

Lecture III: Learning

This talk is likely the most essential of this course, because without real dedication to learning, it's impossible to become a good musician, much less an artist.

Even though we will cover a wide variety of ways and things to learn, they are all connected to music and therefore nowhere near the broader number of ways and things that we learn during our lives. Our intensive learning process goes back to being babies, to learning not to touch the stove when it's hot, often through experience. That learning process extends all the way through life, from learning how to walk to learning how to care for our children in their infancy to learning how to live with a partner to caring for our parents in their declining years.

We are always learning a lot about life. Why not learn a lot about music?

Learning – why talk about it? What does it have to do with being a musician?

I described it before as the essence of being an artist, and that an essential of a successful and happy career is to be an artist.

It's pretty safe to say that the more music you learn, the better a musician you become.

It's also safe to say that the more you know about the music, the better informed your performances will be.

It's also safe to say that as you become a broader and deeper person, the more interesting you will be.

I also think I could say that the music profession demands that you keep learning for the duration of your career. There is no way to learn everything you need to know about music, or certainly, to be an artist, in a few years of school, or from any one or two teachers.

There will come a time when no longer are in school or studying regularly with a teacher. How then are you going to continue learning? Do you have a plan?

This process keeps people interested in following you. Each time they encounter you, you will be different. You will have new ideas to share with them through your music.

The artistic life is one in transit, always moving. Being a Musician = Being an Artist = Always Evolving = Always Learning.

First, we will talk about knowing what we need to learn. Depending on whether we are performers, composers, or teachers, or part of an artistic administration, there are different criteria. For the most part I will be talking from the point of view of the performer, which is my longest-held perspective. I think I can make this simple by folding it all into one objective: becoming a musician, as I've already defined it.

If we are performers, and part of being a musician is the ability to perform successfully, then we have to ensure that we can do that. Later in the year, I will talk about performing and what it entails, but for now I think we can agree that it takes self-confidence, and it's what we've learned physically and intellectually that gives us that confidence to perform.

I would like to focus on three major facets of musical performance that need to be functioning at high levels to build confidence, to give you the best chance for success and a good time on stage.

The first is **interpretational conviction**. You will be more confident if you have consciously chosen the style in which you perform a work, if you have reasons to justify your tempi, your dynamics and colors, articulation, even the moods you are trying to create from moment to moment. Your authority in these areas should come from several sources: from the **score**, which always should be the most authoritative one available, faithfully representing the **instructions** left us by the composer; comparative, judgmental **listening** to respected performances of the work on recordings; **feedback** from trusted mentors, teachers and colleagues; and a general knowledge of a **composer's other works**, the **stylistic period**, and **performance traditions**.

The second is **technical assurance**. A broad **sampling of the solo repertoire** for any instrument will quickly reveal areas of a person's technique that are stronger than others. **Recording** one's self, even with a cell phone, is a good way to check if one is playing properly. Often, the solutions for specific technical deficiencies need to be sought out by students. A **variety of teachers and coaches**, and individual private lessons, is always an option.

Third is **comfort in front of, and a winning way, with audiences**. We'll deal with that in the performance talk coming in the spring.

Learning happens in so many different ways and comes from so many different sources:

- Experiences
- Teachers
- Colleagues
- Students
- Travel
- Reading
- Listening
- Attending concerts and other artistic events
- Working
- Special interests like other art forms, sports

(I made a hand out for the class. It looked something like this)



This “learning solar system” – my own invention – is simply one way to organize different types of learning. There are undoubtedly many ways to do it, but this one will work for now. Perhaps make your own that suits you!

In this model, the learning experiences transition from one’s outer to inner worlds. Along the way the process of learning becomes less dependent on external sources and more self-generated, private, and internal.

We begin with the ability of us all to learn something from ANYONE, including people we meet by chance.

We move from there to a more selective group, your FRIENDS and COLLEAGUES. This is a less random experience, more focused on you.

