Letters

The relationship of philosophy, science, and art

In a recent editorial, Sheldon Peck discussed the use of the label "philosophy" ("Philosophy" and evidence-based orthodontics. Angle Orthod 1997; 67[6]). Peck apparently assumes that those using the term represent a belief system totally exempt from science or the scientific method. He advises running the other way, and keeping your "philosophy money" in your pocket. These were strong statements and perhaps deserve further consideration.

"Bioprogressive philosophy" is certainly not a simple listing of treatment "preferences." The word ***philosophy*** comes from the Greek *philos*, meaning friend, and *sophia*, meaning wisdom. "Friend" was translated into love, or the search for it, and the term was further interpreted to be a pursuit of wisdom. But, as amply described by Will Durant, philosophy takes on subjects that have not yet been conquered by the scientists' measuring tools. It attracts the reasoning or thought processes. Philosophy in the 1920s was divided into five branches: logic, ethics, esthetics, politics, and metaphysics, with epistemology added later.

But by definition, philosophy further implies the analysis of principles underlying those subjects. A principle is a general truth that usually is trustworthy, but not without exception. The integration of a body of general truths (or principles) into a working relationship is taught as the process of philosophy. An ideology, in contrast, is based on ideas or beliefs rather than evidence. Perhaps this is what Dr. Peck refers to.

The label of "bioprogressive philosophy" was originated by Dr. Carl Gugino, who experienced students trying to learn techniques only. He taught the logic and reason for a whole clinical process and called the result a philosophy.

The scientific method is a process carried out in order to determine the nature of the truth and therefore the principles of a subject. Science is employed to establish and systematize facts that can be verified by organized experiment. The problem of turning any scientific venture into a biologic phenomenon—such as clinical orthodontics—is that laws, rules, or techniques are sought in which the operator can follow and be relieved of the thought process. But biologic laws are indeed rare because of the variables encountered. This makes clinical orthodontics all the more subject to the concept of philosophy.

To be scientific is to be systematic and exact, and orthodontics can only be relatively exact. Underlying many treatment decisions is the subject of esthetics, and perhaps a close proximity to the divine proportions will be the best the clinician can hope for. Esthetics, on the other hand, involves art.

Art is the ability to create things, as distinguished from their appearance in nature. Art involves skill and is the base of any profession requiring manual operation. Art is performed to produce beauty, and is involved in any creative work. Art is the act of doing things—anything—well, as explained by Robert Henri. As put forth by Durant, every subject begins as philosophy, goes through science, and ends as art.

In fact, the current practice of orthodontics is often referred to as, "the state of the art." Perhaps Peck's examination of the semantic problem could lead to further understanding. The bioprogressive "approach" is a product of bioprogressive principles, which were derived from evidence-based science. These studies and developed principles number more than 100, contrary to the implication suggested.

If young clinicians wish to master the science and art of the body of principles taught as bioprogressive, they would do well to put their money in courses on this methodology, whether it be called a philosophy, a science, an art, a discipline, or an integrated system of techniques.

Our underlying obligation is to enhance the profession, not to further complicate communication.

Robert M. Ricketts
Scottsdale, Ariz.

Class II Division 2 skeletal pattern

A recent paper on cephalometric characteristics of Class II Division 1 and Class II Division 2 malocclusion concluded that "no basic difference in dentoskeletal morphology exists between these two malocclusions." (Pancherz H, Zieber K, Hoyer B. Cephalometric characteristics of Class II Division 1 and Class II Division 2 malocclusions: A comparative study in children. Angle Orthod 1997;67(2):110-120.)

We find this conclusion to oppose our finding on the same subject. Over the last 10 years, we have collected material that fits exactly the criteria for Class II Division 2 malocclusion (50 out of 4500 cases, about 1%), and we compared it with two control groups of Class I and Class II Division 1 individuals, similar in age and sex.

All the individuals in our study were of similar origin, and statistics were analyzed in similar ways in all three groups. We examined 30 skeletal and 17 dental parameters. Our research led us to what can be defined as an "interesting" conclusion on the skeletal pattern of Class II Division 2 malocclusion.

We agree with Pacherz et al.'s results that maxillary and mandibular sagittal parameters by themselves do not differentiate between the three groups. However, sagittal jaw relationship, like the Wit's appraisal, which in a way sums the two individual relationships, is one parameter that differentiates all three malocclusions with statistical significance ($p<0.05$). Indeed, ANB, which is a more popular although controversial parameter, did not. The most striking parameters, unfortunately missing in Pancherz et al.'s research, are the vertical skeletal ones, especially the posterior vertical parameters. In our research, all posterior vertical parameters including PFH to TFH, gonial angle, FMA, Go-Gn to SN, and Y-axis were found to be statistically different in all three groups.

Looking at the dentoalveoalor parameters, we found, without surprise , that the upper incisors in individuals with Class II Division 2 malocclusion were retroclined to different lines and planes. However, we also found that the lower incisors were also retroclined when measured to A-Pog, occlusal, and NB planes. Another important finding in our research is that the deep bite found in individuals with Class II Division 2 malocclusion is not the expression of overeruption of the incisors due to lack of occlusal stops, but rather the result of the extreme skeletal anterior rotation of the lower jaw, which coincides with the posterior vertical parameters we described previously. In fact, we found that the distance of the lower incisor edge to mandibular plane was the shortest with statistical significance ($p<0.05$) in Class II Division 2 malocclusion. This finding ruled out the relative overeruption of the incisors.

Table 1

Measurement	Class I	Class II/2	Class II/1
Wits	-0.3±2.4	3.4±3.7	5.6±2.7
FMA	26.1±4.7	21.4±4.6	25.1±4.8
Go-Gn to SN	34.3±5.1	30.2±4.8	34.0±4.9
Gonial angle	124.3±5.6	120.8±6.2	124.6±6.0
PFH to TFH	61.7±4.5	64.6±4.0	61.9±3.7
Y-axis	59.9±3.4	58.0±3.1	59.8±3.5
L1 to MP (mm)	39.3±3.2	37.2±3.2	39.3±2.9

The above results led us to conclude that true Class II Division 2 malocclusion individuals have not only a pathognomonic dental appearance, but further, this malocclusion covers a definite skeletal pattern, especially in the posterior vertical dimension, that differentiates it from other examined malocclusions.

Table 1 shows some of the measurements in which Class II Division 2 is differentiated with statistical significance ($p<0.05$) from the two other malocclusions.

Dr. Naphtali Brezniak
Dr. Arnon Arad
Dr. Moshe Heler
Dr. Atalia Wasserstein
IDF Orthodontic Department
Tel Aviv, Israel