


APRENDICES 4 - TRADUCCIÓN AL INGLÉS

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 Paola Bermolen | Aprendices | La Red | 2024

INTRO

I like mathematics as a language to be able to express the workings of the world.

The first thing is to know that within a class, for there to be learning, there must be a pleasant atmosphere.

Being afraid of making mistakes limits you, so you have to try things, make a lot of mistakes, and then you get the satisfaction of a well-done job.

PREVIA

What do we do with you then? Tell me.

I never wear makeup, so only a bit.

What do you do?

I am a mathematician. I am a university teacher.

Oh?

Yes, I work at the Faculty of Engineering.

Excellent.

I do mathematical models. Actually, I do applied mathematics.

I see.

Hello, welcome. What a pleasure to have you here.

I liked mathematics, especially in high school. My dad said that I wasn't very good at Maths in primary school.

But later, in high school, I found that I liked it, I liked solving problems, I found meaning in that language, so to speak.

When I was in 6th year of Engineering, I got a pass for three faculties. I didn't know which one I would choose.

Finally, I enrolled in the Mathematic degree.

I didn't know what the job of a math graduate was.

All that academic stuff of doing a bachelor's degree, a master's degree, a doctorate, I didn't know what any of it meant.

When I finally graduated, I started working at the university and I loved it.

When I started working at the university I thought: "Ah, I like this job. I'm still not exactly sure what it entails..."

But I'm headed in the right direction.

Well, this is the space we're going to be in. Through here.

ENTREVISTA

I can say that I am a person... a very responsible person, very hard-working, I try to be organized, I like to organize things. I like people, I like working

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with people, I like having projects, I like to feel that progress is being made in those projects and that one's ideas can be achieved.

When they ask me: "What do you do?", I always define myself as a university professor, and I think that is part of my definition.

I feel like a teacher, I love doing that, I love teaching. I have been working at the university for 25 years and I still like it. Each class still seems like a new challenge, a new group, a new thing. There are always things to think about. No course is ever truly finished.

And the university is important, I work at the University of the Republic, which is my home, and teaching at the university differs from school, from high school, it is very different. However, I don't have a specific training in teaching, so I feel like that defines me as well.

When did you become aware of all this? For instance, that you liked to work...

I started working when I was 13 years old.

I am from Atlántida, a beach town, so when I was 13 years old, there was no need for me to work, but I felt it meant my independence, my income, and it didn't take up many hours, either. I worked from that age until I entered college.

Then I started college. The first years were difficult, so I was concentrated on studying hard. But during the second year, I starting teaching at the Atlántida high school, so yes, I continued working and I don't think I ever stopped, to be honest.

I also gave private classes and then I entered the faculty as grade 1 and continued there.

As for other things, like being organized or trying to be responsible, I think it comes... It kind of came naturally to me. Teaching came naturally too. All

my high school classmates would get together at my house and I would teach them all, I'd explain things.

I always liked being with people, I liked being able to transmit knowledge to others.

After high school, you considered three different faculties, three different careers.

How did work help make that decision? How did that influence your decision to keep studying?

Well, actually, I didn't really know what I wanted to do, it was clear that I liked...

I did Engineering in my last year of high school. I liked that side, the hard sciences. And there were some professions that had the incentive of being linked to good salaries. I knew engineers and economists had jobs and earned well, but that wasn't my motivation.

I felt that I would get work, that I was not going to die of hunger, that I was going to achieve something, that I could... The choice was more due to pleasure than anything else. But it was also an attempt, it was a rehearsal.

I went to the Faculty of Sciences, it was the one I enrolled in first. I liked it and I said, "Well, I'm going to try this", and once there I was hooked, I liked it and I didn't want to leave, even though I had no idea what I was going to work on there.

But I liked it, I liked the environment there, I found friends to study with, and a beautiful daily dynamic was created, where you went to class, studied and made friends. I went there alone, I didn't know anybody. I didn't know anyone the first day I arrived at the faculty, but only good things started to happen.

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I think people are very important, then also what to do, but who to do it with, how to do it. It's like an energy you have each day. The energy that allows you to build things, that allows you to try more diverse things.

Later, in college, as a teacher, when I decided what topic to study and what area to work in, it was people who guided my choice of topics.

So your starting point is the group, the tribe. You need to gather your tribe wherever you go.

As I tell all my students, it is super important. Maybe I'm just passing on my personal experience to them.

And the college stage is very important, you feel very alone, there are many changes, people come from different places to a place where no one is paying attention to you.

Each person was someone back home, but that becomes irrelevant in university, and that's where the group is a lifesaver, professionally and personally as well. In my personal life, my family and friends are also a very important support.

So, we formed the tribe and then focused on mathematics.

Yes, that group... In fact, there were very few who continued studying mathematics or physics. Teachers, anthropologists, social workers and psychologists came from my group.

We go through many experiences before we decide to do something. But I stayed there. In other words, there was something that motivated me to continue there, even though that initial group had taken other paths.

And yes, I like it, I like mathematics a lot, I really like the language of mathematics to be able to express things. But it is true that I prefer applied

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mathematics and that is why I always worked in the Faculty of Engineering and not in the Faculty of Sciences.

Using mathematics to try to solve real problems, although it sounds quite ambitious, I'd say. But there is a motivation. I like mathematics as a language to be able to express the workings of the world, so to speak. And it isn't simply a mathematical exercise, but rather trying to answer a question, trying to fix a problem.

2020 seems so long ago, yet it was a year that truly left a mark.

You were part of the group of scientists who applied a lot of this theory, who had researched and studied and taught for a long time.

How was that experience like?

It really was an enriching and challenging experience. It still leaves many questions open. There is the scientific part, which we handled with the highest possible degree of professionalism, but the entire data part did not depend on us, and the government didn't depend on us either and it had its own agenda.

