

Intuition VERSUS intuition

Some people view intuition as the highest level of knowledge: knowing a subject so intuitively, so instinctively, so naturally, that when you're given a question about it, you know how to solve it or answer it without having to reason through it step-by-step.

And I agree with that. Somewhat.

The problem is that there are actually 2 levels of intuition. There's the level described above, and then there's the level that can be described as not really knowing what to do, so you just try anything, even if it's just a bunch of random guessing and flailing. In other words, intuition with experience versus intuition without experience.

Here's an example:

Many of us have played golf (miniature or otherwise) at one time or another. Few of us take lessons, or practice countless hours. We just pick up a club and swing away.

Then there are the professionals. These folks can get the ball into the hole in $\frac{1}{4}$ as many strokes as many of us might take.

When the majority of us (who haven't had lessons) swing that club, do we consciously think about how we're standing, how we're holding the club, how the wind is blowing, how the ball's path will curve? Probably not much. Do the professionals do that? Probably not much. In other words, for the majority of us, as well as the professionals, we're all playing golf intuitively, without much conscious thought.

The difference is this: the professionals have, in the past, had so much practice, thought so much about their stance, their grip, the clubs, the wind and all the other factors, that they intuitively know what should be done; whereas, the rest of us have not. We have little to base a proper decision on, so we go with what little intuition we have, pick up some club, swing away in some direction, and hope for the best.

Those are the 2 levels of intuition: the primitive intuition we all start with (when we have no experience), and the high level intuition that only a few seem to possess (which is often developed from experience). Many people would probably like to think they have high level intuition. Few actually do. (After all, if so many people really had that high level intuition, would we really think of it as being high level? Wouldn't we just consider it normal?)

How do you go from primitive intuition to high level intuition? For a few lucky ones, their brains are wired to make the leap very quickly. For most of us, though, we develop our intuition by work – we practice, repeatedly, regularly, in a structured format. The professional golfers above went through a lot of training (with coaches), in which they carefully learned how to place their feet/hips/shoulders/hands/fingers, how to read the wind, how to match a club to a desired shot, how to determine the ball's flight path under various conditions. They don't need to think about it all step-by-step anymore because they did all that in the past, and now they can rely on intuition. If you want to go from primitive intuition to high level intuition, you'll need to do the same thing (just like most athletes and musicians had to).

In learning math, that means no shortcuts when you're starting out. Learn to write in clear logical complete steps at first, so you develop your intuition. When you've done that enough, you can begin to skip steps because your intuition is strong enough that you can make the logical jumps without making mistakes. If you try to skip steps too soon, you will likely make mistakes you don't recognize even when you go back through your work step-by-step. And you'll probably wind up finishing a class with the same primitive intuition you started with, which means you'll be behind the next class in the sequence even before that class starts.