

How Learning Takes Place

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This issue probably has more “hair” on it than is found on a horse. If you've looked into it at all, the range of perception is broader than that of politics or religion – maybe both put together. And the issue itself is divided into two parts - thinking concepts and motor activities. The focus here is “motor” learning, since we are talking about sports, each of which involves primarily one or more motor functions.

No need to discuss the variations – just take a look at some common sense themes. How did you learn as a child? Ride a bike, walk, run, write, use eating utensils, etc?

We could say just by watching others and that would likely be a lot of it. We could say “trial and error” and that would be a lot of it, too. We could also say “what our parents and others told us,” and that would add another dimension.

But how did we retain all that? Was it repetition? Practice? Need? Desire? Want? Fear? Demand? Command?

It is doubtful that anyone can fully fathom the impact delivered by Mother Nature. All of the above may well be involved, but if you try to come up with a way to capture that, you'll simply find a lot of frustration. If you bring yourself to believe the findings of professionals like Erik Erikson, Carl Jung, Alfred Adler and, to a certain extent, Sigmund Freud, and then add the behavioral theories of James Watson and B.F. Skinner, take a dash of Ivan Pavlov and a few others, you'll start to see how complex (not simple) it is to grasp fully how learning takes place.

It is much easier to examine what we are doing and thinking when we are in the act of reaching a result that has been grounded in our ability to keep doing something well (the result).

What is clear is that motor learning is more difficult in later years than in infancy and youth. The evidence is that after we reach about 15 or 16, we don't have that special reserve that goes with the natural plan that served our early years, and the older we get the more recessive the ability to master the new seems to become. We start any learning at a point where we “don't know and can't do.” Then, if the peripheral issues “(like need and desire) are urgent enough, we move to a point where “we know, but still can't do.” After while, if we are not bored or frustrated, we'll move on to “we know and can do as long as we keep our minds on our business” (conscious attention). Finally, if we have followed the “rules” (which have rarely been clearly stated), we may arrive at “we know, can do and do not have to think about the action, but must continue keeping our conscious minds occupied to prevent wandering and excessive rambling” (non conscious competence).

Now do a little more research and you'll find that there are some factors that are consistently present, though rarely described unambiguously.

1. Thinking is divided into conscious and non-conscious, with the latter most directly affecting behavior. Research has found that those two functions are located in different areas within the brain.
2. Other research has shown that human beings can only think one thought at a time, (consciously or non-consciously), no matter how fast thoughts come in succession. The speed causes one to assume that more than one at a time is not only possible, but probable. Research disclaims that.
3. If you try to think about what you are doing while you do it, you will suffer any consequences from the speed difference between how fast your mind works and how fast your body moves. The body and the mind work at entirely different speeds and if you are thinking about the action, you will either rush to catch up or balk to resist the tension. Rhythm and pace will falter.
4. Human beings do not learn much when too many new things come too fast or too often.

According to research and subsequent experience, we learn best in short doses with little rest periods in between.

5. In order to perform something effectively, proficiently, consistently and with confidence, any action must take place while the person's mind is directed to something other than the action itself in order to facilitate uninterrupted freedom of motion. (Think about it. When you are driving your car, your mind is not empty. It just isn't thinking consciously about driving or the traffic or the roadway. It's thinking about anything but that).

Check it out with yourself, especially with those things you learned before the age of 15 or so. To do that, name as many actions as possible that you now have to think about while you do them, and then account for those you do without thinking directly about them at all.

From that exercise it should be a short step to create a way to develop motor learning that reaches a zenith while honoring the aforementioned issues. If you want learning only for skill, just keep doing what you always did. Skill is the level in evidence for most sports particularly when the action is solitary and self-initiated (as in golf, basket ball free shooting, billiards, darts, batting pitching, bowling, etc). (That's the conscious competence level). For that, one must think about what is being done while doing it. If you want to reach the level of habit (automatic), which corresponds to what was taking place when we learned to ride, and subsequently rode, our bicycles, then it will be necessary to build the habits we require. (The subconscious competence level). And that is bench-marked by the ability to perform a function while consciously thinking about something other than the action itself. You will find that you do the latter (think about something other than the action) without even realizing that you are doing it.

No one doubts that repetition is part of learning. The problem is "how much repetition." No one doubts that reinforcement is a necessary ingredient. The problem is, "what kind of reinforcement." That knowledge and those questions were unnoticed when we were kids. As adults, however, we need that awareness in order to duplicate what Mother Nature no longer characteristically takes care of in our behalf. If it is not evident that Mother Nature's plan involved giving each of us the responsibility for our own goings and comings after she had primed our pumps, you might need a bit of self-evaluation to determine why you didn't see that one coming. At some point along the way, "she" kicks us out of the nest to fly on our own.

Learning that involves developing systematic behaviors must have a systematic framework. Solitary activities (golf, foul shooting in BB, etc) require such systematic behavior. While the source of the research was lost (files were decimated by flood), we knew in the early 1980s that the retention factor in repetition came in fours. Do something once, there is a 50% immediate loss and 25% more within 48 hours. Two repeats get the same and so do three. But four successive duplications gains 90% retention. Anything more than four does not improve the rate of retention. Problem there is that the "fours" must be clearly identified to a non-discriminatory human system. It is also found in research, as noted, that learning is best served in short doses with little "rest" periods in between. So the recommended scheme for repetition is in fours, with a slight break in between each group, and that signals the non-discriminatory system that the "fours" are present. (The 32 swing drill is $(4+4) \times 4 = 32$, and that equals one unit of practice. How many units will be needed depends on each individual's life and learning experiences and the difficulty of the task).

Most participants in sports are so busy doing many different things (experimenting) in a practice session that the most desired results predicted to come from repetition go unfulfilled. The only learning taking place carries the title "how to be proficient at changing or testing this or that." It has been observed that most practice shows players "doing a thousand different things, one time each." That will surely arrive at the "habit of experimentation," but little else.

Now add that we must have a way to learn something new and that will always start at the skill level (thinking about what we are doing while doing it). But if we wish to learn something that has the character of a habit, we have to alternate between repetition that learns a skill (conscious competence) and the repetition that develops a habit (non conscious competence). Repetition

that merely keeps on repeating is found to waste both time and energy, unless it is organized in "fours."

There is a codicil. Once a habit is built, it is there for the duration. We don't lose habits. Skills come and go. Habits stay, virtually forever. We can dismiss any skill, but we can only displace an existing habit by building a new one stronger than the old one. (Still the old one may creep in once in awhile, especially under enough pressure. If the new is sound enough, eventually the old will atrophy, just like an unused muscle does). And building either a skill or a habit takes "as long as it takes," and that will vary considerably from person to person.

There is no alternative to substantial learning that we can find that does not follow the general format we have outlined here. There are no shortcuts. One must take the entire trip. We cannot arrive without making it.

When you are the instructor, or you are working with an instructor, keep these principles in mind so that you can practice in a way that will build in what has been pre-determined as needed habits for successful performance.