So, it was the first time that I faced the difficulty of science acting with governments or with direct decision makers. And it's a very complicated game for all of us. Our rhythms were often not their rhythms. We wanted more data, more information, but either it was not available or it did not appear. So there was a tension there.

But, on the other hand, it was a time of very intense work. And there was a lot of uncertainty, too, uncertainty and constant effort on our part. Everything we said was proved with all the evidence we could gather. We were very careful with everything we said or wrote.

Knowing that what we said, or what anyone from GACH said, was going to be heard, had an impact on us. Trying to have answers or trying to have

information for a real problem was very satisfying, even though the stakes were high. There was a lot of fear too.

But yes, it was very satisfying.

I want to ask you about Paola the teacher, the one you talked about earlier when I asked you to define yourself.

How was the experience of teaching in a high school institution for the first time?

I started the Faculty of Sciences and the following year they called me from Atlántida High School, where I had studied two years. They asked if I would take up a teaching position for 5th grade Maths.

Looking back, I think I was crazy, but I said: “Yes, of course”. It wasn't a time to say no... I believed I could do anything. And I went and did it and I loved it. I spent a lot of time preparing things and thinking about what to do and what not to do. But they were in high school and I was 18 years old. I mean, it was a bit risky, but I loved it. I got along great with the students and I realized that I enjoyed the class environment.

On the other hand, that experience was an indicator that I really needed more training to be there. It's not enough to know how to solve some equations, it doesn't make me a teacher.

Then, finally, I decided to continue with the faculty... I didn't take any more groups in high school either. It seems to me that you really have to be a professional to do that and you have to study to do that.

I chose another path. Later, when I started teaching at the university, I felt comfortable in that I didn't need the specific training necessary in high school, which to me is very important. I think the role of the teacher and his training should be more valued.

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There is really a lot at stake and that is why I did not go through with it, because I was just not a professional, I didn't study for it, so I left. And well, a couple of years later I started teaching at the university.

Beyond the specific knowledge of mathematics that you developed and expanded and deepened, what skills did you develop to establish yourself as a teacher today and to feel proud to say: "I am a teacher"?

The first thing is to know that within a class, in order for there to be learning, there has to be a pleasant atmosphere, an environment that encourages things to happen.

An environment of trust, where error can be present, where it is a place of learning and not simply stating results or theorems or samples of exercises. All that is out there. YouTube is full of videos that explain things, it's full of materials.

What makes the class stand out is precisely the people. And again we go back to the people. That's the key, the environment that is created, the environment leads to learning. So, I first try to make an effort to make that happen, so that there is an environment conducive to learning.

I am also a person who plans the classes, though I know the topics thoroughly. I prepare the development of the classes, the story to tell in each one, and I imagine what errors may appear or what questions may arise.

I also come up with small traps so that those errors or doubts arise. I plan the classes in a way that ensures my intended message comes through, I want to be sure of that.

You talk about errors. Let's learn from errors. And you seek it out as well, in the classroom. However, culturally, we penalize error. Institutions penalize it.

What do you make of that?

Mathematics is generally perceived as trying to solve an exercise and coming up with a perfect solution. The theorem is perfect, the definition is perfect, but we don't think like that, we don't think perfectly, line by line, we don't know where it's going to take us.

I try to explain and dismantle that. In order to solve a problem, we often go bit by bit. "If I go this way, it tells me this; if I go that way, it tells me that". "And then this comes together with that", and after that whole process you go: "Ah, now it makes sense".

And then you build the perfect, neat and beautiful solution. But this is not the usual way in which one solves exercises or thinks about math problems. It's much messier.

What happens is that we try to follow the books, the organized, neat solutions, but this is now how people think.

So, I encourage them to play, to try and fail, to slowly get at the guidelines... "Wait, I did this the other time and it wasn't right" or "Yes, I got it!"

Those failed attempts are a really big part of how we learn. Being afraid of error limits you, so we have to take the other way around. You have to try a lot, make a lot of mistakes and see what happens.

Then there's the satisfaction of doing it well, which is important for the learning process, and to be able to draw one's own conclusions. We don't all learn the same way, it seems to me. Some learn graphically, others analytically. All should be encouraged to experience their own learning process, that's essential.

Only then will I ask them to do it with no errors.

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I want to ask you if you're aware of being a role model. Teachers are role models. You're a woman, the first woman to lead an institution with a long, long tradition behind it.

How does this weigh on you?

I have worked at the Mathematics Institute for 25 years. I was level 1, then 2, I studied abroad, I came back, I went to level 3, then 4. I mean, the Institute is like home for me.

I love working there, it has been a natural process, you know? As the years went by and the levels increased, I assumed more responsibilities and I had a clearer idea about what could be done and what could not be done.

I was also an academic assistant to the dean, María Simón, and that also gave me a vision of the entire faculty. Also, my somewhat low-key profile makes it easier for me to interact with the rest of the institutes within the faculty. And when you combine that with my organizational and project skills, you get a natural candidate.

I feel that these administrative tasks are in pursuit of something, an idea, a will to improve things. I see it as a challenge, as a... As an attraction, let's say.

And so, I have a plan as a director and I try to do things based on my convictions, my ideas. I try to get things under control and to make the things that don't work, work.

Applied mathematics and applied convictions, you do seem to know how to apply things...

Yes, I didn't say the word pragmatism, but it should have been among the first ten. In general, I try to go towards concrete things and move forward and not be afraid of changes.

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If I could say something to young people, I'd tell them to not be afraid, to find their own way, that nothing in life is a given, and that motivation and desire are essential.

And well, that it also involves a lot of work, that's how it is. Achieving things and progressing in life takes work.