MASTERCLASS SPEAKER SERIES PUBLIC LECTURE 2017

HIGHER EDUCATION IN THE DIGITAL WORLD: MAXIMIZING OPPORTUNITIES AND MINIMIZING THREATS

Written by Dean Tin Shuen Yew (NUS Faculty of Science, Year 3) and Ng Cheng Cheng

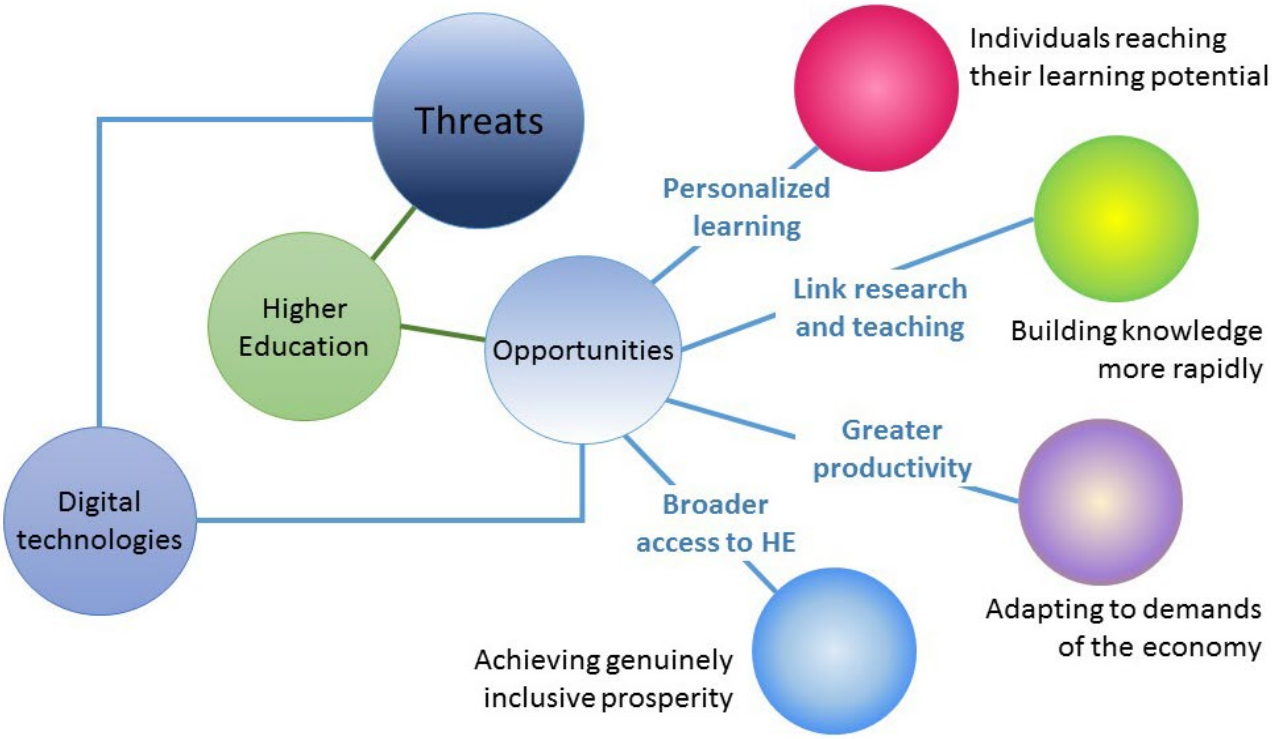
On 12 September 2017, Professor Diana Laurillard took to the stage at the National University of Singapore to share insights and thoughts on the threats as well as opportunities that the Digital World offers to Higher Education. Often hypothesized to diminish the relevance of traditional higher education institutions by making knowledge more accessible through innovative technologies, the private sector has not overtaken and replaced the knowledge industry thus far, as previous approaches had viewed education as a mass-knowledge-delivery industry from which people could pick and choose what they wished. This runs counter to the goals of traditional higher education to develop individual minds, which requires personalized relationships and understanding of students, their ambitions, and ways to help them achieve. Nonetheless, the private sector is adept at innovation and investment, and it is thus incumbent on higher education institutions to think through whether and how to enlist the help and technical knowledge of the private sector to develop the learning aids, applications, and online platforms needed to form a truly inclusive, and progressive Higher Education system on a global basis.

To anchor thinking about how best to utilise digital technologies, Prof Laurillard referenced the 1997 Dearing Report on *Higher Education in the learning society*[1] :

[1] *produced by the UK National Committee of Inquiry into Higher Education*

She proposed capitalizing on the opportunities offered by digital technology to achieve more personalized learning, links between research and teaching, greater productivity and broader access to higher education.