Next level is those selected by you to be part of your learning, TEACHERS AND MENTORS / SCHOOLS AND INSTITUTIONS/STUDENTS.

After reaping the rewards of the best and brightest around you, it’s up to you to pursue your path of learning independently. The first way is to seek out EXPERIENCES which will broaden you and keep you growing, and also, by taking advantage of experiences you have inadvertently.

The effectiveness of our learning program is very dependent on our proactivity, and how we spend our spare or private time. All by ourselves, on our own schedule, we have the possibilities offered by READING/INTERNET/THE WORK OF OTHERS.

After taking in all the world has to offer, it is time for you to take stock of yourself through a process of SELF-EVALUATION. This can be a very private activity, but it should be done with rigor and a certain amount of mercilessness, depending on how ambitious you are.

The effect of this entire intake is that we become fueled for DEEP THINKING, the most private of our learning activities, where we digest, combine, evaluate and reflect on our experiences.

And at the center of my solar system is REVELATION, the moment when things heretofore unknown to you suddenly become an intrinsic part of you, owned and understood by you on the deepest level, the ideal end result of dedicated exploration, observation, listening, study, and thought.

So let's start out at the edge of the solar system, with the widest, most random source of knowledge:

ANYONE

Anyone can truly be anyone. Someone you sit next to on an airplane. The person who fixes your car. The woman in the bank. The person who cuts your hair. Someone who comes up to you after a concert. Someone at a party.

But learning from anyone is heavily dependent on one quality you must develop: curiosity, and the will to express it.

Learning cannot happen without genuine curiosity. One must be open to learning unexpected things in unusual ways—real knowledge is not applied on you like paint. Curiosity can become an addiction: it begins as a habit that you can create. Learning from strangers is not going to necessarily happen by itself, so the learner often has to initiate it. Developing some kind of relationship, some trust or rapport is important, and we will talk about relationships in a later lecture.

But you can begin practicing this kind of learning very soon, almost as soon as you leave this room. The next time you are with new people, ask questions, ask them anything. Let one lead to another, uncover things. You may not always learn things vital to your career, but it sure is fun.

FRIENDS and COLLEAGUES

Friends can be: family, acquaintances.

Colleagues can be: fellow students, musical collaborators

The difference here is they are all people you know, and basically trust. They should have your best interests at heart.

Let's start with friends. Take stock of your **friends**. Write their names down and think of four questions for each of them. Have a coffee and make notes of their answers. Challenge them, press them. They will only admire you for it, and feel flattered that you are genuinely interested in them and their interests.

If you know someone is passionate about something that you aren't necessarily interested in, go ahead and ask about it anyway. You just might become interested, will definitely learn a lot, and be a better friend. No harm done.

Friends can help you see yourself as others do. Many or most of your audiences don't know you like your friends and family and colleagues. Does your music-making appeal to your friends who are not musicians? Ask them to tell you – they will if they are true friends.

Your **colleagues** should be your friends but they are also your professional allies, collaborators and even competitors. What you can learn from them is something beyond what you get from friends and family.

Remember that your colleagues are often in a parallel place in their careers. They may not have lots of answers; they are not your mentors or teachers; yet, you are all looking for the same things together at the same time. In some ways, you are part of a team seeking to win; you are part of a species in transition, like a fish becoming a land animal. Questions like: who did you learn that from? Who is the best teacher here? How did you get that gig? What are your career ideas? All these questions are good and all specifically for colleagues.

Press them for advice: Do they see anything they think might be holding you back – from your personality to your technique to your manners or clothing or anything?

Use them to compare parallel experiences. Discuss impressions of things like performances, works of music, and other musicians. Debate, provoke and argue. Reveal yourself. Ask their help "How do you do that?" "Where did you learn that?" Encourage an atmosphere and relationship of open information exchange.

A footnote regarding colleagues: it's not always possible, but in the best of all worlds, try to hang out with and hopefully make music with the most experienced colleagues you can find – ones who are more experienced than you.

