A "Diesel Emission Scandal" in the education system and a possible solution

Similar to the Prueba de Selección Universitaria in Chile, Turkey also has a central university entrance exam, in which 1-2 million students participate every year. Places in all universities are limited, and even more so in the top ones. The placement of students is carried out centrally by the authorities in Ankara, and is based solely on the central examination scores. All universities, including private ones, are required to adhere to this placement. Hence there is a very harsh competition among the students in the access to university.

The role of this examination is particularly essential in Turkey where decent living standards are linked to having completed a high level of education in a respectable institution. This leads to considerable investment of time and effort into it by high school students, namely through following special courses to prepare for this exam.

In addition, the exam is multiple-choice, and students are asked to repetitively choose the right answer out of given options, and this under time pressure. Students are required to reach a solution, among a set of given options to a problem as quickly as possible. Such situations undermine the development of reasoning competencies and a thorough understanding of the material. In parallel, this also influences the attitude and approach of teachers and the whole philosophy of the high school curriculum. This setup is detrimental for the educational system of the country. As a consequence, generations of students are raised to solve problems without taking the time to think and developing their ability to question and reason.

These observations are echoed by Jordan Ellenberg, a mathematics professor at the University of Wisconsin about the US education system in the context of the Volkswagen diesel emission scandal expressed in a tweet as follows: “Volkswagen scandal is American school philosophy applied to cars: rig system to optimize performance on test day, ignore everything else.”

As a way towards a solution, I argue that through the inculcation of "real" mathematics, it is possible to stimulate the curiosity of students and develop their ability to question and reason. This is the raison d'être of Matematik Dünyası, a popular mathematics magazine that is published quarterly in Turkish language. One of its aims is to try to counter the destructive effects of the university exam as described above by promoting imagination, creativity, and free-thinking among its readers. It emphasizes that life is not an exam and that in real life one is not provided with a list of potential right answers, in fact in most cases there is not even one right answer. It also highlights that most often taking one's time is better than answering quickly, and that memorization does
not take one far in the human intellectual pursuit.

It brings into the forefront asking the right questions and understanding, rather than answering. This approach lies at the very heart of research, and is ultimately in line with the philosophy of development in science in the history of mankind.

There are certainly other comparable examples of initiatives that are being carried out, but all these constitute a tiny drop in the ocean, and their effects are doomed to be limited (however not negligible!). Yet these initiatives can form an experimental playground for new ideas and trigger new discussions about how to rethink and restructure our educational system and readjust government policies accordingly to create a large-scale effect. All in all leaving a huge responsibility on the shoulders of educators, scientists and government officials.

In a time where we are experiencing a shift into an era where creativity, innovation and imagination play an increasingly essential role (some even talk about the “imagination age” as a successor of the information age), these educational requirements create new challenges, especially for developing countries like Chile and Turkey. After all, how we educate the new generation today, determines how we live tomorrow.