

What Does the Future Hold? Dreaming and Doing

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It is an honor for me to share some ideas with you that for me are very important. I am a “BC” chemical engineer. That is, before calculators. Also, before computers. I represent a Mexican private university. I will say a national, private university. I have been with the Monterrey Institute of Technology, our Mexican MIT, for 33 years, the last 14 years in charge of the main campus in Monterrey, Mexico. I will begin with an idea from a book by Peter Flawn, former president of the University of Texas, who said,

The most important responsibility that the president of a university has is to establish the institution's agenda. Without any doubt, operating the institution in an effective and efficient way is not enough. If the university is to have direction and purpose, the president must direct his or her attention away from operating problems long enough to develop a vision [I will say a dream] where the institution can be in 5 years or even 10 years. If the president's vision is to become reality, a carefully crafted grand strategy must be devised to move the institution into the right direction with the right speed.

This was taken from Peter Flawn's book *A Primer for University Presidents*. It is clear to me that I can reach the future as a person, as an institution, as a company, as a country, or as a state in one of three ways: by doing nothing; by being pushed by the solution of problems; or by being pulled by a dream. And, of course, all of these are immersed in global international trends. If we take Latin America, then the global trends that will impact our Latin American universities are two: a changing world, of course, and the learning revolution.

What are the key words of this changing world? There are several: globalization, internationalization, global communications, the Internet, globalization of financial information, world markets, e-market, e-business, international alliances, the global trade web, digital economy, and so forth. And, what are the key words in our learning revolution? They are knowledge economy, collaboration, reskilling, team skills, building and applying competencies, learning how to learn, values, attitudes, habits, student-centered learning, the virtual university, and international and national collaborative learning groups. All of these are simplified by the increased communication system—the Internet.

However, while we have a truly impressive electronic technology that we can apply in our universities, we still have educational models designed for older technologies.

Dreams for the Mexican Educational System

Going back to Latin America, we know that we can reach the future pushed by the need to solve existing problems. In our Mexican educational system, we have four big problems: (1) quality, (2) the relevancy of the academic programs to the community, (3) the lack of resources, and (4) the lack of productivity. Of course we need to solve these problems, but we can follow another road. We can reach the future pulled by a dream.

Looking into the history of Monterrey Tech, I see a lot of dreams and a lot of doing in order to bring those dreams to reality. The initial dream, the one of our founder in 1943, was to have a university to educate the professionals that would support the economic development of Monterrey. We started with great support of the private sector. We grew, we multiplied, we consolidated, through the support of the private sector in Mexico.

And that initial dream took us about 20 years. The second dream, the multiplying of that dream, began with a question, “Could we have a campus like the one you have in Monterrey in my city?” And we said, “Why not?” So we expanded from one campus to 26, and from 2,500 students to 45,000 students. Now, in 1999, we have more than 80,000 students in our 26 campuses throughout Mexico.

Then, we have the third dream, we can call it the consolidation dream—to really strengthen Monterrey Tech as a system. We did it through five strategies, five roads: one is quality, the second is innovation, the third has to do with internationalization, the fourth with the promotion of values, and the fifth by continuing to support the economic development of Mexico. In quality, for example, we did it through strengthening the key factors in order to have good students, good faculty, and relevant academic programs. As I said before, relevancy is very important to us, as is a very good library and a good academic environment. And so, if we implement programs and projects to really have good students, good faculty, relevant academic programs, a very good library, and a very good academic environment, then I can assure you that we can have a very good university.

The next step after we defined those strategies was to define and implement the programs and try to strengthen the key factors. We had the four C’s in mind—first, commitment to the dream. Second, the champions; we say that to move us from talk to action, we need a champion. We need a person with the ability to lead us from the saying to the doing. Third, we need coordinated actions to ensure efficiency and impact. Fourth, we need the combustible—the money. That’s the first law of thermodynamics—there is no free lunch. Definitely, you need money. And, if you want money, you have to go and ask for it. For instance, if I want your money, you have to say, “I like Ramon de la Peña.” So, you have to know me. You also have to say, “I like Monterrey Tech.” So, you need to know Monterrey Tech. And, third, you need to say, “I like your dream.” I see colleagues going into the third step trying to sell a dream before selling themselves and their university. And, when that happens, the people reach into their pockets and give pocket money instead of a big check for \$100,000, \$200,000, or \$1 million. The big checks came when people said, “Yes, I like Ramon de la Peña, I like Monterrey Tech,

and yes, I like the dream that you want to implement in your university or the dream that you want to implement in Mexico. Yes, we want to transform Mexico into an entrepreneurial country.” And, of course, people would say, “Yes, I like that dream and I will support you with enough money to do it.”

