

Aims of Education XXVI

The Right Dose of Skepticism

Amir Raz, Ph.D.

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President Struppa, Provost Pfeiffer, honorable faculty, distinguished guests, and lastly but hardly leastly—proud family members and incoming freshman. You know, today one cannot be too careful: even the term freshman is politically charged. As I see you all before me, freshmales and freshfemales, but also stale-people and musty-individuals, I remind all of us that certain overarching sentiments, such as the critical importance of education to our core strength, need to transcend public discussion even at a time shrouded by political correctness. You should know that sometimes, some of the people most sensitive about names and titles, even those that are already non-pejorative, are—you guessed it—university frosh. So this is your first indication, if you ever needed one, that university life may hold some challenges... Correct me if I am right.

It's an honor to address you today, first and foremost as an educator who has been professing for more than three decades, but also as a scientist, researcher, university professor, director of the brain institute, parent, son, formerly a teenager by the way, and formerly also a person with a hairy scalp. I swear.

You are about to embark on a special road—a trajectory that some of you may take for granted while others may be the first in their families to ever lead—a path into higher education. This four-year sojourn comes with all kinds of privileges and responsibilities: academic, financial, social, family, and personal. Many of you will be leaving the comfort of your abode. If we do our job well, all of you will be at least somewhat out of your comfort zone. You are setting off on this route in a safe and beautiful campus, but in a world parts of which are replete with illiteracy, bigotry, hatred, violence, poverty, and confusion and at an unusual time in the historical narrative of this country. This same world is also a place of compassion, harmony, camaraderie, unity, civility, wealth, health, and peace. With your education, you will help make the world into a better place.

On this journey you will likely learn a great deal: from general wisdom and skill – to familiarity with important contributions of other members of our species; from ways to integrate and synthesize sources – to a competitive edge in landing a desirable position. You will build meaningful relationships and make some lasting friendships. And all the while we, your Chapman advocates, will encourage you to think critically, search (and maybe even find) your calling, and realize your potential.

I am unsure whether I need to warn you that some professors express themselves in funny ways. For example, profs from the cool-school speak of “pulling an all-nighter” whereas profs from the old-school will probably say that you may “lucubrate for many an hour”. Both are the same, you see, it just depends on your major.

Before you came here, perhaps as part of your previous educational experience, you may have heard the phrase “Please ask questions” usually with the immediate encouragement “There is no such thing as a dumb question”. You may even, on occasion, hear this assurance again when people tell you “Please ask because there are no dumb questions and how else would you know...”

I have news for you: “You should definitely ask questions, but **there are** dumb questions.” Any question you ask will allow folks around you to form an opinion about you. For better and for worse, your questions—your words as well as your silences; your opinions; and your actions as well as your lack of action—will define the kind of person you develop to be. That’s why your education is so important. You need to learn when and what to ask about and for, when to keep silent and when to become vociferous, when to remain passive and when to spring into action. You need to learn when you must put your foot down. For some of

you it may happen when you encounter a holocaust denier; for others when you meet a member of the Flat Earth Society; yet for others when they hear people who tell you that we only use 10% of our brains or that vaccinations cause autism. You can decide whether and when your foot must come down, but whatever you decide to do you need to have the tools to look for, compile, and analyze information.

Doing so will reveal to you and to those around you that the tragedy of the systematic, bureaucratic, state-sponsored persecution and murder of a people by a regime is a historic fact; that our Earth is hardly flat; that even the dumbest folks you know use a lot more than 10% of their brains; and that vaccinations—those ingenious interventions that can prevent or ameliorate infectious disease—neither cause autism nor give you the flu. The good news is that we have experts in this university who can provide definitive answers to these and many other such questions. The “bad news” is that you need to be very careful with your questions because sometimes you actually get what you ask for.

We live in a fragile democracy where terms such as “fake news” and “alternative facts” have become a part of current dialogue. If we aren’t careful we may slip into a cult of ignorance, fuelled by the specious notion claiming that democracy means that my ignorance is just as good as your knowledge. In this regard, the very mission of universities is beginning to change. Some universities don’t

educate people anymore; they just train them to get jobs. You are lucky because Chapman does both. However, there is a growing and disturbing trend of anti-intellectual sentiment around us. For example, previous appreciation of and interest in the sciences, the arts, and the humanities is changing as more and more people dismiss these lofty domains and replace them by the pursuit of superficial entertainment, mindless spectacle, voyeurism, self-righteousness, obliviousness, and deliberate gullibility. I think we can all agree that some powerful social, technological, and cultural influences form irresistible forces in this dynamic. These include, among others, the triumph of video over print culture and the disjunction between rising levels of formal education and shaky grasp of basic science, history, and geography. Look what's happening among youngsters, a generation of youth reads little of value but walks around with portable devices while showing serious digital addiction to social media and low-quality text. Correct me if I am right.

