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ECONOMY / Interview

Sian Leah Beilock and Alexis Abramson

"We teach how to think, not what to think."

During their brief stay in Lima, two authorities from Dartmouth, belonging to the Ivy League, spoke with El Comercio about the position of the education sector regarding the development of artificial intelligence and the education of students in this matter.

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Maria Rosa Villalobos

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In this interview, Sian Leah Beilock, President of Dartmouth, and Alexis Abramson, Dean of Dartmouth's Thayer School of Engineering, delve into the challenges that the development of artificial intelligence (AI) brings. "We are training students for careers that don't exist yet," says its president, Sian Leah Beilock.

Technology is usually faster than regulation. How fast do you think AI regulation will advance globally?

SLB: First, I want to say that we are very excited to be in Peru. We have about 100 Peruvian students at Dartmouth, and we have about 20 Dartmouth students here, some undergraduates and some graduate students. We're very excited to continue to build that relationship [...] I don't know if you're aware of this, but the term 'AI' actually developed at Dartmouth in the 1950s. We have been thinking about this for more than seventy years. I think being in a place where you have engineering, computer science, humanities, government, and international relations allows you to think about AI. This, not just in terms of what's being developed, but also in terms of how you make sure that [what you're developing] is good for society.

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AA: We have our researchers focused on technology development, and they often think a lot about the unintended consequences and impact they create. We call that 'Human-Centered Engineering'. I mean, this idea that you're not just developing technology for technology's sake, but for us to partner with government to think about these things.

Developing an understanding with our policymakers is critical. That takes time. We have a responsibility as educators, but we also find ways to help the public understand what the development of technology – the development of AI – might mean, so that our legislators consider potential policies and laws to help avoid unintended consequences, to help to avoid the negative.

In Latin America we are less advanced than in the United States or Europe. Do you know of any examples in Latin America of an alliance between governments and technology developers?

SLB: AI is going to be very useful in how we plan to address health issues in our population. In fact, we have one of our professors who is here [in Peru], Professor Lisa Marsch, who is in our medical school and is using AI in 'Digital Therapeutics' as she calls it, to work with governments in Latin America. She seeks to really help people who are addicted or who have health problems such as depression. It seeks to ensure that they receive care.

R E A D | 78% of opinions ready in Economics have observations

Does it focus on prevention?

SLB: She is working on many different levels. If you know someone who has been addicted, you are looking for signs, thinking about when they might relapse. Thus, for example, tools such as a smartphone can be used to understand how they are interacting with social networks and other people. That can give you clues to provide intervention and help at the time the person needs it. It is both for prevention and to help people stay at their best once they have been diagnosed with a disorder.

AA: There are researchers focused on the application. They are very focused on intervention, prevention and diagnosis. We also need AI researchers who can help those investigations and manage really big data sets. All this information can now be collected from a smartphone, but how do you give these health researchers this information so they can review it and determine that something really needs to be done to intervene and help this person? We have researchers who are helping to take these large amounts of data r and reduce it to a manageable set. 95% of the data appears to be working this way, but 5% of the data may be anomalies. We really need those researchers to be able to address those large data sets and help others identify problems in health care, and also in climate change. We are collecting amounts of information based on weather data and understanding what the real impact of climate change is, understanding how we can mitigate that or help our populations adapt. That is also a 'big data' problem that requires AI.

We are facing another revolution. We will need other types of professionals just to work with medicine and doctors, for example. You are talking about researchers, but not about medicine, but about data.

SLB: That's one of the things that a university like Dartmouth can offer. We train students to be the next generation of workers and to think about issues like these. I think the goal of AI is to increase human intelligence. One of the really cool things about something like ChatGPT, is that you can ask questions and interrogate him, and almost reason with him. The idea is how to understand how it can help increase [human intelligence]. You need researchers who understand what's going on, and people who can then work with health professionals or climate professionals.

Sian Leah Beilock, president of Dartmouth, (Photo: Alessandro Currarino)
/ ALESSANDRO CURRARINO

You will have to learn to work with specific sectors.

SLB: [Nods] I would like to mention another example. There is a rich data set when you interact with a patient and that is often when things go wrong. The doctor says one thing, the patient listens to another. We have researchers at Dartmouth who are recording those conversations and then using the AI to choose what's most important to follow up with the patient, and then help that person. Getting this done successfully means you need researchers who understand a lot about data sets and that's why universities are so important, because we're able to think about what's the next cutting edge and how do we train people. And just as an example of that, actually, the CTO of OpenAI, developer of ChatGTP, is a female Dartmouth engineering graduate.

To manage all this amount of data that is coming, we will also need to work in the private and public cloud.

SLB: Yes, in terms of security. In fact, OpenAI's chief security officer is also a Dartmouth graduate. This issue of information being made public, especially in the health care industry, is very important.

AA: There are privacy and security classes that our students can take. How to ensure that the data that is collected is anonymized? This, so that when the information is studied, the patient's name or where she lives is not known. There are certain approaches that we teach on how to do that. And then security is also a big question. If the data is being stored in a particular location, how do you ensure that it is kept secure?

