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On reflection: the lessons of online learning

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The last few months have seen a great deal of what we had formerly taken for granted rendered unusually complicated and challenging. This has led to feelings of anxiety, frustration and in some cases, sadly, even despair, as people have been forced to adapt to unwelcome changes which they were powerless to do anything about. Disruption of norms can, however, also go hand in hand with meaningful reflection and perhaps even creative reimagining of the way we see the world. How much has been discovered, initiated or meaningfully developed precisely because of the environment in which we have all found ourselves?

The operation and function of schools, and indeed of education in general, has inevitably been through various kinds of critical evaluation. Consensus is, almost certainly, that remote teaching and learning can never replace the value and efficacy of everyday face to face interaction – both in the classroom and around the school campus. However, there are undoubtedly things we have learned, or been forced to learn, about the nature of teaching and learning, and some of them might potentially inform positively whatever 'normal' life in school comes to mean from now on.

Teaching content

Inevitably, we have all had to consider ways in which the content of our various subjects is best delivered through unfamiliar means. For quite some time, most, if not all teachers, have been comfortable with uploading course material, setting tasks and providing feedback on assignments submitted online. In addition, we have become used to hosting live classrooms through the use of Teams and finding ways to generate group interaction. But how do we actually teach things when we are not in the classroom? How do we describe and explain things effectively when the essential ingredient of immediate face to face interaction is removed? Any class size larger than around ten has proven very difficult to maintain in a live capacity, and without continuous physical feedback from students about whether or to what extent they are learning the material, it is hard to make judgments and to adjust pitch or pace as we go along. Partly for this reason, teachers have resorted to front loading lessons by making written, audio or video material that delivers rigorous content but allows students to work through it at their own pace. Some have then used time during an allocated lesson to invite
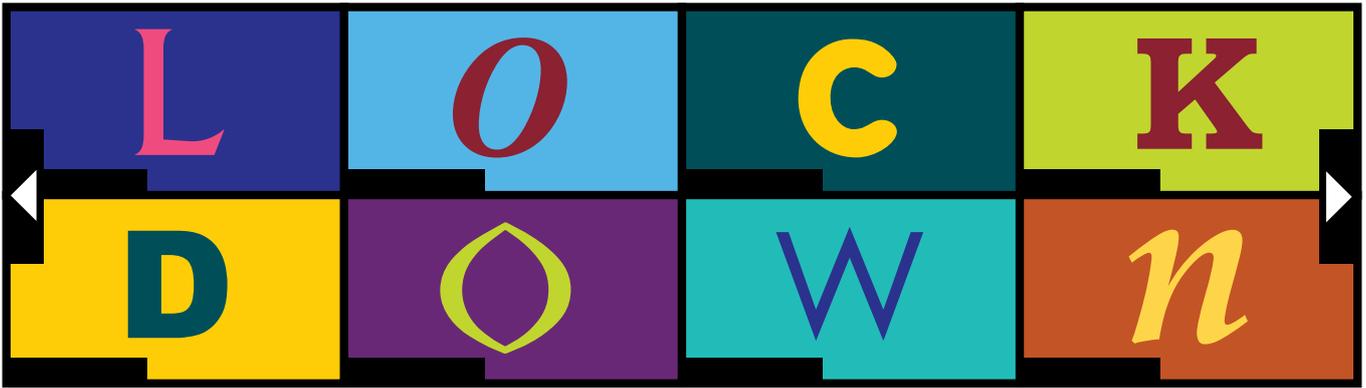
students to offer feedback – whether about the nature of a live lesson, material they have been working through, or more general features of their approach to learning.

Furthermore, the nature of the relationship between live and non-live lessons has necessitated careful thinking about the volume of subject content and the speed at which it can be taught. For some this has resulted in more nuanced, detailed or thoughtful dissection of material than might happen typically. Breaking things down into their component parts and practising them in isolation reduces cognitive load and encourages critical thinking about the relationship between parts and the whole (Christodoulou, 2020). It has also meant rethinking the way in which different units or topics are best presented. It may come as a surprise, but not teaching topics in blocks and in sequence has been shown to result in better long-term retention (Firth, Rivers & Boyle, 2019). In practice this means introducing planned intervals to the teaching of particular units, or actually interleaving them. This practice is an example of what has become known as a 'desirable difficulty' (Bjork and Bjork 2014). Remote learning can afford teachers opportunity to nurture learning in this way, at least in part because the relationship between participation in live lessons and completing independent work has inevitably undergone revision.