For personalised learning, particular types of learning games and tools were suggested for specific groups of students:



- To stretch top achievers – games requiring the application of concepts to complex situations e.g. NASA's Mystery Asteroid game on http://nasawavelength.org/
- To push students who can do better – learning analytics tools to provide feedback in relation to others e.g. University of Maryland Baltimore County's Check My Activity that allows learners to compare their own level of activity against an anonymous summary of course peers https://blog.blackboard.com/student-facing-learning-analytics-self-regulated-learning/
- To help students with learning disabilities – specialized software designed with meaningful feedback and increasing levels of difficulty to improve and establish conceptual learning e.g. like "NumberBeads" which allowed for students with dyscalculia to successfully understand the relationships between numbers on a self-regulated basis, learning at their own pace.
- To motivate students who repeatedly fail – tools to spur them on through positive reinforcement in the form of incentives and rewards for small successes e.g. E-portfolios with digital badges.
- Any other students who can benefit from a mixed learning approach utilizing any/all of the above.

To link research and teaching, Professor Laurillard suggested the institutional use of accessible large online platforms that connect multiple learning and teaching-related resources and tools such as MOOCs, filmed lectures and readings, research profiles, research blogs, online discussions and debates.

For greater productivity, community-oriented software e.g. UCL's The Learning Designer could allow everyone to share the burden of innovation by building on each other's work and experiences through continuously adapting, testing and refining efficient pedagogical models/frameworks, essentially allowing teachers to take on the role of 'design scientists'.

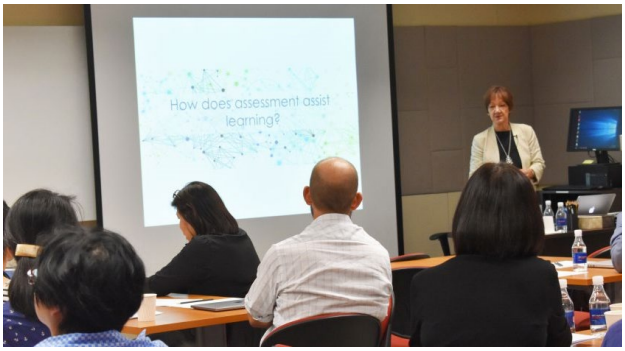
Lastly, with regard to Higher Education's moral imperative to help those who had their access to education disrupted or curtailed (like refugees or those lacking digital skills from emerging economies), a hybrid system was proposed. Whereas traditional Higher Education tends to adopt a fee-paying scheme with enforced selectivity and a formal award system translating to limited enrolment, in contrast to MOOCs which offer open and free courses but lack feedback and a formal award system leading to low completion rates, a hybrid model could be adopted. In such an inclusive 'freemium' model, MOOC courses become readily open to the curious or willing, but include a paid-for certificate system to incentivize users to see the course to completion. Eventually, there can be cascading of learning by the qualified course-completers to local groups. These course-completers and local groups could in turn contribute back to the community's learning by feeding their experiences back to inform research. In this way, they can scale up research co-design in an adaptive network model.

Prof Laurillard acknowledged that the examples mentioned were but a few among many ways in which digital technology could be optimised. Success would be dependent on governmental policies and institutional leadership which understood the nature of higher education, the value and potential of digital technologies, and had the willingness to invest. Only then can higher educators' inventiveness, exploration and experimentation in the use of digital technologies yield opportunities for both practitioners and students.

"Education is critical for building a better world. Digital technology is the means by which we do this on the large scale."

DIGITAL METHODS OF FORMATIVE ASSESSMENT FOR LEARNING

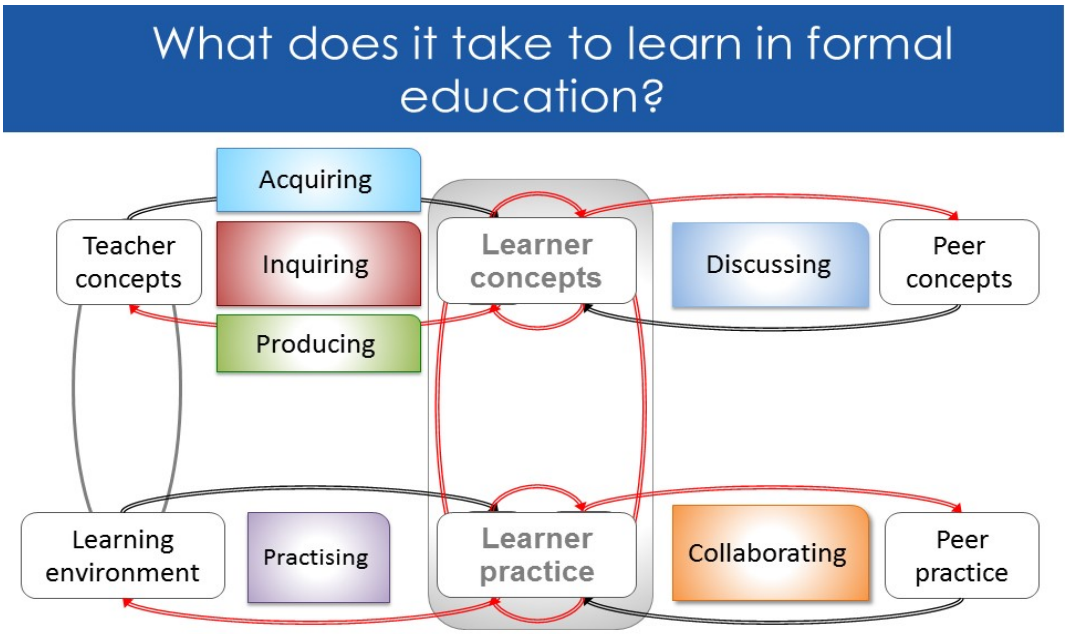
Written by Rebecca Seah Qi Hui, (NUS Faculty of Arts and Social Sciences, Year 3)



How can technology help educators design formative assessments for their students? This was the question that Professor Diana Laurillard addressed during the NUS Teaching Masterclass Workshop held on 14 September 2017. Together with Professor Laurillard, faculty members across the University gathered to discuss the nature and forms of assessment, conventional versus digital methods of assessment and how to provide feedback digitally.

