has opened different drawers to find out where the socks are located. The pre-level 2 practice of repeated going-away-and-coming-back has your brain "grow" a direct pathway and dedicated location for exercise. Next time you try, you will know first time around where your "socks" are located.

Level 3 Testing

The third level of testing serves as the litmus test for the viability of your new material in the context of improvisation. What you do is combine the new material with older things you already know well and then go back and forth in between them, mixing them up. Alternatively, you can modify the new material by moving it around in different keys or adding another layer such as your singing voice. In all three cases you are actively helping in the process of welcoming your new material into the company of your established repertoire, ready for improvisation.

Lastly, if you do not visit your material for a long time (such as several months) it will literally collect dust. But do not despair as it will take much less time to return back to your former level of skill than it took to learn from scratch. We humans are amazing and our memory banks are practically inexhaustible. The more we love what we do the easier it is to retain our memory for the long run.

VI. Intelligent limits

1) Always run the exercise in your mind before beginning to play it.

You will find it much easier to play new things correctly right from the beginning when you first recall them in your mind before putting your fingers in action.

2) When a mistake happens, keep the pattern running correctly in your mind.

Keeping a mental version of your exercise running in your mind allows you to recover gracefully without losing your momentum or causing a "trainwreck".

3) After 3 mistakes in a row, always pause to modify your approach.

Successive mistakes will corrupt your efforts and deflate your elan. If you don't manage the third time around your hands are in need of better instructions.

4) Demonstrate anything correctly at least 4 times before advancing.

This rule works best during the preparation phase when new building blocks are assembled into larger parts ahead of long term (3 minute) shedding.

5) Always state clear beginnings and endings for everything you play.

If you fail to do this, your mind will get distracted and your concentration will fade. Your listening audience's attention can also suffer. Make this rule a habit.

6) Convert anger into motivation and boredom into new ideas.

All emotions, pleasant or dreadful, are in fact potential fuel for creativity. Instead of turning away from the music, adjust your playing to capture the mood.