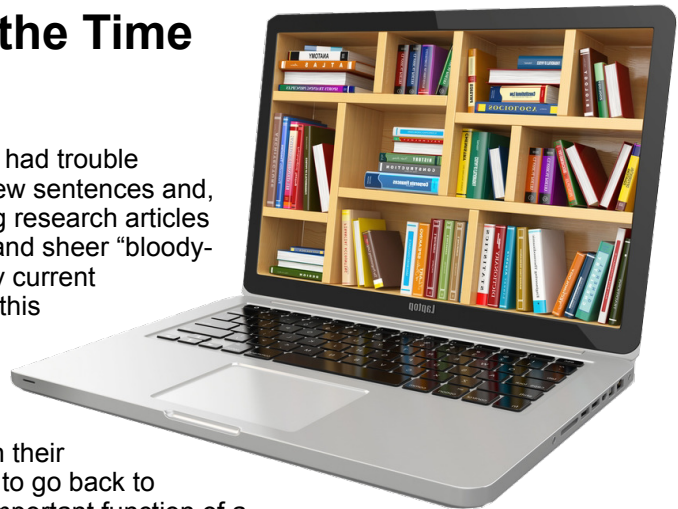


Thoughts on Education in the Time of COVID

Apologies for not “blogging” more often. I’ve always had trouble compressing my random daily thoughts into just a few sentences and, for the past couple of months, I’ve been busy writing research articles and grant proposals. But, through dint of hard work and sheer “bloody-mindedness”, I’ve managed to get a bit ahead of my current work schedule and so carved out time to reactivate this blog.



For the last week or so a big story in the UK seems to have been when children of all ages are going to be freed from their current confinement – in their houses, with (gasp!) their parents – and be allowed to go back to school. Of course, education is arguably the most important function of a society after the safety of its members, so this seems a perfectly legitimate concern. Aside from the knowledge necessary to operate in the world successfully, education provides, for the most part, a safe, wholesome, monitored environment for children during the day. This service allows both parents to be employed outside the home which, for many (most?) families, has long since become an economic necessity. Accordingly, there’s a society-wide economic incentive to reopen the schools.

The third issue of concern in this area has to do with socialization and mental health. Quite aside from the provisions of education and physical environment, schools provide an important social context within which children explore their own personalities, forge social bonds with others and, gain experience in navigating their way through human social environments generally. Whether this latter aspect of school life is as organized and thought through as thoroughly as the topical curriculum, or whether it’s simply the inevitable by-product of gathering large numbers of people in a restricted physical space, is a matter of debate. Certainly aspects of each school’s social environment have been created to serve specific instructional goals (e.g., sports, clubs, student government) while others are wholly self-generated and beyond any conceivably positive educational remit (e.g., bullying, verbal aggression, stigmatization, social factionalization, exam apprehension, occasional instances of assault). That aspects of the latter appear to have made their way readily into the social-media counterpart of scholastic culture is a matter of pressing social concern. But in this essay I’d like to focus on the educational issue and consider three questions: (i.) Is school the location where education takes place? (ii.) Does education have any necessary connection with schoolteachers? (iii.) What lessons about the provision of education should we take away from the COVID-19 pandemic.

Is school the location where education takes place? If I asked the question a little differently (e.g., What is the location where education takes place?) probably I could extract the response “school” from many readers. But is this really the correct answer? Yes, school is the place where we are sent to be “educated”; usually as children, but occasionally well into adulthood. Yes, aspects of our education take place while we are physically in the school building. But is this a necessary, cause-effect relation? Indeed, is it even a healthy relation? Do we benefit, as a society, from promoting the idea that school is the only, or even the primary, place where we receive education? I think not.

First, what is “education”. Of course, there are many definitions. Biologically education tied necessarily to memory and, without getting into the biophysics of memory (which is poorly understood, regardless), it’s safe to say that memorization can and does take place anywhere, anytime, as a response to a wide variety of stimuli. Naturally, education is more than memorization. At the very least it involves recalling previous experiences and deciding how to respond to both similar and novel situations. But try doing that without a well-stocked memory!

Memory, and so education, has nothing to do with school either as a building or as a concept, as is illustrated by colloquial phrases such as the “school of hard knocks” and “street smarts”. Memory comes from experience and experience can happen anywhere. Schools are associated with education because they are designed and organized to provide students with the experiences required by the state for them to incorporate certain sorts of information into their memories. But schools do not have a monopoly on the provision of educational experiences.