To illustrate the importance of harnessing the potential of digital formative assessments to spur productive learning, Professor Laurillard invited participants to analyse the productive thinking and learning elicited by two different digital methods designed to teach mathematical equations. In NumberBeads, the player puts together sets of beads with different numbers to form required sums whilst in ChoiceBeads, the player chooses between pre-set multiple choice questions (MCQs). It became apparent in the ensuing discussion that conceptual understanding of numbers was more likely to develop when the learning was experiential i.e. when students were allowed to investigate permutations and to achieve goals their own way, rather than being limited to choosing between ready-made options. However, participants also pointed out that developing such digital instruments (which were almost game-like) require much heavier investment.

Positing that assessments determine what students have learnt by focusing on what they can produce, Professor Laurillard introduced the Conversational Framework (Laurillard 2012) as a means whereby to understand both the different kinds of learning in formal education, and the conventional products students can generate from these kinds of learning. (Please see Figures 1 and 2.) She then challenged participants to consider, critically, the digital equivalents of conventional assessment methods.



Ideally, the teacher designs learning sessions that use all these types of learning in the Conversational Framework (Laurillard, 2012)

How teachers and students can assess what they have learned

From learning through:	- what can learners produce?	- or produce with technology?
Acquisition	A summary of a text An essay Answers to comprehension questions	
Inquiry	A report on findings on a topic An analysis of alternative perspectives A new way to explain a concept	
Practice	A solution to a design problem A skilled performance An optimised input	
Discussion	An interesting question A coherent argument A changed point of view	
Collaboration	A joint output for all the above	

Activity 1: Are there conventional methods with no digital equivalent?

After discussion, participants pointed out that in some fields, digital assessments and learning methods have become the norm replacing traditional methods, often because they are able to provide more immediate feedback to students. For example, a Dentistry faculty member shared that students now practice their skills on digital simulations of teeth instead of plastic models, which gives them immediate feedback and allows them to rewind and redo activities. To that, Professor Laurillard added examples of students working on virtual welding models, as well as Art History students tasked to reassemble a digital collage of Picasso's to gain first-hand understanding of Cubist theories. In all these cases, students could test out and apply theories in a hands-on manner within a safe environment, clarifying their understanding of concepts while working on interactive tasks. Such methods hence more fully capitalize on what digital technology enables.

Professor Laurillard then presented the following possible digital assessment methods for faculty to consider designing:

1. Concealed Multiple Choice Question (CMCQ): To circumvent the inadequacy of personalised feedback in automated testing such as multiple-choice questions with limited preconfigured answers, Professor Laurillard introduced the CMCQ approach, where students would type in their own response to the question first. They could then be asked to select, from other students' answers, the answer closest in meaning to their own. This would allow students to be active constructors of meaning and not passive selectors of limiting answers. Although currently functional examples of CMCQ were difficult to find, the CMCQ approach had potential to prompt more proactive student reflection.
2. Vicarious Master Classes: To enable large numbers of students to learn vicariously from a few students' authentic responses in practical activities that are challenging to computerise, small groups of students (who are reasonably representative of the larger student population) could be recorded offering responses and receiving individualized feedback. When posted online, many students could watch such recordings and evaluate other students' responses for themselves and learn from the feedback given.
3. Digitally-assisted Peer Review: To enable students to think through and refine their work, they could be made to read and critique other students' answers after submitting their first

drafts. After they 'graded' other students' answers (which could comprise a range of good and poor drafts chosen by the tutor), they could review and revise their drafts before submitting to tutors for final evaluation. At the end of the exercise, the tutor could summarize the good and bad based on the best and worst answers. In concurrently giving and receiving feedback, students proactively extended and deepened their understanding of difficult concepts. A faculty member from Chemistry also shared that peer review led to an improvement in students' appreciation of both their own and others' competencies. On a larger scale, asking students to rank the best and worst answers could also allow a much larger group of students to go through the same evaluation and self-assessment learning processes.

After participants engaged in group discussions of digital ways to elicit more productive student thinking through required formative assessments, the session was concluded with the reminder that although the magical ingredient in the learning process was still physical presence which could not be replaced, digital approaches still had much potential to supplement traditional ones, and were also essential means for those who could not get their presence known and voices heard in person.

ACTIVITIES DURING MASTERCLASS WEEK 2017

Written by Ng Cheng Cheng

Professor Laurillard interacting with a student during the Open Discussion at Residential College 4

During Masterclass Week 2017, besides meeting Senior Management and Academy Fellows, Professor Diana Laurillard also engaged in numerous discussions with different sections of the NUS community.

