



*Profesor Eric Mazur*

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Interview

# **Eric Mazur and his interactive teaching method:**

*By: Julio Navarro*

The renowned professor of Harvard University visited Peru, and told us about his methodology to teach through the formulation of questions instead of lectures in front of a blackboard, as it is still common in university classrooms.

“We are all made to learn, our brains are not different due to the place they come from, there may be cultural differences but not biological”, states professor Mazur in the middle of his presentation to a group of university professors.

**What do you consider to be the main reaction of professors to your methodology which breaks the traditional scheme of teaching?**

It is a good question, people do not like change.

**And how do you overcome this resistance to change?**

It takes time in the beginning, and it is advisable to do it little by little because if there is pressure in doing it faster, people tend to react with aversion or rejection. That is the first thing, taking time to experiment; the second has to do with showing the data which proves that this way of teaching is better than the traditional one.

**Your methodology highlights peer instruction, in other words, the participation of the students in the process. Does this allow a better understanding on the subject of study, or is it the emotional component the one that takes a greater relevance, apart from the own concepts of the subject?**

I believe it is both components. When infants are learning, you do not have to assess them because they want to learn due to their curiosity. Somehow, we all have been born with this curiosity that motivates learning. This is what distinguishes us from other forms of life, our eagerness to learn, which, unfortunately, the educational system in general tends to destroy.

However, when you give a group of students the opportunity of connecting with the process, of collaborating and learning, they are willing to try. That is why I consider that both the interaction and the emotional connection are paramount.

**Nowadays, there are majors closely related to talent development; for instance, gastronomy is a major that requires the involvement of emotions. Is this methodology applicable as well in these cases?**

This is a perfect example; you are never going to teach gastronomy by just giving a talk, you have to cook in order to learn how to do it; but this is valid for any field of study that requires skill. Listening to someone who thinks is a specific way is not going to help you think like him/her. In reality the brain wants to understand how things work. Everyone wants to go after the emotions that help you to learn.

**Are you making reference to the search for experimentation? In other words, feeling it or living it is much more efficient than just receiving the knowledge?**

Exactly! I would say efficient and powerful because it is really gratifying for us. A weekend I took a cooking lesson and it was really gratifying to learn in the moment and

learn by doing things that I did not know before. Had I stayed passively watching the person teaching the lesson, it would not have been gratifying for me.

**Should today's teacher accompany the student to experience knowledge?**

Back then, the student regarded the teacher as the person that masters knowledge and offers it to the rest; conversely, nowadays the teacher is considered a coach, a facilitator. In my applied physics lessons I sit with the students and listen to them to understand how they are thinking instead of telling them what to do.

**Then, it is accompanying them to lead them to the truth instead of directly transferring knowledge?**

Exactly, that is what learning is about; knowledge is developed by the student, and not just something simply acquired.

**Even though many college students only seek obtaining good marks and a certification by making the least effort?**

Unfortunately, the assessment is as important as the teaching method, and probably in the eyes of the student the assessment ends up being more important than the method itself, precisely because of what you just said, and because it has to do



*“We all have been born with this curiosity that motivates learning”*



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more with the marks and the certification. I have a lecture called Assessment: The Silent Killer of Learning and as you say, to obtain a qualification you need good grades; therefore, students focus on this. Sadly, the assessment method does not really measure learning. I believe that we not only have to change the way we teach but also the way we evaluate.

**That is my next question and it works both ways, are the methods we employ to assess good as well as the homework?**

We could spend hours just talking about assessment, teaching and homework. All that is focused on the individual; but society does not work that way. The truth is that you as a journalist or I as a physicist work with other people. One of the biggest challenges we experience in our jobs is being capable of working well with other people. Many employees complain because professionals do not know how to work efficiently or in an appropriate way for the working environment; but this happens because we have never taught them how to work, and we have never assessed them taking into account this aspect.



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**Senses, emotions, and practice are being added to the traditional method of teaching; would you say that the following step is to make them learn by working together?**

In my talk I mentioned how to teach through questions. I do not know if you were there when I asked my first question because I wanted each individual to answer the question alone so they could later discuss and answer it as a team. I think that it is important to make a first contribution individually before answering as a team. I did not say that this morning, but I am going to tell you that I do the same thing when I evaluate my students. They have to answer a list of questions individually, and when each of them has answered, they have to do it in a team of four members.

First, each answers individually, that gives them an individual mark; then, those same questions are asked to a team of four people, but they must provide just one answer, which makes them discuss the individual answers, and that it is how they analyze and take into account each other's responses until they finally decide the answer they will give as a team. It is during the discussion that the learning process occurs.

Finally, the individual answer represents the 50% of the final grade and the team answer represents the other 50%.

**The youth nowadays is much attached to technology and that individualizes them even more; emotions are expressed by emoticons through the chats. Could this, from your point of view, have an impact on the way of learning and teaching?**

Yes, throughout history technology has affected the learning process. Before, we had the abacus, then, at the beginning of the 20th century it was the slide rule and the electronic calculator in the 70s. In the workplace you employ technology; therefore, we should not prohibit the use of it, if in the end it is a part of the student's lives. When I assess my students, they can use the phone, not to call their uncle and ask for the answer, but to search on Google for instance. If they want to use the technology for doing a search on the internet, it is fine.

Now, if you can get the answer to a question in Google, then that is not probably the right question to evaluate a particular concept or aspect. Anything that can be easy to identify is not a good question, it is a memorization question. Any question that can be answered by Google is not an authentic assessment question.

You can give them access to Google, but you have to make sure that the answers are not there because otherwise, it is just a matter of memorization. When I said this in a BBC

radio interview, it was really controversial and sparked a serious debate because the jobs that require memorization or doing things in a mechanic way are going to disappear as cellphones can do it better than human beings.

Instead of teaching students what the cellphone can do, it is preferable to teach them what it cannot do on its own. If student nowadays only interact through the social networks instead of talking when they are all together, we should not ask them to stay away from Facebook or Snapchat, the challenge is in making of this new way of interaction a part of the educational process.

**Finally, I would like to ask your analysis about the current world we are living in, with global warming, and where wealth accumulation trumps a culture of values. What would you tell the youth that is now focused on achieving success instead of happiness?**

I believe that the most relevant topic we can take from this conversation is the way of taking charge of your learning. Little children learn because they want to read not because there is someone telling them what they have to learn. If you are a highly motivated person, you are going to learn whatever you want. Unfortunately, the way we



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teach or assess steals from people that power of owning your learning. In fact, I tell my students that they have to continue acting like little children; they must ask and question

the authority. I believe that Latin America is still far from this; but when it happens we will really achieve an important level of innovation and creativity.