Assignments teachers have set, which enable them to assess how well students are learning, have if anything been more varied in this period. Allowing students to select from a range of learning tasks has facilitated an element of choice on their part, and this has in turn nurtured independent engagement in the material. The most extreme examples of this approach were demonstrated in the Year 11 projects. Being given opportunity to write an original play, imagine the nature of the cosmos in 100,000 years or explain the complex secrets of cryptography has perhaps reminded us of the power and reach of independent curiosity in the world. We remain 'constrained' by the content of examination syllabi, but where opportunity presents

itself for students to develop and to demonstrate their own interest in subject content, whether or not directly connected to the syllabus, it seems remiss not to take advantage of it. This does not mean 'project based' learning, whose effectiveness has (probably rightfully) been brought into serious doubt (Kirschner, Sweller & Clark, 2006); it does mean teaching students skills associated with research, interdisciplinary thinking, presentation and collaboration in connection with a topic they simply want to know more about.

Self-regulated learning

Research provides a great deal of support for a correlation between the development of a reflective capacity and improved student outcomes (Education Endowment Foundation, 2018). Perhaps surprisingly, online learning can help significantly with this. During the lockdown, our Head of Art, Charley Openshaw led 'slow looking' classes in which participants were asked to make drawings in response to particular details from various paintings. The exercises were in themselves hugely enjoyable, but one of the most striking elements was the way he vocalised his thoughts as he performed each one. In this vein, screencasts that demonstrate the practice of 'thinking aloud' have been particularly effective. Whether using software such as Explain Everything (explaineverything.com) or simply recording voice over a PowerPoint in order to present worked examples, outcomes are substantially improved when learning is broken down and details interrogated metacognitively, a process which is facilitated through the use of non-live technology (Badger et al, 2019). It is also apparent that being able to pause a screencast, make notes and check for understanding means that students can self-assess and self-reflect on how they are doing, or feel they are doing, as they go along.

Technology can support the development of a reflective narrative in different ways. We are all very familiar with the value of testing, for example, as a means to help transfer content from short into long term memory, and to provide us with information about student understanding, so that we can adjust our teaching

accordingly. Self-testing and retrieval practice should ideally happen in an ongoing way as an essential component of continuous review and revision. Very few students engage voluntarily in this practice but frequent, self-directed use of programs such as Quizlet, Anki or Brainscape could mean that students develop self-assessment practice more naturally or regularly than they might typically – not least because they are efficient, effective – and dare I say it, enjoyable.

As stated above, learning how to learn - in its most essential sense, has been foregrounded more than ever by the online environment. Students (and their teachers) have quickly discovered how capable they are in a self-regulation capacity. Some have thrived, others have struggled – but whether a matter of time management, completing assignments, making written or verbal contributions to the class or asking for help, problems have been as, if not more, noticeable and interventions have happened very quickly to provide support. On this last point, interestingly, empirical evidence has come through that some students who typically seem disengaged in normal lessons, or who struggle with issues associated with anxiety and confidence, have been helped by the switch to learning online. Perhaps the degree of anonymity has had an impact, or simply being removed from class dynamics that can sometimes hamper independent contributions when the voices of the few predominate.

Where do we go from here?

In time, as technology continues to develop – and if we find ourselves returning to distance learning at some future point, it might well be that new and effective approaches to teaching, which as yet are either practically too difficult - or perhaps even unimaginable, come into being. The development of 'adaptive platforms', already used by subjects such as maths and languages, which present material to students in a manner that continuously self-adjusts based on the responses they make and the levels of knowledge or understanding they accordingly demonstrate, is an example of an innovative direction in which things might increasingly go. Websites such as diagnosticquestions.com, for example, illustrate ways in which technology can be used not just to assess what students know, but the reasons why they don't, and automatically provide teaching material to address their misconceptions. Whether we like the idea or not, the more sophisticated and effective learning algorithms become, the more likely their presence will be felt, certainly in support of home learning.

Creative use of technology and imaginative thinking about teaching and learning in this very new way has enabled teachers to replicate a classroom experience online most successfully by transforming the classroom experience rather than seeking to replicate it. For me, there remains a key difference in the facility that technology gives us in the classroom (and like a pen and a piece of paper, it can be used both effectively and ineffectively) and its enforced use when teaching and learning from home. However, it now feels almost self-evident to say that we have much to learn from recent experience – certainly in support of future iterations of lockdown learning, but also in a face to face classroom context.

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