



# Advances in Medical Education – The Shift to Digital and Interactive Learning Styles

McGraw-Hill Education sat down with Valentin Fuster, MD, PhD, Director of Mount Sinai Heart and Physician-in-Chief, The Mount Sinai Hospital; and cardiology fellows Hadi Halazun, Robert Kleiner, and Crystal Angstrom to discuss how medical education must keep pace with the ever-changing learning styles of physicians-in-training, and how these changes will impact the practice of medicine in the future.

**McGraw-Hill Education: Medical knowledge is changing fast. What challenges does this pose to faculty, residents, and fellows?**

**Valentine Fuster, MD:** Two things are happening: Knowledge is evolving very rapidly and at the same time people don't like to read anymore. The problem becomes, "How do you manage this advance in knowledge when you are reading less and less?" We have to invent new approaches for education, and this is the challenge that we have today.

**MHE: How are people getting information without reading through volumes of material?**

**VF:** Fellows use lots of tutorials, overview systems, meetings, interaction, and debates. Social media is being relied upon more and more. For many people, social media is a good form of instruction. Social media, in the way we are discussing here, should be something that you capture, you integrate, you digest, and then you can go into patient care, but you have to be very methodical about it. Otherwise, you can spend three hours at social media, and things get into your head, and they leave ten minutes later, and you have just wasted your time. So you have to be constantly following the methods, but it's a new way to approach the educational aspect of medicine.

**MHE: What specifically do you feel fellows need to know now to optimize learning in the future?**

**VF:** First of all, one has to be constantly up to date with what is going on. I think the process of education is forever. Therefore, the fellows should know that it's not that you have to learn everything today because you are going to miss something. In fact, it's a continuous process. And then, the fellows, I think, have to be very creative because whatever is true today and what appears to be dogma will not be so tomorrow. So you have to have a very open mind, and be very flexible. I feel very strongly about trying to teach concepts or trends rather than spending a lot of time with minutia because this changes constantly. So I think there are new ways to approach education which is very much conceptual.

**MHE: Is there a greater opportunity now for fellows and students to learn from each other because of how everyone's connected through social media?**

**VF:** There's no question. I mean, if you are asking me what about 15 years ago and today, it's completely different. The interaction between the fellows is tremendous today, much more than years ago. I think social media helps. It's a culture, basically. But this culture is transmitted inside an institution, and it happens constantly. So I think it's a huge change.

**MHE: Let's ask your fellows – how are you learning now and how do you interact with other fellows and clinicians? What's helping you?**

**Robert Kleiner:** I think we've been very lucky in training in this time through social media as well as particular apps that we have on our phone. It's easier to access information and to get that information so that we can apply it clinically to our patients. I think it's also helpful in terms of research and contacting other colleagues at different institutions to facilitate research and other projects.

**MHE: Do you feel like you're constantly struggling to catch up or that the information is coming in at such a rapid pace that it's hard to stay up to date?**

**Hadi Halazun:** Certainly there is a lot more information that's changing, but we've been accustomed to information overload, as you would say, in other venues in our life. So it's something that we've sort of been adapted to – our generation, at least.

**RK:** I think that it's an important part of our training – we're learning how to not only access, but to be able to filter the important information and to only apply the important information, what's pertinent, to patient care.

**MHE: What about peer-to-peer sharing of information? How do you vet the information out there?**

**HH:** Certainly in other med schools, certainly in other parts of the country, it's easier to access information from peer-to-peer. If you know someone at a reputable institution, then the vetting becomes easier as far as information is concerned. You don't necessarily have to know that individual personally, but you have an online or a social media relationship with that person and you can trust them. So in that way, the vetting is easier and more personalized than before.

**VF:** I think that when we talk about education, it's critical, not just social media, but the interrelationship between two colleagues that are teaming with a given patient in a practical way.

**Crystal Angstrom:** I think that medicine nowadays is definitely more personalized, and there's more interaction between colleagues and multidisciplinary teams in terms of discussing patient care and involving the patient as well, not only peer-to-peer, but having the patient in the conversation. Even with all these social media, we still keep in touch with what's more important here, which is the patient care.

**MHE: In its 50th year of publication, *Hurst's The Heart* is going to go into AccessCardiology. Why has *Hurst's* been such a landmark text, and why is it still relevant today?**

**VF:** Well, first is the personality of who Hurst was – a real pioneer in cardiovascular medicine. He was an educator at Emory University, he was from Atlanta, and very well known around the world. I think this is very, very important. So when someone like this comes up with something, whether it's an article or book concept, it catches on very rapidly. So the name of Hurst alone carried the book.

As I look a back at how the book has evolved over the last 10 to 15 years, the reason for its success has been changing. The images in the book are critical. If you have, for example, a chapter that doesn't have the right images, that people can understand without reading anything, you are a failure. Before, in original textbooks, images were actually infrequent. It was all written. Today without images, we don't know what we are talking about. And then, moving further on from the image, people like to stay home and not to read.

So today, you have a website and you can listen to somebody talking about *Hurst's*. *Hurst's* is going to go into the website, and there all the information will be updated constantly because now a book is updated every four years. What happened during that period of time? Things changed very radically. So now it's going to be a constant in the dynamic of the book on the website. I think the 14th Edition is the last that we see actually in print.