On 13 September 2018, the Academy and the Faculty of Engineering hosted an open discussion for faculty on "Enhancing Student Learning in the Digital World". Facilitated by Academy Fellows Professor Seah Kar Heng, Assoc Prof Aaron Danner and Dr Tan Wee Kek, the session attracted faculty from all over NUS who were warmly welcomed by Engineering Vice-Dean, Assoc Prof Yung Lin Yue, Lanry. After sharing on a few blended learning design tools (FutureLearn, UCL's Learning Designer and Course Resource Appraisal Modeller), Prof Laurillard discussed with participants the numerous "innovators' problems" faced by faculty when leveraging on digital technologies. Rather than being merely content providers, faculty dedicated to student learning requi re suff icient skills and institutional support to be designers and authors who direct the learning experience co-created with digital medium experts. Digital technologies should not replace powerful mediums with something less effective but should instead be exploited to "bring" students to where they cannot go without the technology. Faculty have to carefully calibrate between appealing to students and eliciting real learning – in this respect, sometimes the simplest methods may still be the best.

On 15 September 2018, the Academy and Residential College 4 hosted an open discussion on "Optimising Digital Education in Living/Learning programmes". Hall Master Assoc Prof Lakshminarayanan Samavedham, an Academy Fellow, and his team began by introducing all participants to the College's Living/Learning programme with a tour of the residential college. A concern raised was whether digital technologies might interfere with, rather than boost the advantages of the proximity and interdisciplinary possibilities offered by the living/ learning programme. In the ensuing discussion, it was agreed that one of the challenges of interdisciplinary collaborative learning was the need for common linkages and a common vocabulary between collaborators versed in different disciplines. Prof Laurillard suggested that the affordances of digital discussions could be more fully utilised to complement such collaborative learning. For example, asynchronous digital discussions can give students more time to think. The digital medium also provides a "safe environment" in which those who

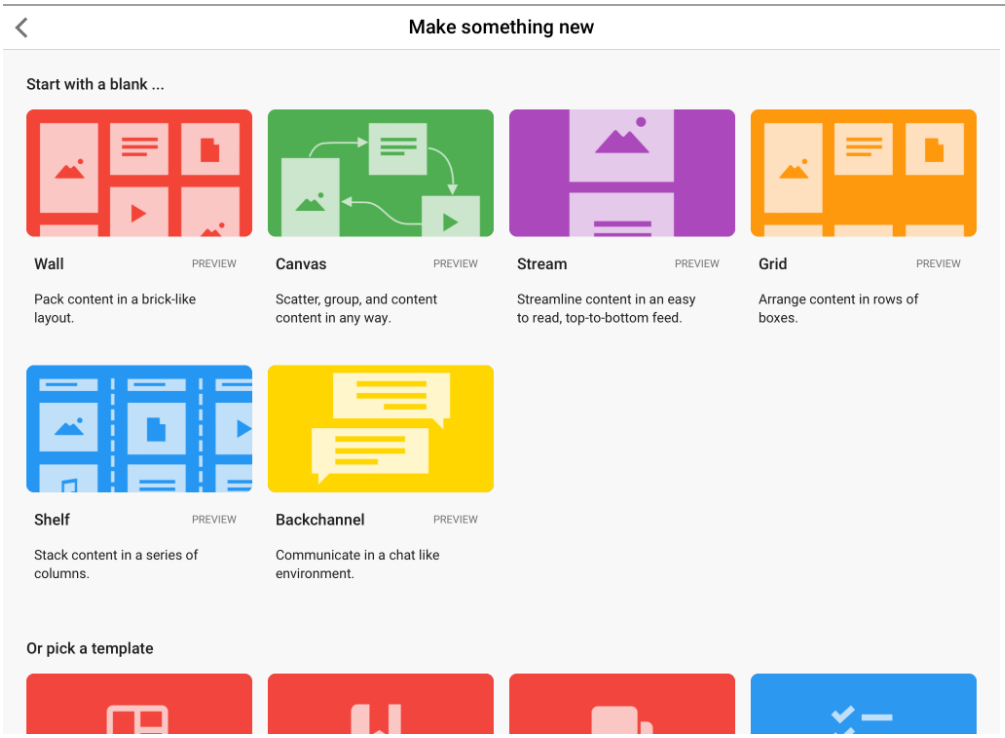
are more apprehensive about face-to-face interactions can find their voice. When these preliminary stages are built in, face-to-face discussions begin from a different base due to the former digital interactions. In the case of interdisciplinary collaborations, it might also be fruitful to consider if the necessary numerous iterations of discussions and terms could be assisted by digital technologies so that mutual understandings and agreements could be derived more efficiently.

The last open discussion at Residential College 4 rounded off an eventful week of activities that included an Academy collaboration with the Ministry of Education's Educational Technology Division (ETD), resulting in Prof Laurillard's MOE workshop on "Using the Conversational Framework for harnessing technology". Fellows invited to the event enabled the Academy to gain understanding of the ETD's Student Learning Space (SLS) Pedagogical Scaffold, "a design tool to guide teachers in deciding on teaching processes for active learning experiences with technology", which incorporated the establishing of learning outcomes, lesson design and assessment.