In order for education to take place students must not only be provided with experience, they must be open and receptive to the experiences being provided. This is often where the school environment inhibits education for many students. As any visit to an actual classroom will show, even where the teachers are particularly knowledgeable and talented, most schools are rife with distractions that take students away from their lessons. These distractions come in many forms; some from the school’s physical environment and

facilities, some from students' close associates (incl. teachers), some from the students' homes and families, some from the communities in which the students live. Some distractions can be compensated for within the school environment (e.g., uniform dress codes, free meals, health care, good counseling). Many cannot. They are simply part of life.

This fact isn't emphasized in the scholastic environments of most schools. Neither is it emphasized that, over time, schools have been lumbered with a wide variety of social, medical and psychological responsibilities they were never designed to meet, largely because the family and community-centered institutions that provided these services previously have been allowed to atrophy. Naturally, the level of interference these extra-educational aspects of the school environment have on the educational core has become even more problematic as the student body has become ever more diverse culturally, religiously, ethnically, politically and economically. As a result, school — and so the educational role with which it's most closely associated — has come to be regarded as an increasingly remote and intrusive factor in many students' lives; as if it represents something that must be endured for a specified time despite the fact that the popular culture signals copiously that the distractions from school work are much more valued than the school work itself. This "Swiss Army knife" concept of what schools are supposed to be for has, in many cases, undermined their educational roles to the point where students have bought-in to the idea that, like it or not, schools are places where they are force-fed "education" that has little or nothing to do with their actual lives, aspirations or personal interests. As a result, progress towards these, more personal, goals must be deferred until graduation: the time at which students will have achieved "immunity" from education and need not repeat the treatment. To recall the words a particularly trenchant social critic from my own school days,

"It's almost like college was invented by Madison Avenue so that after you've gone for a certain number of years and spent a certain amount of money on products which they're helping to sell to you, you'll get a piece of paper that says you're educated."

"If you want to be educated go to the library."

- Frank Zappa

The standard attitude toward education, adhered to by most schools, is that its purpose is to prepare you to find employment; as if employment is the outcome, and the proof, of being educated. There's nothing wrong with employment, of course. It's just that employment, like school, has little or nothing to do with being educated.

There is a general correlation between level of educational attainment and income. This correlation is why many politicians advocate increasing the time spent in school-sponsored training by their young constituents. However, as correlations go, this one is not all that remarkable, especially at the top where income level is also correlated with a number of other, decidedly non-education-related, factors. Today, many people who have remained in educational programs into their late 20s and 30s struggle to find employment and settle into jobs that not only make little use of the information and/or skills they have gained through their education, but that force them to undergo economic and emotional privation as they struggle to repay the debts incurred as a result of their decision to pursue advanced education. This burden often continues well into their adult lives.

The "get a job" argument also falls particularly flat when made to secondary school students who (naturally) have little idea what they want to do with their lives and so what they should study to achieve that goal. Indeed, it's an argument that makes a lot more sense to the student's parents, who need to provide for their families, than to students who, for the most part, are shielded from such responsibilities. But since it is the students — not their parents — who need to make the effort to become educated, this motivational discrepancy constitutes a serious conceptual failing in how educational systems present themselves to their actual consumers.

Leaving aside the issues of what education is and why it is desirable, the simple fact is that education takes place in the mind of the person being educated and so has nothing to do with where that mind happens to be located physically. Of course education can take place in a school. But it also can take place in the home. Or in the workplace. Or in the pub. Or at a party. Or walking down the street. Or looking at the stars. Education can take place anywhere. Most importantly, for those who are educated properly, it tends to take place everywhere and at all times.

Throughout our lives we are all confronted with problems to solve based on the understanding we have gained previously and in the hope that the decisions we make will turn out well for ourselves and those we care about. The learning we achieve from having made those decisions, and discovering what consequences result, are no different from the far more abstract and controlled lessons we are provided with in classrooms. Curiously, the latter is referred to as "education" whereas the former is referred to as "life"; as if the two are different. They are not. They are the same. The only difference is that, in the case of education, someone else has determined what needs to be learned, why, when and how whereas, in the case of life,

once a student has reached a certain age those determinations are made by the person being educated. Given the profound, though to my mind false, distinction that is made between the other-directed education that is done in school and the self-directed learning we all engage in all the time, is it any wonder that “education” gets a bad rap.

Most people find being told what to do by others day-in and day-out difficult to accept. But those same people are intensively invested in their personal interests, many of which are regarded as having nothing whatsoever to do with what we term “education” or “school”, but all of which they are extremely well-motivated to pursue. By erecting a false conceptual distinction between these spheres of human activity – by defining “education” as those activities that take place in a school and “personal interests” (for many) as those that take place outside of school – have we not erected, both for our children and for ourselves, a substantial impediment to achieving the very result we desire: to become knowledgeable, to understand the connections between different types of activities, to make progress toward the realization of our personal goals based on correct understanding, to learn correct lessons from our mistakes, to become educated?

