

# CHAPTER ONE

## *The Three Stages of Learning*

*All real learning happens in the imagination—if it isn't in the imagination, it's not learned—for you only actuate, in reality, what is already in your imagination, not more and not less. Holes in what you do indicate holes in your imagination. To correct the reality, fill the holes in your imagination and the reality will follow like clockwork.*

Keith Hill – Instrument Maker

There are three basic phases of learning a skill: 1) roughing in, 2) perfecting and 3) achieving fluency. Being aware of these three phases and working in cooperation with them as you use this book will greatly increase your learning. You could say that it will increase your “return on investment!” So, while you might be tempted to jump straight to musical exercises or advanced chapters later in the book, please make sure to furnish yourself with right attitudes towards learning by reading these first two chapters.

### **STAGE 1: ROUGHING IN**

In the “roughing in” phase, you experience the thing you’re learning about for the first time. Let’s say that you’re exploring getting a ball through a hoop. You play with the ball, you look at it, you drop it, watching to see what it does when it hits the ground, you pick it back up, you feel its weight, you turn it upside down and inside out, you squeeze it, you smell it, and you even mash it around to get a feeling for how it behaves. In short, you play with the ball, delighting in discovering it. Then you study the hoop. You look at it, measuring its height relative to yours, observing that it is considerably above your head, and studying how big the hoop is compared to the size of the ball. You might also recollect seeing someone get the ball through the hoop, their stance, their gesture in tossing, and the swooshing sound as the ball goes through the net. You might also remember the loud bouncing sound that occurs when the ball

hits the board behind the hoop just before it goes in. As well, you might recollect how the ball sometimes hits the backboard but misses the hoop, while at other times, the ball goes into the hoop without even hitting the backboard. This is the roughing in phase. It is a decidedly receptive phase where, as my husband Keith would say, “we are getting pregnant.”

Next, you try getting the ball through the hoop and you undershoot, hitting the net, causing the ball to land on the ground before weakly bouncing away. You study this effect for a moment before retrieving the ball for another try. Now, you enter the next phase.

### **STAGE 2: PERFECTING**

The perfecting phase entails consciously modifying your behavior to succeed at a skill that requires discernment and positive will in action. At this point in trying to get a ball through the hoop, having observed cause and effect in the roughing in phase, you make sure that you throw the ball hard enough and high enough to make it to the hoop. In the perfecting phase, you also apply methodological reason to eliminate unwanted actions in favor of more effective ones. For example, you may first try standing close to the hoop and, if successful, then attempt a more distant throw, all the time adjusting the effort needed to get the right speed, angle, and height of the ball. If you succeed, you move to the third phase.

### **STAGE 3: ACHIEVING FLUENCY**

Phase three occurs when you can reliably get the ball into the hoop without conscious effort. You unconsciously adjust for your location and throw the ball so that it goes through the hoop almost all the time. At this point, you have achieved fluency in getting a basketball through the hoop. Of course, you're not yet playing basketball; this would require that you develop knowledge of the rules, skill in positioning a shot when others obscure your path, and skills of numerous other sorts that I am far from qualified to define!

You know that you have achieved fluency when a skill can be performed with complete grace and ease. At this point, you may feel slightly impatient to take the skill to the next level and may even be irritated that you're working on something that's as natural as adding two plus two. Once you can get the ball through the hoop 20 times in a row from six feet away, you can be fairly certain that you're ready to start moving farther from the hoop. The three-phase process is the same in acquiring musical skill of any and every type.

### **WHEN THINGS GO WRONG WITH ROUGHING IN**

Things go wrong if you interfere with the natural progression of learning phases. For example, as adults we attempt to skip past the crucial phase of roughing in, jumping to the perfecting phase by judging and condemning our performances before our bodies and minds are familiarized with the necessary elements of a skill. As adults, we expect to be able to do things and, when we can't, we try to muscle through using our conscious will, all the time overlooking that we are missing crucial cognitive information. Willing, screaming, or trying really, really hard will not help any more than these strategies will get the Hubble telescope to move its position in space.