The Present Dream

Let’s pass into our present dream. The last dream, the consolidation dream, took us about 12 years. In the last three years, we have defined our present dream. We have it in black and white. First we said, let’s define the challenges that Mexico faces where the institutes can play a significant role. We decided there are four very important ones. First, the creation of more jobs. That is why the entrepreneurial program is very key to me and is very key to us. The second one is the international competitiveness of the Mexican companies, and we do this by supporting our research centers, quality manufacturing, environmental quality, and strategic studies. The third challenge has to do with the democratization of Mexico. I am President of the election board of Nuevo León because I wanted to send a message to my students: If you don’t get involved, then you should not complain. Because the future can be changed, and let’s do it, let’s participate through the electoral process to put the right people in the right office to do the right things—the things that we want in our city, in our state, in our country. The last challenge has to do with the improvement of education in Mexico. That is why I like very much the virtual university, because it has truly a multiplying effect that can be used to promote improvement in the educational system in Mexico.

The second step of our present dream means the definition of our shared dream. With the participation of the members of our board of trustees in each of the cities where the institute has campuses, and with the presidents, vice presidents, directors, faculty, alumni, and students from all of our campuses, we have had the participation of more than 4,000 people participating in the creation of a shared dream. Once we defined our dream, we moved to implement it through programs and projects. We defined the Monterrey Institute of Technology mission as educating individuals who are committed to the social, economic, and political improvement of their communities.

The third step was to say, “Let’s define the key factors that would impact our dream.” Those key factors are the students, the faculty, the teaching/learning process, research and extension, the virtual university, the internationalization process, our philosophy of operation, and our relations with alumni and trustees.

And then, the fourth step, let’s dream over each factor. We dreamed about our students, we dreamed about our faculty, and we dreamed about the teaching/learning process. We dreamed about research and extension and we say it must be relevant and aimed at supporting national and regional sustainable development, particularly in the fields of innovation, technological development, competitiveness, planning for sustainable development, and the improvement of education in Mexico. And then we said, “Well, let’s dream about the virtual university, let’s dream about internationalization, let’s dream about our philosophy of operation, let’s dream about our alumni, and let’s dream about our trustees.”

For the fifth step we said, “Let’s define the roads to follow.” That was the definition of our strategies. We decided that five are very important. The first one is reengineering the teaching/learning process. The second strategy is focusing on relevant research and extension for Mexico’s competitiveness. The third is developing the virtual university, and the fourth is the internationalization of the institute. Currently we have about 140 working agreements with universities, mainly in the United States and Canada, fewer in Latin America and Europe. And, the fifth strategy has to do with maintaining the continuous improvement process. This includes the evaluation of all of the professors, the academic department heads, the deans and the president by the students and faculty. For example, every semester I am evaluated by 16,000 students on the Monterrey campus and by more than 700 faculty members; I receive an evaluation from one to seven. One is very good; seven is very bad. I won’t tell you my evaluation, but everyone can send me messages through the Internet or through that evaluation system about the things that we should improve in our school.

Also, as a second part of the continuous improvement process, we are looking very strongly into the accreditation system. We are accredited by the Southern Association of Colleges and Schools in the United States; by the Accreditation Board of Engineering and Technology of

our Engineering Program; by the American Assembly of Collegiate Schools of Business; and we are accredited in The Institute for Food Technology for Agriculture. Now we are preparing for the ISO 9000 certification for our research centers.

Of the five strategies I would say that two are key strategies. First, the virtual university, which gives us a truly multiplying effect. We have more than 1,200 sites throughout Mexico and Latin America so that we could impact other universities and companies. We have what is called “the virtual classroom in your company” with close to 1,000 classrooms in Mexican companies that we send educational programs to all day long. We also have an educational program for public officials of Mexico through the virtual university. This was a World Bank and Monterrey Tech program through which we impacted more than 1,200 public officials in the cities in Mexico, Central America, and South America.

