Seven Habits of the Professor of the Future

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Faculty at colleges and universities across Ontario today are busy. They spend their days juggling lectures, student and faculty meetings,grading, and research in an attempt to provide students with the most broad and up-to-date education possible while at the same time furthering the research in their chosen field.

Will it always be this way?

What will a professor at a college or university be doing in 2020 and how might we understand the changed nature of their work as an opportunity?

The answer to this question begins with the idea of the typical work week for the professor of the future – what will occupy his or her time? All of the examples here are based on known developments which are either in prototype, available now or in design stages.

The future is not a straight line from the past. It will be different. Let us look at the seven habits and then at the implications for the nature of the work of professors.

(All examples below are fictional, but based on real and emerging technologies now available).

Habit 1: Reviewing New Research and Information

One major development that began in 2010, and has been developing with more sophistication ever since, is the intelligent magazine-like search engine. A faculty member with an interest in human genomics related to breast cancer, breast cancer research in general, and the visualization and diagnosis of disease will be able to look at her Zite (a magazine which updates itself automatically) and see everything that is new in the field since the last time she looked. Her husband, who teaches English literature and specializes in romantic poetry, can do the same. No searching, it's all automated and intelligent – using the time spent looking at specific articles or watching a linked video, the system modifies its search criteria to bring more of what they spend time on and less of the things they "let go."

What is more, they have their students using similar Zite-like products for project work and research, so they are always on top of current developments.

Habit 2: Continuous Course Construction

Professor Michael Blout's senior undergraduate business studies elective course consists of nine challenge questions he has asked students to respond to in teams of four. The challenges include these questions:

- What is employee engagement, why does it matter and what difference does it make to the performance of a firm, non-profit organization or government agency?

- What drives productivity in an organization and what gets in the way of improving productivity?

- Why do organizations not listen enough to front-line staff and what do they miss by not doing so?

For each of these challenges, students are provided with two sets of resources: (a) some instructional materials; and (b) a bank of multimedia resources to support their inquiry. The instructional materials include some developed by Professor Blout, but most come from open educational resources (OERs) freely available on YouTube University, iTunes University or the Ontario OER Centre . All have been "screened" as quality materials by colleagues. Each week his OER Finder System draws his attention to new material relevant to each of the challenge questions and he has to decide whether or not to add them to the pool of resources for that challenge and, if he does, he has to rate its value.

Michael Wilkins teaches an electrician apprenticeship program. He has designed a house wiring simulation in the 2020 Real World 3-D Space (a spin off from Second Life) which enables him to simulate wiring problems with a house built in 1994 and different problems with a house under construction. His students use the virtual reality to practice wiring and electrical design. He has found that once they master the virtual space, wiring or re-wiring a real building can be done in a fraction of the time and at a fraction of the cost. He keeps thinking of new ideas and wants to use this same simulation to work on plumbing and construction issues with faculty colleagues.

Habit 3: Collaboration on a Massive Scale

Sandra Gibson remembers when trying to collaborate with colleagues within her own university was a challenge. Now she is part of three key networks (communities of practice) with colleagues all over the world.

Using video-conferencing, she can meet up with ten to thirty people quickly and easily when there are things to discuss. As a nurse educator, she is part of an accrediting team looking at the nurse development and skills assessment programs at colleges and universities around the world. A lot of the work she can do from her desk at home, thanks to powerful in-room devices (video, audio, voice recognition and instant simultaneous translation), many of which work on her hand held device.

She is also collaborating with nurses in practice, using them as mentors, coaches and guides for the clinical practice her students undertake. She can watch her students in real time if she

[1]Doe not yet exist, but it could!

wishes, or she can discuss their performance and competencies with the proctors whenever she needs to do so. This month, the focus she has is on skills + compassion. She is getting reports that her nurses have high technical skills, but score low on patient assessments of compassion. She has developed a resource bank of video and text material which should help her students see what compassion looks like and she is asking her colleague practitioners to assess the students daily on a simple measure of compassion.

Michael Saunders holds the Canada Research Chair in Sustainable Development and Climate Change. He is part of a global panel monitoring sea level changes around the world. His morning begins with a quick look at an interactive map of coastal areas (he is responsible for sea level monitoring in the Caribbean) which shows even small changes in sea level from live satellite feeds and an analysis of patterns of sea level over the last four hundred years. His students are each assigned an area for "active watch" and he is networking his students with 500 other students around the world to develop an action plan for sea level monitoring for the United Nations. The students are truly engaged in this work and find no difficulty in working with others in twenty different countries.

Habit 4: Assessing Competencies

It used to be the case that students all started their courses at the same time and finished at the same time. Now that students can start any course at any time and call their assessment when they are ready to be assessed, the whole practice of credit awarding and recognition has changed. It helps that courses are now modular – what used to be a 3 credit college course is now three one credit courses (there are even some half unit credits).

Each student has a learning passport reflecting their learning pathway and intentions. When they think they have mastered a competence documented as a requirement in their passport, a certified credit is required and these can only be granted by an academic employed by the college or university.

Today, Shelley Lynes is assessing three students who claim to be ready for their competence in critical thinking to be assessed. Shelley went into the competency assessment bank and found four challenges, all time-based challenges, which would demonstrate critical thinking. She checked the rubrics, ensured that the students were who they said they were (the eyeball plus fingerprint verification system makes this straightforward) and sets them the challenge. They have two hours to return their work to her. Once it arrives, it will have been prescreened for plagiarism and the assessment will be partially completed by a machine intelligence system. All she has to do is attend to aspects of the student's responses which the system has flagged for her attention and she is done. On completion, she electronically "stamps" the student passport and they are ready to take their next module.