An example of how this might happen in the ball and hoop metaphor would be if you start out with the expectation that you, as an adult, should be able to get the ball through the hoop because, well, you should be able to do it! You pick up the ball and pretend to know all about basketballs, though you've never practiced shooting hoops before this moment. As you throw, the ball goes completely awry and you feign irritation at the situation when, in fact, you're clearly embarrassed by your clumsiness. Then, upon running after the ball in a terribly adult way, you return to the baseline and will yourself to get the ball in the hoop OR ELSE. You have no more success the second time as the ball slams into the backboard and bounces right back at you. Now you're even more irritated with this stupid game, and you grit your teeth as another player catches the wayward ball and tosses it back to you. This time, you WILL get it. You focus, telling yourself that any child could do this; you hold your breath and mentally urge the ball to go through the hoop. You can guess the outcome.

Instead of delighting in the experience, you're judging, condemning, and generally hitting your head against the backboard. Willing will not work. What is more, I have found that when using this willful approach, hours can be spent—even 100,000 of them—with little positive effect. Ironically, no amount of will helps when you bypass the roughing in phase.

### **DO WE NEED THE PERFECTING PHASE?**

I have found that when the roughing in phase is accompanied by a clear goal with relaxed and focused awareness, plus a positive frame of mind, there may be little time required in the perfecting phase. In this case, we experience few problems on the way to fluency and so progress without conscious interference. This may be what savants do when they solve difficult mathematical equations without conscious thought or ever having learned a system for how to do this.

### **MINDLESSLY BYPASSING THE PERFECTING STAGE**

Novices unwittingly try to bypass the perfecting stage by never examining cause and effect. As novices, we may delight in the joy of exploration and may be willing to do things wrong over and over again without even noticing a problem. In the basketball scenario, you might thoroughly enjoy tossing the ball and watching it sometimes go into the hoop and sometimes not, without asking the reason for the success of some shots and the failures of others. Here, you just delight in doing the action without any consideration of a desired outcome or goal. There's absolutely no pain, but there's certainly no gain either. Clearly, what is needed is for the roughing in phase to provide concrete observations of cause and effect that will allow us to apply the experience to solve future dilemmas in the perfecting phase.

### **BREAKING DOWN AT THE TOP OF THE PERFECTING PHASE**

A bewildering thing can happen when you've effectively moved through the roughing in and have achieved a highly reliable level of skill: you suddenly perform the same skill much, much worse than before. I encountered this so often with my students that I knew something had to be causing this effect. In

spite of their strong focus and will, the students would backslide, making ridiculous errors. This was depressing.

#### WHY WERE THINGS GETTING WORSE?

It occurred to me that the problem might result from an excessive use of energy—like pedaling a bicycle so hard down a hill that the bike chain gets tangled. **What you need to do when you have reached a level of reliable success is stop trying so hard. It's as if the mind has figured out what it needs to do and doesn't need to waste conscious energy on the task anymore. Instead, you need to let go and allow your mind to take over.** This is something that is as important as it is difficult for those of us who take pride in control. Letting go after expending so much energy feels risky and even dangerous, but we can remember that pedaling the bike up a hill is different than pedaling down the same hill. There is a point when we simply need to let go and allow gravity, or “mental momentum,” to take us the rest of the way.

So, whenever you detect a sudden and unexplained decline in skill during the perfecting phase, you should attempt to stop consciously directing your actions and instead permit your mind to transcend to fluency. Most of the time, this works. If it doesn't, you may need to go back to studying cause and effect until you thoroughly understand the elements of the skill. Remember, the subconscious or “meta-conscious” mind is capable of working far faster than your conscious mind. In a way, achieving fluency is about syncing conscious awareness with faster meta-consciousness. Once the syncing is complete, conscious control hampers the flow and speed of meta-consciousness—the bike chain gets tangled as a result of your over-exertions. Let the bike take you; there's no more need to push.