“One cannot just replace a technician with a machine”

Interview with the Agnini brothers, dentists and prominent specialists in fixed prosthetics, periodontology, and implantology

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Brothers Dr Andrea Mastrorosa Agnini and Dr Alessandro Agnini presented a series of lectures on digital dentistry and mastering the fully digital workflow at IDEM Singapore 2014 in April. The doctors were two of the star speakers at the Dental Technician Forum introduced for the first time at this year’s IDEM Singapore. Between their packed schedule of lectures and open panel discussions, the brothers took time out to answer some questions on their experiences in Asia, the current state of digital dentistry, CAD/CAM, and 3-D printing, and the direction in which they see these technologies developing in the future.

John Battersby: Have you observed any difference between Asian and European technicians when it comes to their familiarity with and adoption of the latest digital dentistry technology?

Dr Andrea Mastrorosa Agnini: We have not really had the opportunity to work closely with any Asian technicians yet, so we do not know with which technologies they are familiar or which technologies have already been widely adopted in Asia. What we have seen is that there is massive and growing interest in all aspects of digital dentistry, not only among technicians but also among all members of the modern dental team.

Dr Alessandro Agnini: Yes, this is why there are more events like the Dental Technician Forum at IDEM Singapore and other similar events around Asia, just like one sees in Europe and the US. We were here in Singapore last November for the CAD/CAM conference and we will be back again later this year for another.

John Battersby: How did you find your Asian audiences at IDEM Singapore? We (Asians) have a reputation for being very shy when it comes to asking questions; did you have many questions or much feedback?

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Fig. 1 Drs Alessandro Agnini and Andrea Mastrorosa Agnini.
Dr A. Agnini: Actually, we had quite a few questions from the floor and via the SMS system they used for the Dental Technician Forum. The audience can text any questions they have to a number and we can answer them after the presentation during the Q & A session.

Dr A. M. Agnini: The SMS system worked really well because people could ask us anything and often they asked us about something we had not had time to cover in the presentation or had not included because we were not sure whether it would interest people. With such questions, we thus could cover such topics too.

___It has been suggested that Asia might not be as quick to adopt digital technologies as Europe and the US because skilled labour costs here are still comparatively low, so there are not the same savings to be made by giving some of the technicians’ jobs to machines. Do you think that is true?

Dr A. M. Agnini: One cannot just replace a technician with a machine. In Europe or anywhere else, one still needs a dental technician who is well trained in using all these new digital technologies; it is not easy for anyone to use these new digital technologies for the first time. One needs a great deal of training to fabricate a final restoration that is precise, predictable and of the same quality as that achieved via traditional protocols and craftsmen technicians. Software can help the clinician, the technician and the patient, but on its own cannot solve the problem; one still needs a skilled person behind the machines to tell them what to do.

Dr A. Agnini: The machine does not know what to do; it cannot look at a restoration and see where we need more support, or whether a molar needs to be done this way or another way. We need a person with the skills, knowledge and training to decide how to shape this framework if we are to achieve the outcome of long-term predictable restorations.

___But now, a well-trained and knowledgeable technician using CAD/CAM can dramatically improve his or her productivity.

Dr A. Agnini: That is true, one advantage of CAD/CAM is one can speed up production. Another advantage for the dental technician is that one can reduce the variables without reducing the quality. The third advantage is that it can level the playing field between technicians and make standards more homogeneous. Before, especially for large restorations, the technicians’ skill with their hands was
crucial in producing high-quality restorations, but with new technologies perhaps technicians who are less skilled in traditional manual manufacturing techniques can produce high-quality restorations.

While everyone agrees that digital dentistry is the way of the future, there does seem to be one area where not everyone agrees. Everyone agrees that the first two steps of the process, that is the acquisition of data via some form of scanning and CAD, are essential, but when it comes to the CAM component, there seems to be a divergence of opinions.

One of the other speakers at IDEM Singapore, Mr Rik Jacobs, seems to think that 3-D printing can already cope with most laboratory manufacturing and, once the latest biologically compatible materials currently being developed have been tested and approved, 3-D printing will be able to do everything, including implants. Do you see that happening or do you think precision milling will be with us for many years to come?

Dr A. Agnini: We do not have much experience with 3-D printing machines. For sure, they will one day revolutionise the future of dentistry, but right now I do not think they can match the precision achieved by milling machines. For the time being, I think milling machines are a gold standard that will be difficult to surpass.

As scanning and CAD/CAM technologies, and especially the software that links the three stages, improve, do you think more dentists or at least the larger dental practices will start to do more manufacturing in-house rather than using external laboratories? And if that is the case, what can laboratories and technicians do to retain their customers?

Dr A. M. Agnini: The in-house milling process is a hot topic nowadays in dentistry. Everything has to begin and end with the quality of the final restoration in mind, and that will always have to be the deciding factor. Today, the clinician has the option of organising his or her work as he or she prefers, but doing everything by himself or herself, is in our opinion, something that is not convenient or practical.

It is a different matter if the clinician has in his or her clinic a well-trained dental team who can manage the digital workflow from beginning to end. Such a team would have to include an expert dental technician devoted to studying and mastering all of the latest digital possibilities. Only this way can this quality be achieved and the clinician be satisfied from a business and economic standpoint.

Another solution is to team up with an external expert laboratory that can design, customise and produce the prosthetic elements. This way, one does not have to invest in the initial start-up costs involved in setting up a dental laboratory.

In summary, on the one hand, the craftsmanship of the dental technician cannot be replaced by digital dentistry; it will still be necessary to work with someone in-house or externally who is capable and up-to-date with the technology. On the other hand, if the dental laboratories want to keep themselves in business, they have to incorporate the latest digital solutions into their practice, understand and invest in them, and work out how to make the most of them. It is the only way dental laboratories will survive this digital dentistry era.

The buzzwords at this year's IDEM Singapore were definitely "CAD/CAM" and "3-D printing", but what do you predict the buzzwords will be in 2018?

Dr A. Agnini: I think in 2018 the buzzword will be "full digital workflow", meaning a completely predictable digital process, and "full-arch rehabilitation". Today, it is still too early to manage complex cases with the intra-oral scanner; the average error is still too large.