TEACHERS AND MENTORS / SCHOOLS AND INSTITUTIONS/STUDENTS

We now enter the realm of influences specifically selected by you. You can usually pick who and what you want, and can leave them if they don't deliver. With some effort, you can have as many as you want. Let's talk about what they do for you:

Teachers do many things, or, in my opinion, should do many things. Here's a checklist. Write the keywords down:

First, they TRAIN you. They work on your weak points and reinforce your strong points. A good teacher should EMPOWER you to do what you want to do as well as you can.

A good teacher will COLLABORATE with a student to improve his or her performance, so if you feel you are not getting what you need, ask for it.

They should INFORM you of things you don't know when they SHARE their greater knowledge and experience.

They should also, at their best, INSPIRE you.

They should help you STRATEGIZE your learning process and SET GOALS.

They should ADVISE you on learning strategy, and if they can't, you need to find people who can.

WHAT YOU CAN DO PROACTIVELY WITH YOUR TEACHERS:

SELECT your teacher based on (1) their reputation, (2) the quality of their other students – remember you are going into a class, and (3) on how it feels to work with them, perhaps in an exploratory, pre-enrollment lesson.

EVALUATE your teacher not only in terms of your own progress but also that of their entire class. Make sure that you UNDERSTAND what your teacher is talking about. Give them a certain amount of trust and time even if you don't agree initially with something they ask of you. They may have a long-range goal in mind which takes time to mature.

If you don't get all of the above from your teacher then you have to either LEAVE them or get it from someone else. Perhaps consult your mentor, or do your own research. If you need to learn a certain repertoire, for example, and your teacher doesn't know it, then you simply find someone who does.

In a situation where you are confused by your teacher or by conflicting information from people who teach you, take the problem to your mentor. You need a third opinion from someone who has a larger view and is not invested in you as a teacher.

When it comes time for you to leave your teacher, because, say, you graduate, you have to decide if you need more teaching. Maybe you don't need a lesson a week, but to play for someone or a variety of people regularly. Maybe you need to take a year off and simply digest everything that's been said to you. But don't expect to solve all your problems alone. My advice is to keep open the possibility that you may need to play for people at any stage of your career.

Mentor is also a verb. Mentors are wise and trusted counselors and guides. In my career, mentors have been very important. Mentors are not necessarily teachers and teachers are not necessarily mentors. Mentors should be a bit above the fray, have a larger view of the scene and of you, be sensitive to you, and be thinking in your best interests. You need to trust mentors, let them lead you, inspire you, monitor you, and in some cases serve as examples. But they are not responsible for you in the way a private teacher should be. Mentors can be useful even after you no longer have access to them, for example, if they are no longer with us. A great mentor for me was the violinist Isaac Stern, whose advocacy of music led him to work for music industry in forceful and effective ways. He saved Carnegie Hall from destruction, in the middle of his performing career, before he was even forty years old. I often ask myself "What would Mr. Stern have done in this situation?"

Schools and institutions (like summer programs) are environments that you choose in which to learn. Each school its own personality, atmosphere, philosophy, and way of looking at education, often which have been in place for many years, like a tradition. Each has a different course structure and requirements. They have different faculties, leaders, and students, all of whom define the school. You should be able to describe your school accurately and honestly if asked. Look around you and figure it out. Talk to your friends in other schools and ask them about their school's profile. Make sure the school you are in is the right one for you.

Your own students can help you learn because in order to teach you must explain. To explain well you must understand your material and be prepared to answer questions. Their problems will provoke deep, analytical thinking. Working with them will increase your powers of observation. Your obligation to explain and engage will increase your communication skills. Your responsibility to understand them will increase your sensitivity and intuition. All will lead to a deeper understanding of your profession and your art.

EXPERIENCES

Your range of experiences is potentially huge. For the purpose of this talk, I am mostly talking about experiences that you choose to have. From the many experiences that may relate to your career, you can take away impressions, memories, reactions, and analysis, if you are proactive in your approach.