The second key strategy is transforming the teaching/learning process into a learning process. We used basically three elements; first, we are carrying out a didactic redesign using the Socratic approach. I recommend that you read the book by Jostein Gaarder, *Sophie’s World: A Novel about the History of Philosophy*. The kind of professors that we are trying to create at Monterrey Tech will use the Socratic approach. About 30 percent of all of our groups are taught in this manner because we believe in this didactic redesign, and as you know, Socrates always used the right question. For example, he could use this as a question. Why are the letters of the keyboard on a typewriter or a computer in the order they are? A typical professor would say, “Listen to me, I know the answer and here it is.” The Socratic approach is the one that we are trying to use in this didactic redesign. I like this approach very much because as an engineer, it is clear to me that if I don’t know why things are the way they are, I cannot change them.

As a second element we include formative intentions. We include honesty, teamwork, leadership, the art of leading people, entrepreneurship and innovation, or a combination of both. We are also talking about commitment to personal development, commitment to the development of our communities, collaborative work, and responsibility.

And as a third element we use technology to provide

better access to information, better teamwork, better course planning, better management of information, and the possibility of asynchronous and remote teamwork. We are strengthening our technological infrastructure with networks and servers. We use the Learning Space as the basic software that is mounted over Lotus Notes. We are asking that every new student have a laptop and every course be in the Learning Space, and, of course, we are creating and strengthening our digital library.

And then, at the end of our dream, after we define the roads to follow, are the programs, the step to fulfill our dream, the definition of our programs and projects. For instance, one program that has been used by Monterrey Tech to fulfill our dream is Program #5, the creation of centers to support development at all of our campuses and the creation of a network of research centers in the institute's priority research areas. The sequence that we follow is first define the challenges that Mexico faces, then the dream, the key factors, the dream about each key factor, the roads to follow, the programs, and then the process of doing—transforming the dream into reality. In the implementation, for example in research and extension, the basic strategy was to search for problems or opportunities. We saw that we could do something very important for Mexican companies' competitiveness in quality, in manufacturing, in environmental problems, and in using the NAFTA Treaty—what I would call a competitive advantage for Mexico. And, of course, that created projects, programs, or research centers. In fact, that is how we started the Quality Center, the Manufacturing Center, the Environmental Quality Center, and the Strategic Studies Center in the whole country. The Monterrey Tech system has truly had an impact on our entire country. And what were the key factors? They were the dream, the mission, the people, the champions, the relevance of the research program to the community, the relation with industry, the commitment, and, of course, the trust we have tried to create in Monterrey Tech.

The Future Dream

Let me describe a little of what we see as the future in Mexico. Mexico is a nation in transition, but the question is, in transition to where. The final answer will be determined by us and not by impersonal trends. I am a true believer in a future that has not been created yet. The future does not have to be a continuation of the past or the present. I believe the future that we want in our country can and must be created by us, by the people who work at Monterrey Tech, and by other Mexicans. I recommend that you read the book by Michael Mazarre, *The Challenges of the New Millennium—Mexico 2005*, from the Center for Strategic and International Studies, in which the author presents five scenarios for Mexico. The scenarios range from a democratic Mexico through the ungovernable Mexico. Each one has a description and indicators of the scenario. I, of course, like the democratic Mexico scenario. This scenario involves the acceleration of the democratic transition, the continuation of robust economic growth, the creation of a notably larger middle class, and one of the main indicators of success states that elections at all levels are to be more open and more competitive. That is why, in part, I am involved in the electoral process as president of the election board in Nuevo León.

I want to have a dream similar to the one for Malaysia, that was presented by Mahathir Mohamad in his book, *The Challenge*, published by Pelanduk Publications (1986) in which he says, "This is my dream." And the last part of the book poses the question, "Quo vadis Malaysia?" Mohamad says, "This is our dream of Malaysia in 2020." And, this is the dream that I like for Mexico. If you erase Malaysia and put in Mexico, we could say, "By the year 2020, Mexico is going to be a united nation with a confident Mexican society; infused by strong moral values; living in a society that is democratic, liberal, and tolerant; caring, economically just, and equitable; progressive and prosperous and in full possession of an economy that is competitive, dynamic, robust, and resilient." That is the dream that I like very much for Mexico, and, of course, this is the dream for which we are working at Monterrey Tech.