*Issue 14*

*"Students should memorize facts only after they have studied the ideas, trends, and concepts*

*that help explain those facts. Students who have learned only facts have learned very little."*

The speaker makes a threshold claim that students who learn only facts learn very little, then

condudes that students should always learn about concepts, ideas, and trends before they

memorize facts. While I wholeheartedly agree with the threshold claim, the condusion unfairly

generalizes about the learning process. In fact, following the speaker's advice would actually

impede the learning of concepts and ideas, as well as impeding the development of insightful

and useful new ones.

Turning first to the speaker's threshold daim, I strongly agree that ifwe learn only facts we

learn very little. Consider the task of memorizing the periodic table of dements, which any

student can memorize without any knowledge of chemistry, or that the table relates to

chemistry. Rote memorization of the table amounts to a bit of mental exercise-an opportunity to

practice memorization techniques and perhaps learn some new ones. Otherwise, the student

has learned very little about chemical dements, or about anything for that matter.

As for the speaker's ultimate claim, I concede that postponing the memorization of facts until

after one leams ideas and concepts holds certain advantages. With a conceptual framework

already in place a student is better able to understand the meaning of a fact, and to appreciate

its significance. As a result, the student is more likely to memorize the fact to begin with, and

less likely to forget it as time passes. Moreover, in my observation students whose first goal is

to memorize facts tend to stop there--for whatever reason. It seems that by focusing on facts

first students risk equating the learning process with the assimilation of trivia; in turn, students

risk learning nothing of much use in solving real world problems.

Conceding that students must learn ideas and concepts, as well as facts relating to them, in

order to learning anything meaningful, I nevertheless disagree that the former should always

precede the latter--for three reasons. In the first place, I see know reason why memorizing a

fact cannot precede learning about its meaning and significance--as long as the student does

not stop at rote memorization. Consider once again our hypothetical chemistry student. The

speaker might advise this student to first learn about the historical trends leading to the

discovery of the elements, or to learn about the concepts of altering chemical compounds to

achieve certain reactions--before studying the periodic table. Having no familiarity with the

basic vocabulary of chemistry, which includes the informarion in the periodic table, this student

would come away from the first two lessons bewildered and confused in other words, having

learned little.

In the second place, the speaker misunderstands the process by which we learn ideas and

concepts, and by which we develop new ones. Consider, for example, how economics

students learn about the relationship between supply and demand, and the resulting concept

of market equilibrium, and of surplus and shortage. Learning about the dynamics of supply and

demand involves (1) entertaining a theory, and perhaps even formulating a new one, (2)

testing hypothetical scenarios against the theory, and (3) examining real-world facts for the

purpose of confirming, refuting, modifying, or qualifying the theory. But which step should

come first? The speaker would have us follow steps 1 through 3 in that order. Yet, theories,

concepts, and ideas rarely materialize out of thin air; they generally emerge from empirical

observations--i.e., facts. Thus the speaker's notion about how we should learn concepts and

ideas gets the learning process backwards.

In the third place, strict adherence to the speaker's advice would surely lead to illconceived

ideas, concepts, and theories. Why? An idea or concept conjured up without the benefit of data

amounts to little more than the conjurer's hopes and desires. Accordingly, conjurers will tend to

seek out facts that support their prejudices and opinions, and overlook or avoid facts that

refute them. One telling example involves theories about the center of the universe.

Understandably, we ego-driven humans would prefer that the universe revolve around us.

Early theories presumed so for this reason, and facts that ran contrary to this ego-driven

theory were ignored, while observers of these facts were scorned and even vilified. In short,

students who strictly follow the speaker's prescription are unlikely to contribute significantly to

the advancement of knowledge.

To sum up, in a vacuum facts are meaningless, and only by filling that vacuum with ideas

and concepts can students learn, by gaining useful perspectives and insights about facts. Yet,

since facts are the very stuff from which ideas, concepts, and trends spring, without some facts

students cannot learn much of anything. In the final analysis, then, students should learn facts

right along with concepts, ideas, and trends.