PADLET

by Dr Susan Ang, Member of the Executive Council (NUS Teaching Academy)

Two new features are being introduced in this newsletter, one a column that reviews any new apps with pedagogical potential, and the other a column written by an alumnus teaching in one of our JCs which will offer a perspective on the young men and women who become our undergraduates, and the kind of teaching that they are being given before they come to us. We welcome any submissions of articles on pedagogical apps for future issues of our newsletter.



Padlet is an app which can be used in the classroom, lecture hall, and for project/group work. It is free, though there are upgrades bundled for schools, businesses, individuals which can be subscribed to; the basic app, however, works very well on its own. It may be accessed and used via computer, tablet and smartphone.

What is Padlet?

Basically, Padlet is a 'wall' which can be projected onto a screen. Those with the link to the padlet can post, and also upload pictures, videos, links, or documents. Changes/updates appear in real time.

What can it be used for?

Students can type questions or make observations during lectures using their devices. The teacher could use it to elicit a range of answers to a question in class. It can be used during seminars for student contributions, out of class for ongoing conversations, or in student groups for project work.

How difficult is it to use?

Quite straightforward for setting up and easy to use.

Setting up:

1. Go to http://www.padlet.com
2. Create an account
3. Click on 'make a padlet'
4. You'll be walked through choice of format and background, e.g.
5. Choose your privacy settings (who can access, whether it's findable online, etc.)
6. Choose a password
7. Send/give the address and password to those you would like to join it.

Using it:

1. Sign in
2. Post/reply
3. As administrator of the padlet, you can delete posts, move them around (e.g. grouping posts) etc.

The Good

1. As an app that works in real time, it's excellent as a quick means of getting a pool of answers from a moderate/large sized class. Because you can 'group answers (depending on how you've set it up – 'canvas' is the best for this) you can pull together answers into 'types' which can be commented on as a group. You can use mouse/finger to drag and drop.

2. My primary use of the padlet has been in seminars, which usually have over 30 students, and insufficient time for extended discussion involving all the class, many of whom are reluctant speakers for one reason or another. The padlet facilitates a few things:

a. It allows those who like formulating their thoughts properly to enter the conversation at any point they wish without the pressure of real time conversation happening too quickly for them. This helps the shyer, quieter student to participate more fully. On that score, it's worked really well in class.

b. Posting can happen at the same time as real time conversation is happening. This means several different ideas can be coming up simultaneously, in addition to videos/pictures/other resources which some students think might be useful for the rest of the class. This, firstly, gets a lot more 'out there' that would be impossible to deal with in normal class time; I think of it as 'spatializing' information in a way that counters the limitations of 'linear' class time. Next, students who still have more to say on point A while the conversation's moved on to point B can still have their say, and it's always possible to return to an earlier point in discussion without any, or only minimal, loss.

c. Students can post in response to posts; this allows students to engage others both during and after class. Much deeper idea development and testing has happened as a result in class.

d. While padlet is usually projected in class, it's still operative on computer or tablet if you sign in, and its use allows me to reply to students whose points I didn't have time to engage during class, or post 'prods' for the next class, or ideas I'm only thinking afterwards. So conversations can continue throughout the week until the next class.

The Bad

1. The slightly sick-making cute-siness of the interface: e.g. the tick box on your profile that allows you to check 'I'm beautiful' or the subtitle which is auto-generated which can be something like 'Made with love' or 'Made with hearts'. Luckily, these are delete-able and you don't need to live with them.

2. An online review of padlet noted that on first letting students loose on the padlet: 'Kids get a bit excited and sometimes silly. When they are done and get it out of their system, delete the Padlet and go onto the real activity.' It was referring to younger students, but is also true of undergraduates, whose inaugural use of padlet in my honours seminars consisted of posts going 'Happy Birthday X!' 'Thanks! This is cool!'. As suggested, delete (posts, if not padlet) and 'go onto the real activity'.

Student review of Padlet

by Chew Wei Li, EN Honours student

I have so far only been exposed to Padlet in a classroom setting, but I am also aware of its potential applicability in other situations such as brainstorming in group project meetings, to which some of this review may also be relevant. For one, the platform allows users to keep track of, remember, or take time to express and develop their ideas before they present them to the class or group, or while they wait for an opening in the discussion to verbalise their points. It can also help broaden the discussion to include students who would normally prefer not to speak aloud, or to at least preface any verbal contributions with text. In class discussions specifically, Padlet also offers a readily available 'backup' to conveniently fall back upon when verbal discussion occasionally comes to a lull: instead of waiting for someone to pick up the momentum again, the class can turn to the existing posts on Padlet for picking up different entry points with which to fuel discussion. The inclusion of the 'like' and comment functions on posts provides an added efficiency here in that one can quickly filter out particular posts that seem to generate more interest within the class, and therefore which posts to focus on within the session. Even outside of or after each session too, Padlet allows students to revisit posts and points they may have missed or forgotten from previous classes, and keeps these for potential reference in future weeks. A potential drawback of using Padlet in class, however, is that in expanding the platforms for discussion, it may distract some students from the verbal discussion during class when they are typing or reading long posts. Nonetheless, Padlet is still a useful and convenient way of keeping track of the various directions of discussion, and of moderating students' contributions of their ideas.

