

Cartesian Splits and Chinese Splits

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[Editor's note: this paper was originally presented at the SENG conference, Bridging the Gap. It is printed here because much of the information is relevant to anyone who practices or teaches jujitsu]

The famous French philosopher René Descartes proposed that the mind and body were two separate entities, joined at a single point. Because of Descartes' influence and stature, this belief was taken as fact for a very long time. In fact, one might even say that followers of the philosopher went so far as to put Descartes before the horse. Today, of course, we now know that the mind and the body are connected in a variety of ways; how we feel can affect how we think, and our thoughts, beliefs, and imagination can produce measurable physical changes in our bodies. Despite this, however, many extremely bright children and adults still experience a Cartesian Split: skilled and comfortable in intellectual pursuits, they find themselves awkward and frustrated when attempting physical activities such as sports or martial arts. Their feelings of frustration are compounded when they understand what they are supposed to do, but, no matter how hard they try, find themselves unable to do it.

As the old saying goes, when all you have is a hammer, every problem looks like a nail. In this case, the hammer is intellectual prowess. Academic success, be that in science, math, programming, history, or writing, requires the development of organized, logical thought. For some, many of these pursuits tend to come easily, and so the child enjoys early success. This, in turn, leads to a virtual circle of increasing skill enabling the child to learn more complex skills or solve harder problems, which serves as a reward for the hard work, and thus leads to more learning, etc.

But then along comes PE class, or participation in sports or martial arts. Suddenly, apparently simple skills create

more of a headache than advanced calculus or quantum physics. Dribbling a basketball, parrying a sword thrust in fencing, or executing a basic hip throw in jujitsu, look easy... until you try to do them. And even after you finally manage to dribble a basketball, someone comes up out of nowhere and steals the ball. The issue here is that physical skills do not readily lend themselves to the type of thought patterns and mental skills that work so well in academic pursuits. Sports require a remarkably high level of mental processing power... just not of the procedural logical/mathematical/verbal variety. Instead, sports load imagery, visual processing, and pattern matching. Attempting to translate images into procedural form, that is, words, analyze what you're seeing, and translate it back into action is just too slow. Even the most brilliant person can't process that rapidly. Unfortunately, it is possible to do just well enough to get some measure of success, at least at the beginning, easy stages. This leads to frustration down the road as the level of difficulty increases and the would-be practitioners suddenly find themselves taxed beyond their limits.

There are several reasons for this.

Paying Attention

First is a simple matter of paying attention. No matter how smart or skilled you are, your attentional capacity is finite. In other words, there are only so many things you can think about or focus on at one time. If all your concentration is taken up by the physical act of dribbling that ball, then you have no excess attention available to notice the other player coming to take it away. Or if you're spending all your concentration thinking through how to execute a move, or what move to execute in response to different moves by your opponent, you have nothing left with which to process what he actually does. Thus, you need to either increase

your attentional capacity or reduce the attentional demands of the task.

Increasing attentional capacity is a bit tricky. Imagine that you have a certain number of attentional points available. Each of your senses provides inputs that you need to attend to. To some extent, if you overwhelm one sense, you can attempt to transfer information to another: thus, if there are too many visual cues to attend to, you might try to supplement with auditory cues instead. However, that only goes so far before you run out of attentional points. And total attentional points can't be increased, so trying to use the equivalent of brute force is a recipe for frustration. Attentional points can, however, be used more or less efficiently.

Thus, it is critical to reduce the attentional demands of a task. Through practice, a skill can be made automatic, at which point it requires virtually no attentional resources to execute; instead, your attentional resources can be put to deciding when to execute that skill. Practice, however, is not a popular activity, especially if you understand the skill. In this case, though, intellectual understanding and physical ability do not go hand in hand, and practice is a necessary evil in order to make the skill automatic and thus decrease the attentional resources. Ironically, this is just as true in academic subjects: it's pretty hard to do algebra if you can't remember your multiplication tables, or if you have to spend all your time thinking about them.