First, it's helpful to develop habits that you use during your experiences. Your responses to experience are of great importance. So here's my advice: If you want to get the most out of your many experiences, simply become more **sensitive** and reactive. Remember the van Gogh letter in which he was so sensitive to colors and light? Be affected by things more, more than you were before, and more than the average person. Stop longer to look at the moon. Cry harder at a movie. Keep your eyes open. Reduce the time you look at your smart phone when you are on a bus or train or riding in a car – look out the window and find something interesting instead. React strongly and creatively.

Maximize the effects of your experiences and put a positive spin on them. Are you getting all there is to get out of seemingly normal experiences? Can you see something in a situation that others don't? Are you squeezing out of a situation all that it's worth, all that's in it? Can you analyze it?

The world's most boring people are those who are bored. Don't ever be one of them. The happiest people I know are the ones who get the most out of everything, who find something to learn and enjoy from every experience, and I try to be one of them every day.

Failures and successes: As artists, we are not only bound to fail, we are meant to. If we are the people in society most expected to experiment, try the unknown, innovate, take chances, go out on a limb, then we should expect to fail often. But your frequency of failure or success is something which is partially in your grasp. Some thrive on failure, and only need success one time out of ten to be inspired to continue: sometimes those people are engaged in art in such a way that their failures impact their career less. For example, if you are a ceramic artist, no one

ever needs to know how many pots you throw away, just like a composer need not publish or release every work. Brahms famously destroyed much of his output – he was not tolerant of his own failures, but other composers were more comfortable being prolific in a public way. The choice is yours as to how much failure you and your career can tolerate, but the important thing to remember is that obsessive avoidance of any failure may lead to an artistic route too safe, and ultimately not interesting to you or your public.

Competitions: competitions are good motivators, and it's in the preparation for them that we gain all our ground. It's not so important to win them; rather that experience as a whole should remain positive. You can never out-guess the judges and should remember that you are the best and truest judge of your own work. If you really don't like competitions and they are destructive to your well-being, then don't do them but find other ways to test and motivate yourself, like simple concerts for friends or in community venues, or wherever.

Traveling is a great way to have incredible new experiences. I recommend becoming addicted to traveling because the most interesting people I know travel or have traveled a lot. Many older, retired people travel because they feel it's the ultimate reward for all they work they've done in their lives. The patron cruises I do are filled with octogenarians, and even a guy in his 90's, who trek, sometimes with canes and walkers, up and down Italian hill town stone steps, or through the ruins of Ephesus in Turkey, up the steep incline to the Acropolis in Athens, because they crave the experience and simply must have it in their lives. I recommend not waiting. It's easier to do now. Find excuses to go, and go cheap while you're young enough to put up with economy class.

Change your environment permanently if necessary. Both Beethoven and Martha Graham moved to cultural capitals in order to receive the most knowledge and stimulation. Vincent Van Gogh moved almost incessantly seeking knowledge and opportunity, and found his true style when he surrounded himself with the vibrant colors of Provence.

A lot of the music we play, as classical musicians, was composed in Europe. We can't help that and there's nothing wrong with saying that the majority of the classical repertoire was composed by dead, white European males. It's true that for whatever reason, they by and large wrote most of the best music there is. Don't apologize for that, ever. You can't do anything about it!

So, knowing Western, Central and Eastern Europe and their cultures is extremely helpful, actually essential, when it comes to enjoying, understanding and interpreting classical music. And there's no way you are going to get the real thing until you travel to Europe.

It's not just the taste of French pastry, of Italian coffee, of Wiener schnitzel, or the cold of the St. Petersburg on a winter day, the warmth of Barcelona on a summer afternoon, or the chill of London when it's drizzling. The way a day unfolds in, say Helsinki, is very different from the way one does in Prague.

It's the sound of people speaking to each other – even if you don't understand their languages – the way they dress and gesture and interact.

It's the way things are expressed in different cultures. The English bathroom sign might say "It is strongly recommended for ladies and gentleman making use of these facilities that they maintain an acceptable standard of hygiene out of consideration for others" while a sign in another country might simply say "No pissing on the floor". As my grandmother used to say, thank God we are all different.

