

Never waste a good crisis: Resilient health professions education

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This quote is attributed to Nicolo Machiavelli, an Italian Renaissance political philosopher. And it may sound reasonable, but at a time where the Covid-19 pandemic is still very active around the world it is also callous to think of a crisis as an opportunity. We want to acknowledge this and we want to send our deepest sympathy to all those who have been personally affected by this pandemic.

Nevertheless, it is also fair to say that in many places in the world the pandemic has served as a catalyst for changes in a variety of human domains—not in the least in health professions education. When we say catalyst, we use the word very purposefully, because there are many developments that were already taking place prior to 2020 and which have already produced quite disruptive changes in society. This crisis is a catalyst, therefore, in the sense that it has heightened the awareness that such fundamental changes will be very soon have an impact on the way we educate future health professionals.

We could easily fill 20 thematic issues with examples of how medical schools around the world have rapidly adapted their educational processes to allow them to continue whilst complying with Covid-19 related restrictions. These changes were necessary and often quite successful. However, it also has to be stated that they were often merely the proverbial Plan B rather than really fundamental innovations. And while Plan B is a good solution for the short term it also has to be a steppingstone for more fundamental innovations. In other words, our attention should not only focus on ‘what were the changes and how were they made, but also ‘why did the changes take place and in what ways can they improve education’.

So, let us quickly reflect on what are these changes that are taking place in the world around us and conjecture about what they could mean for health professions education. Not surprisingly, many of these changes have to do with the rapid development in information and communication technology. These have opened up completely new ways of dealing with the important aspects of society and those in health professions education.

The first example concerns the way we conceptualise knowledge. This is quite different to what it was 50 years ago. Fifty years ago, knowledge was typically seen as the possession of the experts, and out of altruism or for a tuition fee, the expert was willing to share their knowledge with the learner. The typical business equivalent of this was the traditional encyclopaedia. In an encyclopaedia the knowledge of the group of experts is laid down and sold to clients. Nowadays, in contrast, knowledge/information is seen as something that can or even must be constructed collaboratively, by a community of people each adding small pieces to the whole ‘puzzle’. Such a re-conceptualisation has found its crystallisation in wikis, with Wikipedia as the most well-known example. There was a time when businesses tried to put the traditional encyclopaedia on a CD-ROM and made it more feasible to use. However, an encyclopaedia on a CD-ROM is just still a

traditional encyclopaedia, just a technical delivery differs. Needless to state that this wasn't a profitable business development; it wasn't a real innovation but rather a sort of Plan B. It is therefore, plausible to assume that online lectures are a similar form of Plan B in health professions education.

Another important development concerns the way we manage trust. From a society that has institutionalised trust we are gradually moving into a society that relies on distributed trust (Botsman, 2017). In an institutionalised trust society, important transactions and the trust in those transactions are managed by a trusted institution. For example, we transfer large sums of money preferably via a bank, we negotiate house sales through a conveyancer, and so on. Many of these still exist, but increasingly trust is distributed. Previously, if you wanted to go out for fine dining and spend a lot of money on a fancy restaurant, you could consult the Michelin guide. In fact, this means that you 'outsourced' your trust in finding a good quality restaurant to a trusted organisation. Most people no longer used this guide; they just go online and read the long list of customer reviews and evaluate the way the restaurant has dealt with the reviews. This is an example of distributed trust, as a community with direct experience we collectively construct 'quality'. Our universities still operate as trusted institutions, they provide the transaction–education–and the trust and transaction–academic degrees–in one. Of course, recognition of prior learning are early steps to disconnect the educational transaction from the management of trust, but there is still a long way to go.

For instance, in order to organise recognition of prior learning and the disentanglement of trust and transaction effectively, there is a need of a trusted dossier/portfolio that can be managed across educational phases and by different stakeholders in a fully authenticated way. Open ledger or block chain technology is very likely able to provide such systems, although much may still be under development (Mikroyannidis et al., 2018, June). It is not a huge leap of faith to imagine what this would mean for future employers. Instead of having to trust an academic transcript with only a few numbers or grades and with seals and signatures, an employer would have the opportunity to 'interrogate' an applicant's whole dossier of learning, improvement and achievements. Such developments are likely to also severely disrupt the way accreditation works and probably influence how learners engage in more meaningful way to achieve competence in health professions education.

For the learner this means that they would easily be able to fill such a portfolio with a combination of course material, micro credentialing and elements obtained from the cognitive surplus (Shirky, 2010). 'Cognitive surplus' refers to the fact that, increasingly, knowledge is provided or shared for free in the Internet. The probably most well-known example of this is the Khan Academy (Khan Academy, n.d.). Tuition and learning that were previously only available to fee-paying students, is now available for free. Of course, not all that is offered in the cognitive surplus is of high quality and there is a challenge for learners to distinguish between offerings of poor and of good quality, but it does mean that most modern learners are increasingly used and expecting to be able to access knowledge for free or for a negligible fee. This will place an increasing burden on universities to demonstrate their added value to a fee-paying student's learning, including in instilling students' ability to critically think and reflect on the abundant information they can access freely. One could argue that the higher education industry is still highly regulated in most countries and the only way to achieve a credible degree in the health professions is by going through a university. Such industry which has to rely purely on a regulatory framework is vulnerable.

Finally, the development that most people are talking about are artificial intelligence and machine learning. It is very difficult to predict what the future will hold, but it is likely that artificial intelligence and machine learning will significantly augment or even substitute what currently is most doctors' specific expertise; making a diagnosis and deciding on therapeutic management plans. The former is generally a categorisation task, something at which artificial intelligence is becoming better and better. The latter is becoming ever more patient specific, especially with the emergence of precision medicine, which will increasingly require decision support systems. This does not automatically mean that patients will not be needing somebody to care for them, to partner with them or to help them make meaning in periods of illness, angst and uncertainty. Obviously, this will require health professionals with more elaborate so-called 'soft' skills which enable them to develop empathetic and professional connections with their patients either for better cure or care.