Internal vs. External Focus

The next issue is where is your attentional focus? Most people tend to focus on their bodies. They try to keep track of where to put their arms, their legs, etc. After all, they reason, how hard could that be? The answer, it turns out, is very. Keeping track of your body, known as internal focus, consumes a huge amount of those limited attentional points. It also interferes with your

body's ability to self-organize: it's the equivalent to having someone standing over your shoulder critiquing your every move, except that you are, in effect, standing over your own shoulder. Instead, it's important to focus on the result of the action you're trying to take, a technique known as external focus. A good mental image of what you want to accomplish will do more, and use less attention, than a list of detailed body-oriented instructions.

The question of focus ties into another issue: that many people work in areas that require them to get things right. Unfortunately, the desire to do it right can tie badly into physical activities: what's right for me, with my body, isn't necessarily what's right for you with your body. But the attempt to imitate the instructor exactly forces the student back into that internal focus. And again, some people have the problem of having enough processing power to be just successful enough so that it feels like a viable strategy. Instead, it becomes important to use that processing power to understand what the instructor is teaching, what concept he's exhibiting, and what result he's trying to obtain; then work on imitating the broader flow of his motions and achieving that same result. Of course, you also have to find an instructor who agrees with this view. Some martial art instructors and athletic coaches have an unfortunate tendency to demand that their students attempt to become carbon copies of them.

Arousal states and attention

Another factor governing attention is your level of physiologic arousal: in other words, how much energy are you applying to the task? At low and high levels of arousal, attention is poor: when you're sleepy, it's hard to summon the energy to respond to anything; thus, you tend to ignore all inputs. When you're too excited, you can't sit still long enough to concentrate: each input grabs your attention and you can't focus on any one thing. In other words, you become highly distractible until, paradoxically, you reach a state of such high arousal that you get tunnel vision and are unable to pay attention to any cues. Attention peaks somewhere in the middle. This

phenomenon is known as the inverted-U theory of attention: at first, attention increases with arousal, peaks, and then declines.

With that image in mind, consider the following question: faced with a distraction while attempting to accomplish a task, is it more effective to resolve to concentrate harder, or is it more effective to tell yourself to ignore the distraction?

Salient and nonsalient cues

Before answering that question, I want to discuss salient versus non-salient cues. In a very real sense, the optimal level of arousal for any activity can be thought of as the point at which you can pay attention to relevant inputs and ignore irrelevant inputs. By extension, that includes the ability to determine which is which. By implication, therefore, for any given task, there is an optimal arousal level for that task.

“By telling yourself to ignore the distraction, you are effectively training your mind to recognize what is and what is not important. Moreover, you are not changing your level of arousal.”

To answer my earlier question, “you just need to try harder” is a common refrain. Most people learn early on that trying harder often produces excellent results in a variety of subjects, ranging from math to music to art to chess and sometimes even sports. Trying harder can be an effective strategy, if your concentration problems are due to low arousal relative to the task at hand. By increasing your arousal, you will increase your ability to pay attention, at least until you reach that sweet spot of optimal arousal. However, once you move past the optimal arousal level for a task, you start to become more vulnerable to distraction. If you are

trying harder in an attempt to deal with a distraction, you quickly become locked in a feedback loop: the more energy you put in to concentrate on your work, the more you notice the distraction, so you put in more energy, and so forth. Eventually, you end up exhausted, frustrated, and unable to concentrate.

In essentially sedentary activities, such as math, painting, or chess, the effect is not so pronounced, although anyone who has ever had trouble sleeping because they are trying to focus on relaxing instead of that annoying noise outside the window knows that you can end up more awake than when you started. However, in sports, where you are already operating at a relatively high level of arousal, this vicious circle can quickly lead to a collapse of performance and, if not corrected, a loss of enjoyment in the sport.

Therefore, telling yourself to ignore the distraction is generally a better strategy. By telling yourself to ignore the distraction, you are effectively training your mind to recognize what is and what is not important. Moreover, you are not changing your level of arousal.

Relaxation training

So if attention is key, and attention is moderated by arousal, how do you control arousal? When faced with a stressful situation, such as a sport competition, jujitsu belt test, a math test, or whatever, our bodies tend to respond by increasing arousal to meet the perceived demand.