The elegance of Vienna, the stateliness of London, the sensuousness of Paris, the harsh bleakness of Moscow are all in the music from those places. They need to be experienced in person.

You should take a walk in Austrian Alps, as Beethoven, Schubert and Brahms used to do in the summer. You should visit the gardens in Giverny that so inspired Monet, to see the colors with your own eyes. You should eat a big fat bratwurst covered with mustard on the street on a cold day in Munich, where Strauss grew up. You should walk into the little room in Salzburg where Mozart was born, and wonder how he ever survived the freezing cold crossing the market in back of his house to be baptized.

All of the above travel experiences will inform and strengthen your musicality. You'll have more to say about the music you play, more instinctive convictions about how it should go. You'll be much closer to knowing where your music came from, who wrote it and why, and what their influences and inspirations were. You will become a more authoritative musician and a valuable source of knowledge for others.

READING/INTERNET/THE WORK OF OTHERS

Reading is perhaps the most private way of learning from an outside source. You can read almost anywhere and even those close by do not have to know what you are reading about. There is virtually an unlimited amount of worthwhile reading material out there. The hardest thing about it is knowing where to start. Let me suggest a strategy:

Because you are musicians, let's begin with the essentials of music reading. In my opinion they fall into several categories.

First, there are general music history books, and there are many good ones, that cover the entire history of western music. Every one of us, I believe, should have read at least one, and keep it handy for reference.

Second, there are books that deal with specific periods of music. For example: Charles Rosen's *The Classical Style* has likely been read by every serious professional, and on the other end of the spectrum in tone and attitude is Alex Ross's *The Rest is Noise*, which covers music of the 20th century. Delving into a specific period and style will immerse you more deeply in whatever music you are working on at the time.

Third in the category of music reading is composer biographies. Ask your colleagues and teachers what they consider to be the best composer biographies, and start collecting them. I do recommend book buying and building a library – it is something you will use time and again.

Fourth under the music category are books by people dealing with interesting aspects of music, sometimes by composers, performers, journalists, scientists, etc. Ones that come to mind are journalist and pianist Stuart Isacoff's two books: *Temperament*, which tells the fascinating history of even tempered tuning going back to the middle ages; and his equally informative book, *A Natural History of the Piano*, which tells not only the story of the instrument's evolution but also of the musicians, right through our time, who composed for it, mastered it and popularized it. Equally fascinating is William Gaines's historical novel *Evenings in the Palace of Reason*, which relates the life stories of Frederick the Great and Johann Sebastian Bach, leading up to their historic meeting in Potsdam, Frederick's challenge to Bach to improvise a six-part fugue, and Bach's eventual response of his great, late contrapuntal demonstration, the Musical Offering. Dvorak's essay on Schubert is fascinating, as well as Schoenberg's essay on Brahms. There is simply a lot out there, all you need is guidance from people you trust and admire.

And part of being an artist, which is part of being a musician as I have insisted, is to have a deeper-than-average understanding and engagement with the world's major cultures. This point of course goes hand in hand with my advice to travel, but this you can do from home or anywhere. It will not take too much of a bite out of any of our schedules to engage in a systematic world tour through literature, to read, one by one or even side by side, even one fine novel, story, play or collection of poetry from England, France, Spain, Italy, Germany, Austria, The Czech Republic, Poland, and Russia. In doing so, you will be immersing yourself in the thought patterns, nationalistic perspectives and human natures of Elgar, Debussy, Albeniz, Verdi, Schumann, Schubert, Dvorak, Chopin, and Rachmaninov. Plus you will pick up a deeper, more eloquent and personal sense of the history of their countries, of their environments, of the kind of people who influenced them. Once again, you can give yourself all of these experience on your own time, and they will reinforce your interpretive convictions and strengthen your musical authority.