R E A D | What awaits logistics centers by 2024?

The model is important. You can choose one large data center or many small data centers across the country.

AA: Absolutely, and that's why it's so important that we continue to update and improve our education, because security changes daily. Our ability to make things more and more secure must evolve, so it's critical that we have ongoing research and classes to teach students – who will later work at these security companies – to ensure that the Patient data and company data are kept secure.

How do they reach young people? Do young people understand this type of racing? Do parents understand these new careers?

SLB: One of the amazing things about Dartmouth is that we teach how to think, not what to think, and we are training students for careers that don't exist yet. Our goal is to give them information and experience in all these different areas [...] Someone who is in computer science or engineering also studies, for example, art history, because we think it's important to have this breadth. We are looking for the best and brightest students from around the world. We are only one of eight institutions in the United States that do not consider financial need, even internationally, when applying. If the student enters, we will cover all her needs in terms of support. I think parents are interested in helping their students have the tools to go on and have great careers.

Is it about new careers or new courses in existing careers?

SLB: We are always developing new fields in engineering where Alexis is dean. We have a human centered design initiative where students are thinking about how to understand new problems and are learning the tools to tackle a problem. For example, how do we know that AI will not raise ethical issues in terms of algorithms or bias? That requires asking the right question and even learning how to come up with an answer, and that's one of the things we train our students on.

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AA: That's critical. I'm sure we can find many examples of things that were poorly designed. One of those things is the time it takes to put wheels on the suitcases. We first put two, but it took us a while to put four wheels. [Laughs] It's a simple example, but in which you can see how the engineer who devised the suitcase solution really wasn't thinking about the need that people have. It's really about helping students learn how to approach a

problem, because problems will change over time. If you're only training as an engineer to solve math problems, you're not getting that kind of holistic training.

It is a non-traditional professional profile.

AA: Yes. Yesterday I met with some students interested in going to graduate school and engineering. They're so used to getting a master's degree, and all they do is take these engineering classes and solve problems. We talk [with them] about the integration of practical projects and other topics. It is not only about solving a differential equation, but about saying 'that can be applied here, and then in something else'.

SLB: Thus, the door is opened for those who could be considered engineers. Now you have women who hadn't thought of themselves as such and who are really interested in the human-centered approach. In fact, we were the first engineering school in the US to be half-female and half-male.

This transversal vision of how problems are solved is also seen in other careers. The future looks more 'agile'. You take a problem with 5 people, solve it, and part ways. And then you go to another problem, which to tackle with another group.

SLB: Exactly. They're teams of people with different levels of experience and that's one of the special things about Dartmouth. We are small enough that our doctors work with our engineers and our undergraduates work with professors. We are able to see problems in a way that others cannot. A startup culture always leads to discoveries.

About ChatGPT, we all know the good things and the bad things. There is concern about the loss of jobs, for example. What do you think of this technology?

SLB: I'm not worried about anyone coming out of Dartmouth because, again, we're teaching them how to solve problems and work with technology and I think that's what we're going to see more often, that people will learn to work with technology and so jobs will change. I think this is an eye-opener for other work, but it means we need people now to think about what copyright looks like, how we rewrite laws, how we think about legislation [...] We've done this before. Computers were a good example. I think there are constant revolutions in terms of what the jobs are and how we interact with the machines around us.

People think that this is another kind of revolution, not like the computer revolution.

SLB: I think people, at the time, were concerned with computers and the Internet. I think that part of all this is, indeed, education. Our responsibility, from a university perspective, is to investigate and help establish the barriers. I'm very excited, I'm a glass half full person, but I think there are some huge risks and it's our responsibility to help mitigate them.

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If we only focus on regulation, does that hold us back?

SLB: Our job as a university is to focus on discoveries and how we think about what the dangers are. Governments should pay attention to this, but our job as a university is to push the technology forward to help figure out how it can have a positive impact and also what the potential negatives are.

Do you know of any examples of ethical use of AI?

AA: Of course. There is, for example, the work we do from my startup. We are taking data associated with buildings […] The utility company collects electricity data and then sends a bill directly to the user. What we are doing is taking that information, and other additional data about the building and we analyze it. We couldn't do this before because we couldn't manage large amounts of data. Today with AI it can really be done. So as a result, without stepping foot in the building and within seconds, we can diagnose what's wrong to help make it more energy efficient. We need to save that energy to help mitigate our climate change problems. We don't need to place sensors all over the building to get all this information.

SLB: Another example. We know that students at an Ivy League university often work very hard and study […] we have a faculty member, Andrew Campbell, who on his smartphone worked to collect all kinds of data about when students went to the gym, when they were sitting down studying, when they weren't interacting with their friends. So, [through his phone] he could see that when [students] really got stressed, it was when they didn't communicate with others. So, to stressed people you could send a 'pin': 'Hey, why don't we go have dinner?' or 'Shall we take a study break and go for a walk?' This led to students feeling better and then performing better in their classes.