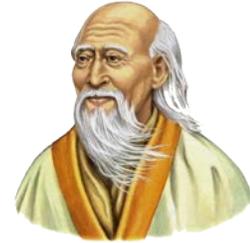


CONCERNING HOW TO STUDY A SUBJECT

By Ulf Olofsson

“The wise man is one who knows what he does not know.”

— Lao Tzu, Tao Te Ching



The Vocabulary of Science

In all scientific systems you have a number of code words or technical jargon which pertains specifically to that subject or science. When a person does not know these words well, he is having difficulty with the subject or science itself.

When a student doesn't know the definitions of the basic words of a subject or science and can't comprehend their meaning nor relate one thing with a proper other, the student will also have tremendous difficulty in both acquiring any liking for that subject, as well as all future studies in that subject. This is sometimes observed among students in subjects such as math and physics.

So, when you start out with any particular specialized subject, you must become familiar with its terminology and specialized jargon – starting with the basics of the subject including the definition (in full) of the subject itself. Your understanding of the subject will then increase gradually. If not, your understanding is impeded by these undefined words always appearing in the subject texts. If you know vaguely that such and such a word exists, and yet have no definite understanding of what it means or what it relates to, it does not align – nor will the subject or science itself align within your understanding. Thus, a misunderstanding of a word can cause a misalignment of a subject.

This really is the basis of a failure on the part of the student to succeed with that subject. Inherent “talent” for such a subject has very little to do with it. Understanding the terminology and symbology and being able to relate them to something concrete in your mind, has everything to do with it.

Understanding Basics and Fundamentals

Basics are very, very important, but first of all one must learn how to think logically and critically in order to be absolutely sure of something fundamental. Thinking is not particularly hard to learn. The subject of thinking itself is rarely taught in schools. Much of it consists merely of comparing and relating a particular piece of data or information with the physical universe as it is known and observed. It is not what someone says it is, but what you see it is, according to your own eyes and observation.

The truth in the observation is according to what is true for you – not what you are told is true. A very workable principle in most cases is that if it's true for you, it is true.

Authoritarian schooling is the opposite of learning to think for yourself. Learning in such an environment is forced under threat or pressure of some form of punishment or failure. A student is stuffed with information which has not been nor is allowed to be individually evaluated by the student.

Such a student will be “well informed” and “well educated” according to present-day standards, but, unfortunately, he may not be very successful in his chosen profession. Neither will he be able to advance within the science of that profession as he is trained to use existing and unevaluated (by himself) information only.

Do not make the mistake of criticizing something on the basis of whether or not it agrees with the opinions of someone else. The point which is pertinent is whether or not it agrees with your own opinion. Does it agree with what you think according to your own observations?

To apply a specific science you have to first study the available information and apply it exactly as stated. Based on your own observation in doing so you can then go ahead and form your own opinion. Study the subject with the purpose in mind of arriving at your own conclusions as to whether or not the tenets you have assimilated are correct and workable. Compare what you have learned with the known world around you. Seek for the reasons behind a manifestation – why this or that? Try to conceive the manner and in which direction the manifestation will likely proceed. Try to relate each piece of information you acquire to something concrete and observable.

Only with these principles of education in mind can you become a truly educated individual – an individual who is educated to be able to apply, not just pass tests and get good exam results. When it comes down to finding good people to hire, good grade scores are useful, but in the final analysis only those people who can **DO** will succeed in their profession.

An excellent example of such a student is Bruce Lee. He studied many forms of martial arts and learned to apply each exactly. When he was fully proficient in each form, he evaluated all the information he had gained against what was workable for him. He discarded what wasn't workable. Out of this practice he formed his own martial art form which he became a true Master at.



It is interesting to note that much of his legacy involves more so the subject of how to think, rather than specific martial arts techniques and he stresses that you have to work out your own path and way – in perfect alignment with ancient Chinese Taoist wisdom distilled from the earliest writings of Lao Tzu (老子) in the Tao Te Ching (道德經) and going forward into the principles of Yin and Yang. Nobody can argue that Bruce Lee wasn't a master of masters but he only became that by thinking for himself and evaluating and relating every piece of knowledge, experience and application against its workability according to his own observation.

Societal Influence over Learning

The whole subject of a science, as far as a student is concerned, is considered “good” or “bad” in direct ratio to his actual knowledge of it. It is up to a student to find out how precise the tools of the subject are.