Conclusion 1: Education can take place in schools, but in reality it can take place anywhere. Moreover, the scholastic environment often makes the process of education difficult for many students because of its inherent artificiality.

And what of teachers? Many will say that education must be delivered by teachers who are qualified, certified, and skilled in delivering their parts of a curriculum that has been devised by specialists and whose goal is to “make” students “fit to be productive members of society”. What does any of this mean? Is there any indication it has delivered the objectives it espouses? Teachers of history certainly need to have a knowledge of history. But do they need to be historians? Teachers of English certainly need to have a knowledge of English language and literature. But do they need to be writers or poets? Teachers of biology certainly need to have a knowledge of zoology, botany, anatomy, ecology, taxonomy etc. But do they need to be zoologists, botanists, anatomists, ecologists, or taxonomists, especially if they are teaching primary or secondary-school, pupils?

When I was a high school teacher in small and relatively poor community outside Dallas, Texas, the Head of the Science Department, who was a very experienced and effective teacher, once told me, “A good teacher is someone who knows their subject, but a great teacher is someone who also knows their students.”. In terms of achieving true education, these two aspect of the process – to know the subject *and* the person being taught – are inseparable. Of the two, knowing the student is almost always much more important than having a detailed knowledge of subject.

If education is the transmission of knowledge and its preservation in memory, that transmission can be enhanced immeasurably, and made more efficient, through the actions of another person. But it does not require a teacher; at least not a teacher in the sense most schools understand teachers to be.

Obviously, knowledge can be gained through doing. We have all gained knowledge in this way. No teacher was involved. We all have gained knowledge from our parents and other family members, our friends, our work associates, those who have visited us, those we have visited, and those who we have interacted with in a wide variety of contexts. We might say we have learned from these individuals or that they have “taught” us certain things. But they are not regarded as having been our teachers in the scholastic sense of that term. We all have, of course, also be taught formally by schoolteachers in school settings. But think back to the schoolteachers who have influenced you most. Were they just schoolteachers; people who were qualified, certified, and skilled in delivering their parts of a curriculum? Or were they people who transcended those bare-bones requirements and managed to make a personal connection with you; one which resulted in you being more receptive to the information they were providing than would have been the case otherwise? Think how your life might have been different if those people had not made the effort to take an interest in you, or if those connections had not been made. I know mine would have been very different.

These people channel and give structure to our lives in the same way our family and friends do. In fortunate cases they become friends and we regard them has members of our informal extended families. But my point is that the educational experiences that matter most to us, and to our lives, are not delivered only, or even primarily, by those who are merely qualified and certified in delivering their parts of a formal school curriculum and who do what they do to make us fit to be productive members of society. Genuinely being involved in the education of another goes well beyond this.

Conclusion 2: We are taught by many people, only some of whom are schoolteachers.

The false equation of education taking place only, or even primarily, in schools and in the presence of schoolteachers has, and will continue to have, a particularly pernicious effect on all of us as we attempt to make our way in an increasingly technological world. Either directly or indirectly, advances in technology have been an increasingly important driver of the global economy since the industrial revolution. Even since

World War II they have been the primary driver. Today, of the 50 largest corporations that publish financial summaries (https://en.wikipedia.org/wiki/List_of_largest_companies_by_revenue), all are either technology companies themselves (e.g., Amazon, Apple) or companies heavily invested in, and reliant upon, continual advances in technology to remain competitive (e.g., Walmart, Royal Dutch Shell, British Petroleum).

More importantly, while the pace of technological change has always been much faster than organizational or infrastructural change, this pace has increased markedly over the past 30-40 years. We are all now living in a world where the technical knowledge and skills acquired by current teens and 20-somethings will be of little use when those same individuals are in their 40s and 50s. Yes, people will be the same and jobs that involve the management of people will require many of the same people-management skills taught today in business schools across the world. But people management is a means to some corporate end, not an end in itself. Managers who do not understand the ever-changing technological principles and aspects of the tasks their teams are being asked to perform can hardly be expected to be of much assistance in helping those teams deliver positive outcomes effectively. The exceedingly long list of corporate and governmental projects that have failed recently because the managers, and in some cases the workers themselves, didn't understand the technical and technological complexities of the tasks they were assigned to deliver provides evidence that schools are not providing even the training (much less the education) needed for individuals to cope with our increasingly technological world.

Moreover, the looming presence of artificial intelligence is widely predicted to make substantial inroads into routine corporate tasks at the middle, and even senior, managerial levels. Although it is true that the coming AI and green revolutions will likely create as many new jobs as they displace, these positions won't be filled by those with low levels of technological understanding. The need to embrace life-long learning and learning outside the traditional primary, secondary, and (even) university environments has never been more urgent and will only grow more important over time. Though it doesn't seem to be well understood yet, this change has substantial implications for the process by which we all become educated and maintain our educational edge.

