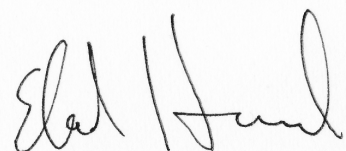


Statement of Teaching

My philosophy on teaching is inseparable from my philosophy on learning. The lens in which I view the intellectual exchange between student and teacher has largely been shaped by my own experiences. From a young age, my passion for learning was cultivated by my father who was my first and most influential teacher. As a mathematics educator, he approached teaching by careful consideration of the student's perspective to access the conceptual schema behind problem solving. Among the many pedagogical tools he drew upon, one that stands out in my mind is the use of 'the blind man' to solve mathematical problems. The idea behind this game was to compel the student to describe the solution to a particular geometric problem as though speaking to a fictitious blind man who could not see the lines, circles, and other elements of the construction but who had a perfectly logical mind. Disabling the visually descriptive aspect of the problem exposed an intellectual struggle which facilitated a deep understanding of mathematical proof through deductive reasoning.

The idea of necessitating an intellectual conflict by encounters with well-designed problems underpins my philosophy on teaching. Learning, I believe, has little impact if it involves no struggle. At the other end of the spectrum, the effort on the student's part should not be so overwhelming as to invoke unreasonable frustration. The role of the teacher is to strike a balance between these opposing elements by empathizing with the student. My experience as a teaching assistant and tutor for over fifteen years has allowed me to understand the fundamental stumbling blocks that students routinely encounter. Adequately gauging both the challenges of the subject matter and the abilities of the student is critical to fostering an effective classroom experience.

In teaching, there is no single effective method. Rather, one has to possess improvisational skills that combine a mastery of the subject matter with the intellectual demands and whims of the students. My approach is to first motivate the concept of scientific necessity. That is, to ask the question of what causes scientists to struggle with a particular interpretation, experiment, or theory. Internally, what necessitated the question or hypothesis? For example, why is the electronic structure of an atom important for determining its chemical reactivity? It is critical that the student identifies with this intellectual struggle so that they can appreciate the experiments or scientific methods designed to answer these questions. More importantly, this struggle prepares students for whatever endeavor they choose to undertake in their careers, even outside the field of science. As a consequence, my classes will not be 'easy', nor will they be 'fun', but rather they will be tailored to the abilities of the dedicated students who are willing to strive for intellectual gratification - for the 'aha!' moment that drives our curiosity and advances our knowledge. To me, this should be the reward of learning!

A handwritten signature in black ink, reading "Elad Harel". The signature is written in a cursive, flowing style with a vertical line separating the first and last names.