**RK:** It's an important part of our training that we're learning how to not only access, but to be able to filter the important information and to only apply the important information to what's pertinent to patient care.

**VF:** We are talking also about the schemes. You know, we are talking about drawings. We are talking about a synthesis of a whole chapter of *Hurst's The Heart* in a single figure. So it's not just imaging, like do we do echocardiography or magnetic resonance imaging. It's just something that visually gives you the concept and the knowledge that you need to know. It's a synthesis.

### **MHE: How much time do you spend reading versus looking through images? Are you reading books front to back anymore?**

**HH:** I think Dr. Fuster is very much on point with two things. One is that images are a huge resource for everyone to learn from. An image – as they say, a picture is worth 1,000 words, and it's true, especially in medicine. You can learn so much about processes, about diseases, just by looking at images. So, for me, an image is worth a lot.

**CA:** We tend to navigate away from textbooks because the information from the day we started our fellowship, which for us is two years ago to now, has changed so much. There's no textbook that can be printed every few weeks to keep up with this information. So we use a lot of the online resources, and apps, as Robert mentioned earlier, to keep up with the field. At least 80 percent of my education now comes from videos, graphs, and podcasts. So Dr. Fuster is exactly right about the waning effect of textbooks on our education.

**VF:** One of the problems with education is motivation. The key question is, what motivates you? And this is very classic, for example, in research. In research, the more people you meet about a subject, the more excited you become. At the moment that you try to design a project by yourself, completely isolated, the ideas don't come, or you feel bored, or whatever it is. What I'm really trying to convey is that unless there is interaction among people, which is what leads to motivation, it's very difficult on a personal basis to say I'm going to be all my life up-to-date on everything that is coming out.

**HH:** So I think that a couple of things come to mind when I think about the development of medical education. To sort of piggyback on what Dr. Fuster says, if you'd get motivation from your peers that is great, but also I think what is somewhat also lacking sometimes in medical education is the introduction of the ability for the person receiving the education, or students or fellows or residents, to be creative in the education, to actually start thinking on their own, to be able to be given that freedom to sort of explore on their own with their

peers. That's what we need in medical education for the young crowd, for the millennials. I'm not a millennial myself, but creativity I think needs to be instilled somehow, somewhere in medical education.

**MHE: Dr. Fuster, what advice do you give your fellows as they look towards a career in cardiology?**

**VF:** Well, I have a formula which is called SIM – S-I-M – and I have used this particularly in the Journal of JACC that I am editing. I am the Editor. The “S” is first as for simplicity. That is, you cannot have a mind completely complex. Whenever we are presented, whether it is a complex patient or a complex of anything, we have to really learn how to simplify and get to the critical issues. It's very important for a clinician to pick up the symptoms that are important, not those that are not important.

The second is the “I.” The “I” is to be innovative. We have to be constantly creating ourselves. We have to be creators. I always say to the fellows, “You have a brain. Whatever you are and whatever you achieve is very unusual. So you are right to use your brain. You have to use your brain. Be creative and give something to society that is new, maybe to your patients.”

So I think innovation – and I'm glad Hadi mentioned that – is absolutely critical of somebody who has a brain and reached the stage that they reach.

The third is the “M” and as I already discussed, it's motivation. I believe that if we don't work as a team interacting, being critical to each other and so forth, I think you get lost somewhere, and at the very end you fall asleep. So I think my formula is SIM – simplicity, innovation, and motivation.

**MHE: Where do you see the field going? Where do you see yourselves ending up in 10 years, 20 years?**

**VF:** The trend in this industry, it's obvious, is an economic one. What's happening is this...as technology evolves, we are treating the disease generally too late, and it's very expensive. You know, it's easy to talk about artificial hearts and all of these devices, and new technology, and so forth. But when you put the cost in front of you – last year, the expenditure in treating cardiovascular disease in this country was \$300 billion. So the whole trend is to go earlier and earlier. It's to move from aging to birth, and then trying to start looking at people much earlier – who is at risk. Genetics are going to play a very important role there, as well as imaging, as we discussed, but we are going to be identifying people much earlier. The challenge there will be how we then get these people to change their lifestyle. This is going to be a big challenge.

But I have to tell you as an economic issue, there is no way that we can continue for these economic burdens and be relaxed about it. It's impossible. So we'll have to go back to much earlier ages, identify disease much earlier sub-clinically, or even to promote health from the beginning from children. And this, to me, is the medicine of the future.

**RK:** Yes, I think we're seeing it now in our training. Cardiovascular training is moving more from an inpatient setting to an outpatient setting.

**RK:** And moving more toward prevention. And in the next ten years, we'll see improved access to these patients who are at a high risk or intermediate risk before they get admitted for these diseases to kind of catch it before it happens.

**CA:** I think we're also seeing that in the patients themselves, they are demanding from us these questions of, how do I prevent this from happening; how do I stay healthy? And I'm seeing that a lot as well. So I think that that's where the future is, like Dr. Fuster says, preventing things or catching disease early before major events occur.

**HH:** One other thing – I think the decentralization of care is going to happen. The hospital is no longer going to be the center of care. People are going to receive their care at home more often than not, I think, in the next 20 years.

**VF:** Through monitoring systems – wireless systems. It will be much less expensive, really. The hospitals will end up having a hundred beds for the emergency, acute and so forth. There's going to be a huge revolution coming up in the next 10 to 20 years.

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