He should, before he starts to discuss, criticize or even attempt to improve on the data presented to him, find out for himself whether or not the mechanics of a science are as stated and whether or not it does what has been proposed for it.

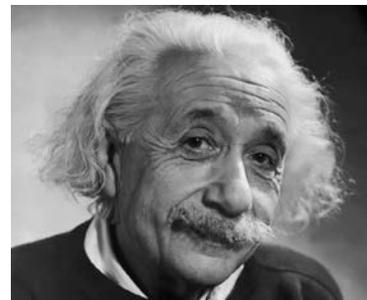
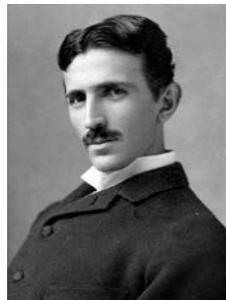
The student should make up his mind about each thing that is taught in the school - the procedure, techniques, mechanics and theory. He should ask himself these questions: Does this piece of data exist? Is it true? Does it work? Will it produce the best possible results in the shortest amount of time?

There are two common ways a person ordinarily accepts things, neither of them very good. One is to accept a statement because “Authority” says it is true and must be accepted, and the other is by social pressure of agreement amongst other people.

Social pressure of agreement is all too often the general public test for sanity or insanity. Suppose someone were to walk into a crowded room and suddenly point to the ceiling saying, “Oh, look! There’s a huge alien on the ceiling!” Everyone would look up, but no one else would see the alien. Finally someone would tell him so. “Oh, yes, there is” he would declare, and become very angry when he found that no one would agree with him. If he continued to declare his belief in the existence of the alien, he would very soon find himself declared insane.

The basic concept of sanity, the way it is viewed in this society, is whether or not a person agrees with everyone else. It is a very sloppy manner of accepting evidence, but all too often it is the primary means of assigning the label of sanity. And then of course the Rule of Authority: “Does Dr. J. Smith agree with your proposition? No? Then, of course, it cannot be true. Dr. Smith is an eminent authority in the field!”

In modern society authoritarian teaching is attempting to impress upon the students that they must adjust to their environment and that he cannot or should not adjust the environment to him. This is simply not the case. Tell that to Newton, Leonardo da Vinci, Tesla and Einstein...



A man by the name of Galen dominated the field of medicine in the 15th century. Another man by the name of Harvey opposed Galen's position with a new theory that blood circulates in the body, with the heart acting as a pump. Galen's followers accepted everything they had been taught and did little observing of their own. Harvey worked at the Royal Medical Academy and found by animal vivisection the actual function of the heart.



William Harvey

Harvey had the good sense to keep his findings absolutely quiet for a while. Leonardo da Vinci had somehow discovered the same thing, but he was a "crazy artist" and no one would believe an artist. Harvey attended a play by Shakespeare in which he made the same observation, but again the feeling that artists never contribute anything to society blocked anyone but Harvey from considering that statement as anything more than fiction.

Finally in 1628 Harvey made his announcement. Immediately cries of disdain and ridicule were issued by the current medical profession. He raised quite a commotion in the medical and social circles until finally, in desperation, one doctor made the historical statement, "I would rather err with Galen than be right with Harvey!"

Man would have made an advance of exactly zero if following the "socially acceptable" had always been the only method of "testing" evidence. But every so often in history, there have been "rebels" who were not satisfied with the status quo of acceptable social opinion, and who tested a fact for themselves, observing and accepting the information of their observation, and then testing it again until they arrived at a new conclusion, regardless of social acceptance.

Possibly the first man who made a flint ax looked over a piece of flint and decided that the irregular stone could be chipped a certain way. When he found that flint would chip easily, he must have rushed to his tribe and enthusiastically tried to teach his fellow tribesmen how to make axes in the shape they desired, instead of spending months searching for accidental pieces of stone of just the right shape. The chances are he was stoned out of camp.

Evaluation of Data

Man has never known a great deal about that with which his mind is chiefly filled: Data.

What is data?



What is the evaluation of data?

Libraries are filled with tomes of books on various sciences which have taught its tenets to each generation of practitioners in the respective fields. The authoritarian method is mainly used, as can be verified by reading a few of the books on pretty much any subject. Within them is found, "Mr. So and So said..." The truly important thing is not that "So and So said" a thing, but: Is the data valuable? If it is valuable, how valuable is it?