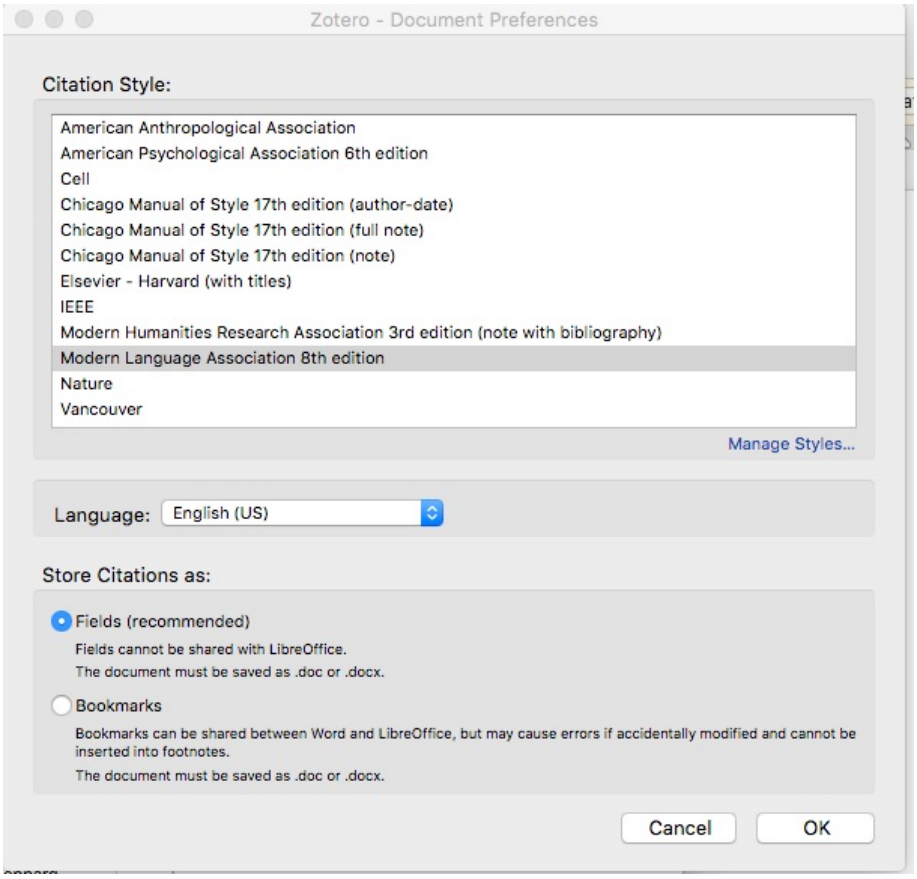
ZOTERO

by Dr Susan Ang, Member of the Executive Council (NUS Teaching Academy)

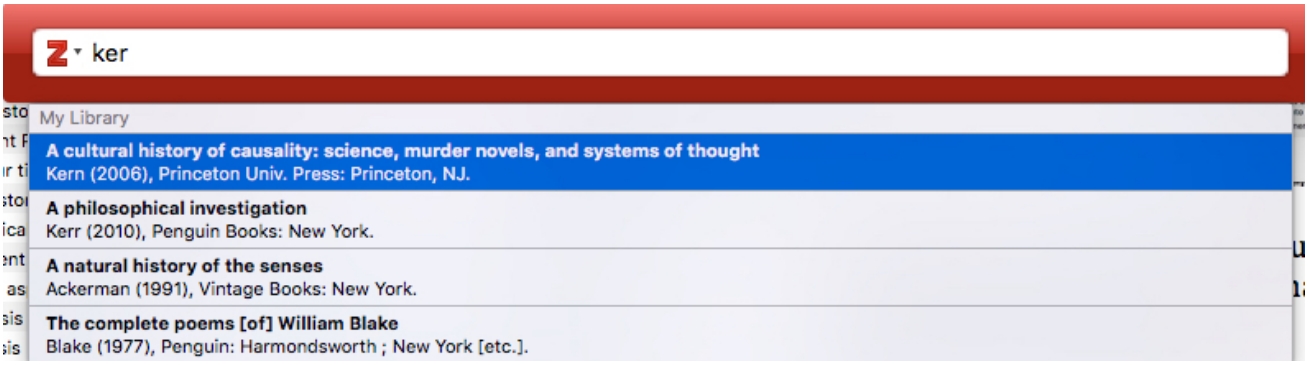
Zotero describes itself as a 'free, easy-to-use tool to help you collect, organize, cite, and share your research sources'. While mainly an app with a research bias, I've found it has one pedagogical function – an indirect perhaps rather than a direct one – which is that it enables students to be more in control of their own research and resources, and thus, in a sense, their own learning. Zotero can be used to help students gather material in one place, do citations, and format and create bibliographies for their work more painlessly and efficiently.

How does it work?