Take science, for example, one of the most stunning achievements of our species. It has allowed us to nearly double our lifespan, deepen our understanding of human and animal behavior, and increase our comprehension of natural phenomena, and the universe. And yet, sadly, scientific knowledge hardly enjoys universal acceptance. Plus, nowadays we are experiencing a palpable decline in trust in the scientific establishment. At the same time, more people find it difficult to tell the

difference between claims of science and those of pseudoscience. And I find myself spending more time explaining to people that just because, on average, the female brain is a bit smaller and lighter than the male brain this fact hardly asserts superiority of male over female intelligence, or why wearing a magnetic eyebrow-piercing-ring is unlikely to improve the neurophysiology of the frontal lobes.

Whether you choose to major in film, physics, French, or psychology, good education should make you feel uncomfortable. That's what good education does—it introduces concepts, information, ways of thinking, and ideas that nibble at your own pre-conceived notions and upbringing. If what you are learning leaves you indifferent, apathetic, and within your comfort zone – something is wrong.

Education thrives on providing a systematic way of thinking – critical thinking – a course that I am proud to teach through the department of psychology and that any person should be able to take. But critical thinking requires us to think in unnatural and counterintuitive ways. A kind of thinking that requires practice and refinement. Contrary to the wisdom of divinity, experience, intuition, and common sense, some explanations require a different set of mental muscles. If we once thought that the tooth fairy was leaving money under our pillows, that the moon was a lump of cheese, that being out in the rain was responsible for our cold, we now know better. An educated mind recognizes that these intuitions were mere hypotheses. We tested them, and we now know better. We already know the

importance of washing our hands and I really do hope, certainly with the fires still raging around us, that most of us are warming up to the reality, not the theoretical possibility, of climate change.

Educated individuals combine knowledge with the right dose of skepticism—you need to be skeptical but without being skeptical of your own belly button; you need to suspend judgment—in other words be open to new ideas—but recognize that some ideas have already been tested and proven false; and you also need disciplined imagination—not just about other people’s ideas, but also about your own.

It’s difficult to know how to exercise skepticism and imagination without getting overly skeptical or hyper-imaginative. It’s difficult to know how to suspend judgment, and at the same time exercise it too. And then you have to accept that in certain fields, such as science, nothing is ever completely final because all of our knowledge is just tentative, probable information, with a contrary piece of evidence possibly lurking around the corner. The best that I, or any other responsible scientist, can offer is a set of successive approximations. And many people who look for determinism or absolute certainty find themselves disappointed with the inherent uncertainty that often lingers.

Having a good understanding of the world provides critical skills for how you can judge which information to trust and believe. You need not learn about the evidence for every question. That's impossible. Knowledge has become too vast and complex for any one person to master more than a smidgeon thereof. That's why knowledge is not about an individual, it's about a community. We are only as strong and as educated as our community. It is the effort not of a single person, but of a group of people. And you are members of the Chapman community, a collection of outstanding individuals who understand that education is a social enterprise, and that a solid university experience focuses on instilling passion and curiosity to find out, learn, and grow much more than teaching to task or to pass a specific exam.

In my line of work as a scientist, I constantly meet students, parents, patients, and colleagues who display the most unscientific views about a plethora of topics: from psychology, nutrition, and medicine, all the way to the brain. I must remind you, as I remind myself, that education does not provide us with any special authority on the truth. But it does provide us with the tools for and insights into truth seeking. You can hum this lesson in humility to yourself every time you go out of the Schmid Gate over there as you read the sign in gold letters: "Let all who depart use their knowledge in the pursuit of truth."

What you think is important, but how you think may matter even more. You don't need a learned doctor to tell you what happens to your body when you eat junk. You don't need a brain scientist to tell you what happens to your mind when you think junk. Regardless of your major and what courses you decide to take, you will discover, if you haven't already, that pursuing ideas with the characteristics of curiosity, conviction, openness, and discipline more than paves the road to knowledge; it paves the road to becoming healthier, a better member of your family, an informed citizen of your country, and a meaningful denizen of the world. Congratulations on joining the distinguished community of Chapman University; even in the bright Southern California sun, your future glows brilliant and dazzling. Good luck and I look forward to seeing many of you in my courses, at the Brain Institute, around campus, but also later in life – when you are older and I am even more ancient. Perhaps you too, one day, will whimsically say what my father says when he knows better: “Correct me if I am right.”