One can roughly say that a datum [singular form of *data*] is only as valuable as it has been evaluated. A datum can be proved in ratio to whether it can be evaluated by comparison to other data, and its magnitude is established by how much other data it clarifies. A single datum is of little use unless it can be evaluated against another datum. Furthermore, the comparable datum must be of similar magnitude to that which it is being compared to.

Data is your data only so long as you have evaluated it. It can be your data by authority or it can be your own evaluated data. If it is your data by authority somebody has probably forced it upon you. Of course, if you asked a question of a man whom you thought knew his business and he gave you his answer, that datum was not forced upon you. But if you went away from him believing from then on that such a datum existed without taking the trouble to investigate the answer for yourself, you can't be considered to have truly studied and evaluated that subject with full conceptual understanding resulting in successful application.

Much of education today is enforced information that the student has never been permitted to test, question or evaluate. This starts at a very early age. Literally, when you are given the good advice not to take anyone's word for something without verifying for yourself, you are being asked to break a habit pattern forced upon you since you were a child.

Test a piece of information for yourself and convince yourself whether or not it exists as truth. And if you find that it does exist, you will be comfortable thereafter; otherwise, you are likely to find an unresolved question which will itself undermine your ability to assimilate or practice anything in the line of that subject or science. Your mind will not perform on the subject as it should be. This has little to do with IQ, inherent talent or ability. It has strictly to do with lack of understanding due to false information or misunderstood or unevaluated information.

One could say though that intelligence as well as proper judgment are demonstrated by the ability to evaluate relative importances.

A Look at the Sciences

One reason engineering and physics are much more advanced compared to many other sciences is the fact that they pose problems which result in severe accidents if not applied correctly.

An engineer is faced with the problem of drilling a tunnel through a mountain for a railroad. Tracks are laid up to the mountain on either side. If he judged space incorrectly, the two tunnel entrances would fail to meet on the same level in the center. It would be so evident to all concerned that the engineer had made a mistake that he takes great care not to make such a mistake. He observes the physical surroundings, not only to the extent that the tunnel must meet to a fraction of an inch, but to the extent that if he were to judge wrongly the character of the rock through which he drills, the tunnel would cave in — an incident which would be considered a very unlucky and unfortunate occurrence to railroading.

Suppose a biologist is presented with the hypothetical task of producing a culture of yeast which would, when placed in white bread dough, stain the bread brown. This man is up against the necessity of creating yeast which not only behaves as yeast, but makes a dye as well. He has to deal with the practical aspect of the problem, because after he announces his success, there is the "ultimate test": Is the bread edible? And the brown-bread test: Is the bread brown? Anyone could easily make the tests, and everyone would know very quickly whether or not the biologist had succeeded or failed.

Politics is called a science. There are natural laws about politics. They could be worked out if someone were to actually apply a scientific basis to political research.

The test of any science is whether or not it produces an invariable result. If it does the science is based on true knowledge and empirically tested data.

How to Think and Certainty

More than anything, people need to be educated to think, look, observe and confront. There is one condition worse than not being able to physically see. That is imagining one sees without actually observing what really is in front of one.

Knowledge isn't just understanding of data but certainty it is so. To be certain one has to be able to look and observe what is actually in front of one. Certainty can then be concluded to consist of clarity of observation. Fear or lacking an ability to reach out is directly related to a point where one lost his confidence and certainty in one's ability to make one's way.

When an individual is less certain on a subject, including himself, the less rational one can expect that individual to be upon that subject. Rationality is partially comprised of certainty. If we were to make a corollary out of this statement, Certainty and rationality then would stem from clarity of observation. Rationality can be trained by learning to recognize differences, similarities and identities.

Information isn't the same as knowledge and data. Information is valuable to the degree that you can use it. Knowledge is certainty and understanding of data. Data is something one uses to think *with*. It isn't thinking itself. When data becomes a substitute for thinking the entire forward progress of education has been halted.

The greatest ability of thinking is *differentiation*. *Differentiation* is the ability to tell the full difference between one person and another; one object and another. The opposite is *identification* which could be defined as the inability to evaluate differences in time, location, form, composition or importance. So long as one can differentiate, one is somewhat sane and logical.