Zotero collates information – about websites, articles, books, etc. which can either be fed into its database manually or 'magic-wand-ed', of which, more anon. There are 3 parts to Zotero – the part that works with your browser, the part that you download as an app, and the part that you 'add on' to Word. The browser part of things works a little like Microsoft's OneNote, in that you can set up an 'add on' button in your browser which can sense web content, cut, clip and save it to your Zotero library, so that it can be easily retrieved with its relevant data, e.g. Web address, date of access, etc. all of which Zotero has saved for you. The app part of Zotero is where the 'library' is. You can create this manually by filling in fields, e.g. Author, year of publication, publisher, etc. or use the magic wand icon which calls up a box into which you can just feed ISBN, or DOI whereupon Zotero searches online and calls up all the publication data related to that item for you.



Once Zotero has been 'added on' to Word, its helpfulness is more fully revealed. Suppose you are wanting to put in a citation to (e.g.) Philip Kerr's A Philosophical Investigation. You click on the Zotero tab in Word and are first asked to select a formatting style: e.g. APA, MLA (which edition?), Chicago, etc. and 'add citation'. A box comes up. You type in 'Kerr' (and predictive text will call up anything in your library with whatever you've typed – you probably won't even need to type all four letters of 'Kerr'.



'Kerr' comes up; You click on the citation which appears in the box, and add relevant page number. You press return. The citation appears in your document, and if you then click on the 'Add Bibliography' button on the Zotero tab in Word, a bibliography of all your documents references comes up; this is updated automatically as you add new references.

How useful is it?

I've found this useful for myself in writing my own lectures and articles – it saves time in that once an article or book or webpage is in your library database with all its publication data, it's there and can be called up at any time as you write and require it. Time is also saved in the auto-generation of bibliography and the auto-formatting, and using Zotero, one can't omit to include in the bibliography what was referred to in the document, since this is auto-generated. But I've found it useful for my students who are learning how to write papers, as Zotero allows them to keep track of their sources (some accidental plagiarism is possibly avoided), avoid careless omissions in citation and bibliography, and get the appropriate formatting straight.

Setting up

1. Go to www.zotero.org
2. Set up an account
3. The website has full instructions on how to download and set up the app.

The Good	The Bad
Ease of use – one quickly gets the hang of how to use it and it's fairly intuitive	Older books without ISBN cannot be filled in with the magic wand – one has to fill those items in manually. If (e.g. on amazon) such items have no ISBN, but have an ASIN, and I've tried filling that in, something completely different comes up. For instance, I'm trying to call up data on an older critical study of T.S. Eliot; filling in the ASIN given on amazon might call up something on some rare disease in mice. I'm making that up. But you get the idea.
It's a time saver and an efficient tool for citation and bibliography-related matter	While most of the time, the data that is called up is accurate, one still needs to run checks – sometimes there are misspellings, or the edition of the book is wrong. One mistake that's happened more than once is an editor is named as an author. This one is easily sorted – in the library, one just changes the 'author' field to 'editor'.

Student review of Zotero

by Koh Jia Ler, EN Honours student

Zotero is a rather intuitive tool for students to manage their bibliography and citations. Small tabs detail functions of buttons when the cursor hovers over them, which contributes to the ease of using Zotero without requiring extensive guidance. The presentation is clear and organised. Case in point: the cascade layout enables bibliographic material grouped under the same category to be streamlined or expanded instantly. And there is always the pleasure of watching your bibliographic garden grow over time.

I find the magic wand function particularly helpful, as I just have to copy and paste a book's ISBN or an article's DOI into the search bar and Zotero retrieves all the relevant information. Caveat: this function does not take away the need for due diligence and meticulous (double) fact-checking because sometimes the information Zotero retrieves is different from the actual source (different year etc.) or the information is placed under a wrong category (author's name reflected as editor etc.).

The only difficulty I have so far is my inability to back up my current bibliography. I found out from online forums that there's a difference between setting up a Zotero account and having your library synced, and getting it backed up. The first I've achieved with relative ease, but for a tech dinosaur like me, I'm still struggling with the technicalities of backing up my Zotero library.

DESIGNING LEARNING FOR MILLENNIALS

by Damien Joash Poon

Damien Joash Poon graduated with first-class honours from NUS in 2012. He now teaches at CJC.

There is a healthy curiosity about millennial learning needs and strategies to engage with them. A casual search online yields a variety of results: Forbes offers Nine Tips for Managing Millennials; Stanford lists on its Teaching Commons site a concise writeup on Millennial Learners, with pragmatic suggestions for the classroom, backed by recent research from Stanford and Dalton College academics; and Goldman Sachs has an infographic on this age group, with beautiful typography and animated pictures—an infographic which would surely appeal to its subject. Turning to databases like Google Scholar and ProQuest, one finds even more sustained discussion. Dissertations have been written, pedagogies prescribed.

With all this attention, one might imagine that millennials were another species altogether. Yet any educator who has struggled with inter-generational differences would appreciate the care taken to understand how to connect with such learners and would intuitively recognise traits frequently associated with millennials. These may inevitably be generalisations but remain useful as a starting point for thought.