The internet is fast becoming the go-to place for everything that people need to learn. I certainly use it every day to find out this and that very quickly. But there is a lot more to learning off the internet than to whipping out Wikipedia at a moment's notice to find someone's birth date or remind myself what the Thirty Years War was all about. It's hard for me to believe that it's only in the last few years that I became fully aware of the capability to go online and find audio and video recordings of great players and essential repertoire. It is so recent that I can practically remember the first time I saw a performance of something on YouTube and I can say that I was truly in shock.

Today, we can experience practically every great performer since the invention of audio and video online. We can hear the greatest recordings of essential repertoire, and learn pieces a wider variety of music than we ever thought possible simply by listening online. The internet has become, I believe, the greatest resource that exists for independent music education in the world today.

Certainly, one who has not spent some time watching the performances online of artists such as Heifetz, Horowitz, Rostropovich, Fischer-Dieskau, Bernstein and Kleiber is missing out on an incredibly exciting part of learning to be a musician. Add to that the ability to take in operas,

symphonies and other genres is equally important. I'm sure you all know that you can Google today any performer's or composer's name and opportunities will come up to listen or view their work.

Also, there are master classes to be viewed, some of them eye-popping, like Daniel Barenboim teaching Lang Lang, available for sampling on the Master Class Foundation site. And there are a growing number of musicians who have decided to teach on the internet, either in straight-ahead video lessons like my Cello Talks, or through interactive projects like violinist Kurt Sassmanshaus's Violin Master Class.

One of the best things also about internet learning is that while it's fun to do with others, it can be done in complete privacy. You can sit and listen to the same piece by Philip Glass a hundred times before you finally decide if it's really great music. We can compare multiple interpretations of the same work instantly. And through these comparative listening processes, you will no doubt find that some things sound a lot better than others, that a few will ascend in your opinion while many, often famous, will likely crash and burn under close comparative scrutiny.

Once again, as with reading, I recommend a systematic approach, even though the internet lends itself wonderfully to endless browsing. The most fun you can have together is to begin sharing and building a library of URL's – so easy to do by copying and pasting. In an hour, one can assemble a stunning and rich variety of incredible opportunities for learning available on the internet. Do it – and share it – you won't be sorry. And the more organized your work is, the more it will feel like a truly educational experience, one that will be more easily retained and returned to as needed.

And finally, there is simply going to concerts and observing **the work of others**. A keen eye and an analytical mind at a concert, for example, can produce volumes of do and don't advice to yourself. Write yourself a private review. Imagine that was you on stage: of what would you have been proud, and of what disappointed? Did anything the performer did distract from the music? What could have made it a better experience for the listener and perhaps for the performer as well?

SELF-EVALUATION

Self-evaluation can be the most intense form of learning. Depending on how tough you are on yourself, you can be either encouraged or discouraged. There can easily be no harsher critic than you. Be gentle; tough love is encouraged.

There are at least two main categories of self-evaluation.

1. Taking stock of your experience and capabilities away from the instrument. Ask yourself some questions: How much repertoire do I know? What have been my benchmark experiences? What do I need? Am I playing with the right people? Do I have the technique to play at the level I need to have right now?

2. Checking yourself out as a performer. The most comprehensive way to do it is by video recording. Make sure you live up to your expectations. Compare your performance of a piece on video to the performance of someone you admire – likely found on YouTube. You can really give yourself a lesson this way. I use my phone to record dress rehearsals, and then wear the head phones to listen while I'm changing into concert clothes. You can make a habit of it and eventually you'll build confidence. Gradually you will become accustomed to how you sound and you won't be so unpleasantly surprised when you hear a professional recording of your concert.

DEEP THINKING

What I mean is "lost in thought". It means that your mind can wander and fantasize in an unrestricted way. It means that you are able to think at a more detailed level, and also a more creative one. It is just you and your mind, alone together, in an intimate and productive dialogue. It is your imagination working at its full capacity.

This most often happens to me first thing when I wake up, when my mind is totally rested and I have no other distractions.