To become certain, including a certainty in self, one must be able to confront something and observe it.

Complexity and Confront

Just because highly complicated people make highly sophisticated statements about a subject it doesn't make the fundamentals of that subject complicated. The better a person is able to confront the more simple things will appear. Perhaps that's why most of the really breakthrough discoveries in history have been made by adventurous personalities, as opposed to scholarly types isolated in some old structure surrounded by dusty books...

Only when you are able to confront will you obtain certainty. People who do not or cannot confront and observe something for what it really is, substitute the observation with preconceptions, suppositions, prejudice and sometimes even physical pain. I often find that many prejudiced people have a fixed and unqualified opinion, usually based on an unhappy experience, substituting it for reason. Anxiety, indecision, uncertainty, a state of "maybe" exist for the most part only in the presence of poor observation or the inability to observe. Fear could be said to be a state of imperceptions – fear includes an unwillingness to confront.

Inaction and indecision in the present is because of fear of consequences of the future. Insecurity comes about in the absence of knowledge. It is my belief that much security in essence derives from having and acquiring knowledge.

Confront has nothing to do with complexity – only the ability to face what is in front of one. The evolution of knowledge must be toward simplicity, not complexity. An evolution toward complexity is an evolution toward authoritarianism and pomposity. In modern society complex things are seemingly prestigious and "academic". But in real life, simple things are what gets things done and result in real understanding. Real authority should only be given those who have demonstrated they can do or perform the task in any given field.

One could reason that the degree of simplicity is proportional to the degree of confront. This leads one to wonder if not all real answers are basically simple...

I have just three things to teach: simplicity, patience, compassion. These three are your greatest treasures. Simple in actions and in thoughts, you return to the source of being. Patient with both friends and enemies, you accord with the way things are. Compassionate toward yourself, you reconcile all beings in the world.

Lau Tzu (c.604 - 531 B.C.)

To the degree that a person cannot confront something, he or she uses substitutes which when accumulated result in complexity. Substitutes are often arbitrary. I think you will find that in any situation that doesn't make sense or appears to be irresolvable, there are always one or more arbitraries present. It is a demonstrable fact that many people in the modern society are always attempting to do more complicated things and considers this not only good, but the acceptable norm of the "intellectual." This is not so. What those people are doing is actually losing their ability to do simple things.

Workable always mean somewhat simple. Complicated usually means some aspect of it is not fully workable. One can easily gauge a person's true knowledge of a subject by testing if he or she can make a simple explanation of something. If they can't chances are they don't fully understand it themselves. Unfortunately we have been led to believe by the society that the fundamentals of things like the mind, behavior, thinking, etc., etc., are very complicated things – just because so many highly complicated people have discussed and written about the subject.

Integrity of Knowing you don't Know

Knowing that you don't know is a virtue. One can always know something about anything. It is a wise man who, faced with conflicting data, realizes that he knows at least one thing – that he doesn't know. Admitting that one doesn't know is not a lesson in humbleness but one in wisdom.

Integrity could be attributed to the person who knows what he knows and is fully aware of the fact that he knows this, and, who has the courage to say this is the case. One major barrier to learning is thinking you know all about the subject already.

*"To realize that you do not understand is a virtue; Not to realize that you do not understand is a defect.
To know yet to think that one does not know is best; Not to know yet to think that one knows will lead to difficulty."*

Lau Tzu (c.604 - 531 B.C.)

Courage

All too many live lives of polite, quiet "correctness" without ever once making anyone do anything. This may be considered socially "proper" but will never make a happy and successful person. This is especially observable in many Asian cultures. Truth is, almost anyone, no matter his or her position, can remedy a situation no matter what's wrong, if, he or she really wants to.

The difference between people who worry more about what others around them will think, and, a true Can-Do person, is courage. Courage could be summed up with simply being willing to make something happen, and, going ahead to make that happen against any and all odds. Integrity and courage are two great virtues. The difference between courage and being reckless is the ability to initiate the resolution of problems and execute the solutions, which is one basic definition of intelligence.

With courage and integrity comes action and decision based on properly gained, observed and evaluated data and knowledge. With purpose, experience and practice this leads to competence. With professionalism and true competence you can achieve anything you set your mind on!

Good luck!