Common among the many articles is a definition of millennials as 'individuals born between 1980 and 2000', though for purposes of discussion the more relevant sub-category is 'neomillennials', or 'second wave millennials': this covers those who are still students at the point of writing. Traits cited often for these younger millennials include the following: they have grown up with digital technology and rarely live without it—multitasking thus becomes the norm, and singular focus on a given task a greater challenge; they are more connected through social media, which shapes tastes and expectations; and they have grown up in a time of rapid change and instant gratification, which influences notions of achievement. Crudely generalising though these points may be, they capture some of the immediate challenges for educators: how can these learners be engaged meaningfully and be prepared for the society of the future?

When I was first approached to contribute some thoughts to this article, my concern was what value I could add in response to this question, given the considerable amount of research already done on millennial learners. I was reminded, however, that since I encounter them at an earlier formative stage of their 'millennialism' as a Junior College teacher, observations of their learning needs at a pre-university stage may prove useful for discussions at tertiary level. Indeed, pre-university teachers share similar concerns about the changing profile of students and what it means for our teaching.

For a start, reshaping perspectives on this changing profile creates space for innovation. Traits perceived as weakness, for example, can be seen as a potential for strength. While auditory learning may be a diminishing feature of today's learners, making sitting through even a one-hour lecture a challenge for many, the digital immersion of younger millennials is an opportunity to engage them in a multi-modal manner, and with digital learning platforms. In fact, such a learning context may encourage richer learning, through transference of learning across media, encouraging wider literacy. The desire for quick success, on the other hand, can be managed as a motivational force, in classroom environments where success is designed, for example through smaller but more frequent tasks, and a wider array of opportunities to demonstrate one's learning. Reflecting on the value of such curriculum design, I have been more intentional in setting regular and bite-sized writing tasks as a mode of formative assessment, and as preparation for full-length essays that are part of their summative assessment. Micro-successes in weekly tasks sustain motivation and are more easily achieved than a good grade for a full essay. Yet I remain bound by immovable demands of external standardised testing—I need to prepare them for the A Level exam, the format of which I cannot change. Howsoever I attempt to innovate, the final assessment mode looms on my imaginary horizon, and form the limits of my world. The university, on the other hand, has fuller control over assessment modes and far greater freedom and flexibility to assess learning in a variety of ways. Doing so creates more opportunities for students to experience success and its attendant motivational force, while maintaining high standards of learning. The point of commenting on assessment in relation to pedagogy is to say: both are, ultimately, mutually influencing. A change in pedagogy alone is less effective without a corresponding change in assessment modes.

A related idea to educators believing in the strengths of learners is helping them to believe in their ability to succeed. Too often what comes across as self-entitlement or a refusal to learn is actually symptomatic of a fear of failure, or a refusal to believe that one can succeed. This is a dangerous disposition to learning, and sadly not uncommon. Helping learners to believe in their ability to make that leap needs to be part of the instructional strategy, alongside facilitating subject mastery. This can be nurtured through purposeful

collaborative peer work that reinforces one's belief in the ability to be a self-directed learner; rewarding improvement not just achievement; and visible learning strategies, particularly those that help learners achieve a higher degree of meta-cognition—understanding not just what they need to know, but how they are wrestling with what they are learning. When the frame of thinking is understood, thoughts become clearer. In a recent lesson on unseen poetry, for example, I spent more time showing students how they have improved in their thinking than teaching them about the poem, going through in detail two sets of their writing produced at the start and at the end of the lesson. Quietly, I experienced some discomfort, from the nagging need to unpack the poem with them. But there was value in persevering: I saw that students appreciated understanding how they were doing better, and what moves they could repeat, to reproduce similar success in writing. This reflective approach is a luxury I cannot afford weekly, of course. But timed well, it augments learning by encouraging student belief.

One needs, however, to discern what is a (late-)millennial problem, and what is simply a problem for students in any era. Younger millennial learners are also very much like students in any other age: studying is often a pain, to varying degrees. These learners are, however, products of their age: this is an age of quick gratification, of posting rather than writing. Learning styles are changing. Fewer students would be willing to sit through an entire lecture of talk alone, with skeletal slides; note taking is a dying art; auditory learning is a rarity. In the face of these changes, the invitation is for educators to change with them. But, equally, it takes some discernment not to be swept away by the millennial zeitgeist. The university is the last stronghold for intellectual maturation; struggle is part of that maturation. Ministering to today's learners cannot come at the cost of removing that struggle entirely—that would be counterproductive to authentic learning in the long run.

And, ultimately, learning and growth require collaboration—require not merely the yielding and trying on the part of the educator in response to the various needs of learners, but movement from these learners to encounter new learning on its own terms. An anecdote from my undergraduate days comes to mind: a professor mentioned to our class that he had received grumbling feedback that he murmured and could not be heard. "Well I can do one of two things," he said, "I can speak louder, which will strain my voice, or you can move nearer to the front." He had a point. The first few rows were often empty. In straining to speak across the distance of a generation, inviting our students to move from their place of static comfort to a place of productive discomfort is equally important. It is with this two-way effort that a communion of thought and learning is both productive and possible.

| The views expressed in this article are the writer's own.