Her other competency assessment today is for submissions from students who claim that their work experience has given them the skills and competencies they require for credit recognition. Shelley remembers the hours she spent years ago on credit transfer assessment, but with the new focus on demonstrable knowledge, skill and understanding rather than

time served or course prescription followed, she can do several of these assessments in an hour. The process is basically the same as the one she just used for critical thinking with one difference. Rather than setting four challenges for these work-based credit students, the students submit three examples of their own work – verified by a third party as their own – as examples of critical thinking and she sets them one new challenge. The assessment system is smart enough to be able to compare and contrast the work each student did that was new (her challenge) with the work they submitted in their competency portfolio. If the assessment system seems satisfied, she will quickly review their work and either grant or deny credit.

Habit 5: Creating New Resources

Now that the iBook Developer makes content creation so easy, a new module can be developed in just a few days which includes written material, video made with a simple camera, simulations and other rich media material. As one professor said "we used to use Power Point, now we create rich media resources in no time at all."

Professor Sean Ruse teaches entrepreneurship at a university. Every week he meets with an entrepreneur who has succeeded and one who has failed. He writes a 2,000 word compare and contrast piece about them, which includes edited video and links to relevant literature and other videos. He presses a button and these materials appear on iTunes University and Kindle in seconds. He charges $2 for each and sells literally thousands every week. His own students have a code which gives them free access to these materials. He then decides, for each of these materials, which part of his course these best fit into and includes them in the knowledge bank for the course.

Professor Jane Suma teaches physics and mathematics to college students. She knows that her students find some of the math material challenging, so she has been working with a game development company to make math relevant, challenging and fun – students love it. The game company develops products for sale in partnership with one of the world's largest publishers, so Jane knows that the work will be top quality. Her relationship with this company also means that she is a beta-tester for all of the simulations and games they develop for mathematics for college level students world-wide. She is developing a game for her automotive students about the math of engine use in a truck over a five year period and how she can use probabilities and graphs to predict maintenance problems.

Habit 6: Meeting – Anytime, Anywhere

One of the dreads of most academics used to be the Departmental or Faculty meeting. They would go on for ages and nothing much got done, at least from their point of view. But with new Smart Meeting Design and Technology, things move quickly.

For example, six members of the General Education Division at a college recently met three times for forty minutes each time to decide what changes to make in the competency requirements for a new program in Spa Management. The meeting design system enabled

them to focus on what the issues were, the options for solutions, quickly showed them what fifty other colleges around the world had done for this topic, and gave them time for a video-linked conversation. That was the first meeting.

In the second meeting, the options were narrowed down to three and there was a discussion of each option. What were the positives and negatives and what was the tentative decision of the group.

In the final meeting on this topic, which took just fifteen minutes, the group voted and reviewed their decision. This intelligent meeting system has transformed these meetings. The great thing is that it doesn't matter where one is in the world, you can be engaged. For some meetings, everyone comes into the college. But for others, some are on campus, some are at home, some are travelling. Now that attendance at college is optional, it doesn't matter.

Habit 7: Face-to-Face Teaching and Learning Sessions

Despite predictions that face-to-face would die and be replaced by online learning, this hasn't happened and is unlikely to happen. It's a key role of the professor to engage directly with students, and a key role of students to engage with the professor and each other.

What is different is that the face-to-face time is rarely spent on content or instruction. Rather, the time is spent demonstrating a skill or the use of knowledge in practice. For example, Mary Shooter teaches law. She uses her face-to-face time to hold moots – mock cases with a jury and judge. Students love these because they allow them to practice their skills in live situations.

Mike Simons, on the other hand, teaches welding. He does a lot of his work in a virtual classroom filled with game-like welding challenges, but he also meets his students on work sites and gets them to show their welding skills on real-life challenges.

Sally Armstrong teaches psychology for counseling psychologists and the students come together to watch each other practice their skills with real clients, with the class watching behind of two-way mirror. While some of the work she does uses videos of these sessions, having the students be able to offer commentary "live" both to the observing students and, by agreement, through an earpiece to the student doing the counseling, is very powerful.

Discussion

What changes in the future is not the need for students to gain knowledge, understanding, skill and experience from their learning, but how we can enable this to take place. If we can be freed from teaching a lot of content, then we can spend more time:

- Engaging students in using the content they master in problem solving or challenging situations;
- Personalizing learning – making learning relevant for each of our students;
- Giving meaning to the learning – making learning accessible, relevant and powerful for each student.

Equally, if we can be freed from some aspects of the burden of assessment (using machine intelligence), then we can spend more time "teaching through the script" – seeing assessment as another teaching moment.

If we are free from the Carnegie Unit which determines learning in terms of time in class and hours for teaching, and focus instead on outcomes, then more people can earn more credit for things they already know or learned on their own.

If we are free from the Carnegie Unit as a basis for funding colleges and universities, then faculty do not need to be on campus for a lot of their work. They can be wherever the work is best undertaken. For some, this will be in an office, but for others it will be at home, in a shared workspace in a partner institution or sometimes in a hotel in Bermuda.

If we are free from the Carnegie Unit, then courses will each be designed according to what it takes to master the outcome. There will be much more variety, reflecting the approach of that professor, the outcomes intended and the resources available. The role of face-to-face will vary by design.

And that's the point. The emerging tools make for a richer teaching and learning environment by design. Being able to design relatively free from constraints would change the work of the professor largely for the better.