The COVID-19 pandemic has wrought many changes in everyone's lives, not the least by removing direct, physical access to schools and teachers for students, as well as by nullifying many (if not most) of the everyday experiences of life for just about everyone. This is a huge social experiment and one that has been undertaken in a rather sloppy and disorganized manner (e.g., without a control group); not because that was the plan, but because that was necessary to avoid even greater losses of life than our societies have sustained to date. Online education has been a large part of the way we have been required to learn the new skills we needed to cope with life during the course of this experiment; from the formal "remote learning" classes students have been obliged to sit through to the news bulletins and programs we listened to or watched in order to learn what we were allowed to do, and what we have been prohibited from doing. Online learning was not invented over the past year, of course. But prior to the COVID-19 pandemic online education's impact, uptake and recognition of effectiveness was limited in a world where education was still being regarded as something that took place by students going to school physically and being taught by schoolteachers. However, just as, over the past year, we have all learned that, for many of us, commuting from our residences to our offices was actually not a necessary requirement for "going to work", and just as we learned that attending a meeting or a conference did not necessarily mean leaving our houses, being taught, even by schoolteachers, can no longer be regarded as being synonymous with going to school physically.

Some will see these online activities as temporary stopgaps that enabled us to carry on through a time when it was no longer safe to be in close proximity to each other, either for ourselves or for them. I think this the wrong lesson to learn from the past year's educational experiences. In the same way that social media provided new ways to contact, interact with, and stay close to family, friends, colleagues, online education provides new, more efficient, more diverse and more interesting ways to learn. Indeed, this transition had already become part of many (most?) people's lives even before the COVID-19 pandemic. Think about it. The last time you needed to fix something around the house, did you sign up for a handyman course at the local junior college or community center, or did you go onto YouTube and watch a video? The last time you needed a fact for an e-mail you were writing to a friend or colleague, or a report you were writing for work, did you consult a schoolteacher or reference text written by such a person, or turn to Wikipedia?

The COVID-19 pandemic didn't create the need to do any of these things online, much less the demand for the technology to do so. The latter has been around for decades now. As for the former, that's been around (literally) forever. The pandemic simply showed us how much we could do online in so many ways and provided the incentive for us to acquire the technologies and gain the skills necessary to take these parts of our lives online. Contrary to the opinions of many media pundits, that's not a bad thing. It's a good thing. More importantly, now that we know how much we (ourselves) can do online, that knowledge isn't going to go away. Just as the advent to social media didn't mean we never needed to spend time in physical proximity of our family members, friends and colleagues, online work will not mean we never have to go into the office again. Similarly, the availability of online meetings and educational opportunities will not mean we never have

to attend conferences or set foot inside a classroom again. These technologies never can, and never will, replace any of the wide variety of human interactions we can have entirely. They merely give us more options and force on us the responsibility to make appropriate decisions regarding when and how to use these technologies.

And therein lies the rub. Before we didn't need to decide where to live, it was decided for us by our employer's location. We didn't need to decide where to be during a conference we wanted to attend, it was decided for us by the conference organizer(s). Now we have the ability not only to decide what we want to learn about and when, but from whom, irrespective of either their, or our, physical locations. This seems to me to be an incredibly exciting advance. We may, of course, need to acquire the technologies and the skills necessary to benefit from the decisions we can now make in this area. But as we have seen during this pandemic, these technologies are not expensive and the skills required to gain access to the resources, while occasionally counter-intuitive, not overly complex. Most importantly (to me) the existence of these technologies has returned the decision about what to study, how, when and where, to where it always needed to be; to each and every one of us.

Conclusion 3: The future is uncertain by its very nature. To a much greater extent than most people realize, we create our own futures by the choices we make. Communications technology has greatly expanded those choices in the context of education and given each of us much more control over the education we can obtain than any group of humans has ever had in the past. The COVID-19 pandemic has shown us how much we can do with the tools already available, as well as where new developments in this area can (and will) be made. To the extent that any good can be said to have come out of the COVID-19 pandemic, the fact that we now know we can use online technologies, not to replace the educational experiences we had access to before, but to enhance, diversify, focus, and offer alternatives to them, fits that bill rather well so far as I can see. Most importantly, the pandemic has emphasized that, instead of someone else being in control of what, how, why when and where we learn, it's clear that control is now where it actually always has been, with each of us.

What will you do with your education and who will you select to be your guide(s)? It's an age-old question, but one that has never been more pertinent, more open, or more important.

Norman MacLeod

School of Earth Sciences and Engineering
Nanjing University
Nanjing, China, 210023

16 February 2021