Caffeine gets me going too. This phenomenon may help explain why so many thinkers and intellectuals have gathered in cafés over the centuries.

I believe that really artistic people – at least I'm sure of the ones I know – tend to drift off into deep thinking quite often, and can do so at a moment's notice. They can be in a crowded room, at a restaurant, at a party, and all of a sudden you can see that their mind has left the scene and is somewhere else. I know many of these people spend significant and regular time completely alone.

This kind of thinking can be a habit. It can also be provoked, for example by teaching. I have engaged in a huge amount of deep thinking while working on these talks.

One thing you can try that provokes deep thinking is to re-imagine something that you do all the time, for example, a daily commute. How many different ways could you do it? Even getting dressed in the morning. Do you put on both socks and then both shoes, or one sock and a shoe, the other sock and the other shoe?

Another kind of deep thinking is remembering. What were you doing two weeks ago? What did you do when you were 18? Can you remember the faces of your grandparents or any departed ancestors?

But mostly, the use of deep thinking we are talking about here is the kind that you can do which serves your musical career. My first talk – Who Am I? – was designed to provoke deep thinking. Looking inside yourself - explaining your actions and feelings, knowing where you are truly coming from – takes some serious thinking. Putting your answers into words, so that you can explain yourself to others, takes more serious thinking. Often, I find that I have not completely figured out something I know internally until I can make it external, until I'm able to translate

and verbalize it and make it understood. Even if you have no one to listen to you, try explaining your thoughts out loud to yourself. It can be surprisingly challenging.

I often tell people that I have the administrative positions I have because no one else wants to solve the most difficult problems encountered by my organizations. Day in and day out, I arrive at our office at the Chamber Music Society of Lincoln Center to be confronted by any number of our 22 staff members with some problem for which no solution has been found, even with all their combined ideas. And when a problem has been tackled by that many talented and experienced people without a resolution, taking it on is a bit daunting. If I'm lucky I am able to see something quickly that others have not, due to my experience and perspective, but more often than not, a lot of listening and a subsequent period of deep thinking are required before I can make any constructive suggestions.

REVELATION

And this leads us to the core of my learning solar system, REVELATION.

Various dictionaries define "revelation" as follows:

Something revealed, especially a dramatic disclosure of something not previously known or realized.

A secret or surprising fact that is made known.

The act of making something known, an act of revealing something in usually a surprising way.

Something that is revealed, especially an enlightening or astonishing disclosure.

Something revealed or disclosed, especially a striking disclosure, as of something not before realized.

Revelations happen when all of a sudden an idea, a solution, a course of action, words or music, or realizing that you feel a certain way about something, just hits you.

I would like to suggest one perspective on revelations that may not always hold true but nevertheless certainly can be argued for: that revelations are the true end of the learning process, when something has become such a part of you, comes from so deep inside of you, that you can't imagine not having known or thought it before.

We've probably all had the experience of memorizing a piece of music. That process is often tough, with many failed attempts along the way. And often, especially true for me, there is never a straight path to complete memorization. I can memorize the first movement Monday, the second Tuesday, the third Wednesday, and the fourth Thursday, but that doesn't mean that on Friday I know the whole piece like it's a part of me. The moment that I realize I know a piece completely in my head always comes unexpectedly, after a string of attempts, interruptions in

work, and without provocation. All of a sudden I realize that I actually know it, and that's a revelation.

I believe that revelations are fueled and inspired by the deep thinking process, but do not necessarily occur during deep thinking. Deep thinking will often yield no revelations but rather bring problems, challenges and situations into sharper focus or more detailed analysis. The great revelations in art, science and medicine and engineering came from people who were totally immersed in deep thinking about their fields. We can't hope to come by significant advances in knowledge without giving ourselves the same chances.

The rewards of perpetual learning are perhaps the greatest intellectual satisfactions we can experience. The thrill of revelation is the pot of gold at the end of the learning rainbow. There are no guarantees along the way, but the challenges of the process are in themselves both energizing and humanizing.

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