Unfortunately, the degree to which our bodies react may not be at all appropriate. For example, a math test probably requires that you sit still and concentrate for some period of time; extremely high physical arousal is likely to be counter-productive. In sports, excessive physical arousal leads to overexertion, loss of fine motor control, and, as we've discussed, decreased attentional capacity. Call it nerves, or butterflies in the stomach, test anxiety, or any of a variety of other names, it's all the same. And, while some level of nervous energy is good, too much is bad. Unfortunately, telling ourselves to relax rarely does the trick; nor does logically reviewing all the reasons why

we should calm down. Instead, we need to develop other means of relaxing.

The primary means of relaxing is through various forms of relaxation training: meditation, progressive relaxation, autogenic control, and self-hypnosis are some common means for invoking what Dr. Herbert Benson dubbed the “relaxation response.” A basic maxim of relaxation training is that a tense mind cannot exist in a relaxed body: relax the body, you relax the mind.

While there are many techniques for invoking a relaxation response, a common element of virtually all of them is deep, abdominal breathing. Invoking the relaxation response on demand requires training and practice. In other words, if you want to become skilled at meditation, you need to do it every day. If you don’t practice, then when you try to apply the technique under stress, odds are that it won’t work. Like aerobic exercise, it generally takes several weeks of practice to begin to condition the body and mind. However, once you start to master the relaxation response, you will gradually develop the ability to modulate arousal levels according to the demands of the situation.

The relaxation response has another rather interesting side-effect: the left hemisphere of the brain, associated with logic, math, language, and linear thought, takes a breather, and the right hemisphere kicks in. The right hemisphere is associated with intuition, imagery, holistic thought, and visual processing, elements critical to success in a sport or martial art setting. The power of meditation is that it lets you get into your right mind.

Visualization

Another excellent tool for modulating arousal is visualization or imagery. Visualization is especially powerful when used in conjunction with relaxation training. While there is still debate as to the precise mechanism by which visualization works, it has been experimentally proven that the body responds to internal images just as it does to external images. Thus, imagining executing a hip throw can produce

much the same physiological responses as actually doing it. The key words are “can produce.” In a deep relaxation state, you are quieting the body and the mind. The only “inputs” are those that you are generating for yourself; thus, you trick the body into learning the skill based on your imagery. On the other hand, the more tense, keyed up, or mentally and physically “busy” you are, the more likely the signal will get lost in the noise. Some psychologists argue that for imagery to be effective, it must be coupled with relaxation.

Visualization allows us to communicate with ourselves in a non-verbal fashion: words, even words we say to ourselves, require an extra layer of translation. Images, on the other hand, can produce a direct physiological response.

Visualization is limited only by imagination. With practice, you can imagine virtually any scenario and build into the image your desired responses. For example, a competitive runner can imagine herself being energized by having another runner pass her, instead of feeling discouraged. You can imagine practicing a throwing technique with a wide range of partners, even if they aren’t all available to physically throw, or you can imagine executing different grappling techniques in response to different actions by your opponent. You can imagine feeling different arousal states in different situations. There is even experimental evidence that visualization can help with strength training, physical conditioning, and healing.

Sounds great, right? Of course, there are a couple of caveats. First of all, you must have some understanding of the skill you are trying to visualize. Mental rehearsal is fine, but if you rehearse the skill incorrectly, then you’ll perform the skill incorrectly. Second, visualization requires practice. Like any other skill, don’t expect it to be there under stress if you haven’t trained it.

Some people claim that they simply can’t visualize. While that may be true in rare cases, the simple reality is that if you can daydream, you can visualize. It’s just a matter of learning how. Different people will visualize in different ways:

some people visualize in color, others do not; some people can imagine sounds, others textures, etc. Part of learning visualization is learning what works for you.

Wrapping it all up

Despite Descartes’s beliefs on the subject, the Cartesian split is not inevitable. Far from being an integral part of how our minds work, it is really just an artifact of how we focus and develop our skills. And that, of course, means that we can learn different skills, eliminating the Cartesian split. While learning to fully integrate mind and body can be an extremely challenging task, the rewards are worth the effort.

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