Such changes to what makes a 'good' doctor will require changes to health professions education. On the one hand, education should equip students with data and technology literacies, but on the other, it should allocate sufficient resources for the development of human literacy (Aoun, 2017). Development of soft skills means the training of doctors who can partner with their patients, who can nurture them and help them make meaning. It also requires students who eventually

will be able to embrace uncertainty and who will be equally comfortable with ‘knowing’ and with ‘not knowing’; which further highlights the importance of creativity and innovations, self-awareness, and lifelong learning skills.

Obviously, there are implications for health professions education. Firstly, a purely transactional process of passing on knowledge may not need to take a central role in a curriculum. The traditional lecture was an educational ‘technology’ that was designed to cater to students who did not have access to books. The lecturer, the reader, read the knowledge to the students who either were able to write it down or had to memorise it. The purely transactional process of passing on knowledge should no longer have a central role in the learning process, and it has implications for assessment as well. The assessment arm of it is the typical structured and standardised knowledge test in which the candidates reproduce the knowledge that they’ve been provided with. This no longer seems current nor relevant one of which because of a lot of changes and uncertainties this pandemic has taught us. Modern students, through their laptops, tablets or smart phones, have accesses to a whole world of information. This is quite recent because even in the early days of problem-based learning, the university had control over the quality of the resources students could use for their learning. Nowadays, there is a whole Internet of information—some relevant and some absolutely incorrect nonsense—that is absolutely not under the control of the University. It is under the control of the students, though, and they will use that information. In order to manage this huge affordance educationally, changes will have to be made to develop curricula that incorporate both the formal and informal educational spaces. To successfully combine those spaces, curricula may have to give more room to students and teachers to develop a dialogue in such a positive relationship that it better facilitates students’ critical thinking and professional identity formation.

Such changes cannot happen in an educational context in which the students are not allowed or supported to exhibit agency over their own learning, and as a consequence, over their own assessment. But changing this organisational mindset culture is probably the biggest challenge ahead of us. It requires a culture shift from distrust and control to one of trust and empowerment. Thinking about trust and empowerment is not idealism but we think it is pure necessity. The dramatic events in the world of online proctoring are a clear demonstration that the choice to go further down the pathway of distrust and control has not been the best use of what technology affords.

Furthermore, trust and empowerment are not only needed during training but also after graduation. Where in our time as students it could still be reasonably expected that upon graduation we were equipped with all the knowledge, skills, problem-solving ability and attitudes to last us for the rest of our career—bar some updating through Continuing Medical Education (CME)—it is now clear that the world, the healthcare environment and the expectations of patients are changing rapidly. No longer can we assume that upon graduation our students will be a complete ‘product’. Instead, they will have to continue to learn, to develop and probably to reinvent themselves continually. But if we as universities have never empowered them or allowed them to take agency over their own learning and assessment, it is implausible that our graduates would suddenly and magically be capable to do this after graduation. The implication for assessment is obvious. The notion of single moment assessments of final examinations is not in alignment with these views. Assessment will have to take on a more longitudinal and integrated form to be aligned with more than educational processes and the lifelong learning requirements.

A final point relates to the so-called affordances modern students have (Friedman & Friedman, 2008). There are several listed in the literature, but some are most pertinent in the short run. Through their laptops, tablets or smart phones, students are able to be in multiple communities and entertain multiple communications at the same time. They can be in a practical session working with one group of peers, but also texting to other members of the student cohort or more general friends about what they currently learning or even about completely unrelated issues. There are numerous examples of Information and Communications Technology (ICT) afforded learners—or academics for that matter—who entertain to communications with two communities at the same time. Everyone who has been in an online meeting and has used the chat function at the same time, has had experience with this. Of course, this rapid switching between communities and communications, this time slicing, comes at the expense of cognitive load, but it can also be used in a very enriching way for learning. The same applies to collaborations. Any student who is a tutorial group or even in a lecture hall and accesses the cognitive surplus or Wikipedia is in fact in two knowledge creation collaboratives at the same time.

Unfortunately, our students are not yet very well experienced in how to use these affordances well, but also most educational designers or curriculum developers are not able to incorporate them and take maximum advantage of what they enable the learner to do.

The challenge that lies ahead of us is to bring these developments to health professions education. One ramification is already inevitable, ICT in most contexts has dramatically reduced power asymmetries. In the example of the restaurant and the reviews, any customer now has the power to publicise their experience and restaurant owner would be wise to respond appropriately, in healthcare patients come to the consulting room prepared with Dr Google and whether what they found is relevant or not, they do have knowledge that the doctor will have to deal with, and finally in education students have point of care access to a whole world of information which will make them more equal partners in their education. Students who are well prepared for lectures are able to disagree with their lecturers or even be better informed on details than the lecturer. Universities may need to increase efforts to better engage students and to facilitate their personalised learning needs, as well as to enable more co-creation in knowledge development. Universities that do not acknowledge these changes run the risk of quickly becoming obsolete. But acknowledging this also means better preparation of teachers through more comprehensive faculty development programmes.

However, this editorial is not about doom and gloom or risks, it is about opportunities. All the affordances that are already or could be incorporated in modern health professions education make it possible to educate even better health professionals for the future, who are agile and optimally positioned to an ever-changing healthcare system and align better with their patients. The potential and opportunities are vast. Whether or not these disruptive changes give us those opportunities, will depend both on how we adapt for the short-term needs and how we prepare to embrace substantial and necessary changes in our health professions education for the future.

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