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WHAT FACULTY NEED TO KNOW ABOUT TEACHING ONLINE: NINE KEY STEPS

ANYONE CAN TEACH. BUT CAN THEY DO IT WELL?

This question applies just as much to online as to classroom teaching. Indeed, many of the elements that underline quality classroom teaching also apply to online teaching: mastery of the subject, clear learning outcomes or goals, a well designed curriculum that covers the critical topics/themes, good communication with students, timely feedback, and relevant, reliable and discriminating assessment of student learning. In fact, these elements matter even more for students studying at a distance, who do not have the non-verbal cues and serendipitous meetings with faculty and other students that they would have while on campus.

However, in addition to these "generic" requirements of quality teaching, there are a relatively small number of requirements that are specific to online teaching. We have researched both effective teaching on campus and effective teaching online and assembled nine clear steps to enable quality online teaching. References are given in full at the end of the paper.

STEP 1: DECIDE HOW YOU WANT TO TEACH ONLINE

This may not seem an obvious step, but it is perhaps the most important to think about when considering the question of teaching online. Moving to online teaching will offer opportunities to teach differently from how you teach in class.

For instance, if you are teaching a first year class of over 200 students, you may feel dissatisfied with the level of interaction you are having with the students or with the type of student thinking about the subject that results from lecturing large numbers of students. If you moved to online learning, could you organize the teaching differently, so that you had more interaction with students or could focus more on developing critical thinking skills?

For example, why not put all the content on the web as text or video lectures, then use some of the time in class with small groups, or fully online with online discussion forums? In particular, could you make the course more interactive for the students, so that they are not just listening and reading, but going online, collecting data, discussing, and doing work online that you can monitor more easily? One advantage of online learning is that it can be used to make the students do the work; after all, they are the ones who need to learn.

There is a great deal of research on how post-secondary students learn best (see Christensen-Hughes and Mighty, 2010). This is an opportunity to put some of that research into practice. In general, moving classroom teaching methods online (e.g. recorded lectures) does not work as well as courses that are re-designed to exploit the unique features of online learning. Whatever you decide, before committing to teaching online, spend some time with colleagues, and especially the faculty development and learning technology support staff, discussing how you could change your teaching to make learning more effective.

STEP 2: DECIDE WHAT KIND OF ONLINE COURSE IT SHOULD BE

Online learning comes in many forms. Indeed, teaching can be seen as a continuum, from no use of technology (very rare these days) to classroom teaching enhanced by online learning students search for relevant material on the Internet as "homework" after lectures), to hybrid learning, where some, but not all, classroom teaching is replaced by online learning, to fully online or distance teaching, where everything is done online (Bates and Poole, 2003).

So the first kind of question to be asked is: where on this continuum of online learning should this course be? Or perhaps a better question might be: what is the most appropriate "mix" for the students we are trying to reach?

There are three primary drivers for such decisions:

- Profile of the targeted students;
- Nature of the subject matter; and
- Resources available to you as an instructor.

Profile of the Targeted Students

Let's start with the students. In general (although there are always exceptions), the older and the more experienced they are in the subject matter, the more students will benefit from fully online learning. The reasons for this are straightforward. Students who are older tend to have jobs and families. Online learning provides the flexibility they need. Perhaps less obvious, online learning requires strong self-discipline, self-confidence and independent learning skills. This is more likely to be found in students towards the end of their undergraduate program or in graduate programs (Adkins and Nitsch, 2005).

However, independent learning is a skill that can be taught. Indeed, it is a critical 21st century skill. Thus one strategy at a program level would be to deliberately design the curriculum so that students are helped to develop independent learning skills. A strategy in an undergraduate program might be to rely heavily on classroom or lab-based instruction in the first year, but gradually introduce more and more online learning, within the controlled environment initially of the classroom, with perhaps more hybrid courses in second or third year and more fully online courses in the fourth year.

Nature of the Subject Matter

It is more difficult to provide generalized guidelines on this topic, because each subject discipline is different and requires its own approaches to teaching. However, when deciding not just on the right mix of face-to-face and online learning, but also on how to teach within the different modes, it helps to focus on what students need to do to reach the learning goals you have for the course or program. This means moving beyond - for instance - reading,

to what intellectual or practical skills you are trying to develop in students, and what must students do to acquire and practice those skills. In particular, it helps to identify what will distinguish between a "just passed" and a fail, and between an "A" student and a "B" student, in assessment.

One way to do this is to take the learning outcomes for a course, then break them down into student activities, and then see which activities can be done just as well, if not better, online and which can really only be done in a face-to-face environment. This activity is best done in collaboration with other instructors and especially learning technology support staff. You will find that many more skills or areas of knowledge than you imagined can be taught online, but some may require significantly greater resources or work on your part which make them impractical to do online.

Figure 1 below provides an extract of such an analysis for a 'hybrid' business course on marketing:

Figure 1: Analysis of appropriate mode for different learning activities

	Face-to-face	Online
Understand different kinds of marketing		x
Analyze markets	x	x
Create marketing proposals (in a group)		x
Discuss/argue/brainstorm	x	x
E-portfolio of work		x

You can see that, in this analysis, the instructor decided that some activities could be done in either mode (or both). However, this analysis should be done taking into account the student requirements, so if more students would want the flexibility of online learning, this might tip the balance for that particular activity.

If, for broader strategic reasons, it is decided that the whole course or program needs to be online, this exercise is not needed, but it would still be useful to break down the intended activities and discuss how best these can be handled online.

This leads to the question: who should make the decision about the right mix of face-to-face and online teaching? From a student perspective, this is probably best done at a program level, at the initial planning stage (or following a program review) where all the instructors (and the learning technology support staff) can have a say in the decision-making. In reality, though, the decision is often made on an individual basis. In this case, at least talk to the learning technology support staff and other instructors in the program first.

Resources Available

There are several types of resource that need to be considered:

- Your time as an instructor: will this mean a lot more work? (It will if you do everything on your own).
- What help is available to you? Are there instructional designers or web designers in a learning technology support unit that you can call on?
- The experience of other instructors in online teaching.
- Software (such as a learning management system) that is available and supported by the institution.
- The availability of existing online materials that you can draw on (open educational resources).

The best way to use such resources is discussed further below.

STEP 3: WORK IN A TEAM

In general, online teaching is not something that you should do on your own, especially the first time. If you merely transfer your PowerPoint slides or recorded lectures online, not only will it be highly ineffective, but it will also be more work, especially dealing with e-mails from students.

Most institutions now have a learning technology support unit, either a central unit, and/or staff within a faculty or department. Use them right from the beginning. These people often have dual qualifications, both in the subject area, and in teaching with technology. They work across different subject areas, and have a lot of experience about what works online and what doesn't. They are also usually up to date on the technology. If you were renovating your bathroom, you would want to choose the overall design of the bathroom, including the fittings, tiles and colour scheme, but you probably would need help in installing the fittings, and the under floor heating and tiling would be better if a professional did it. And it's usually a good idea to talk to the contractor before finalizing the design. The same is true for online learning. Work with the pros. Focus on the overall design and get help with the specifics.

Perhaps of more importance, working with learning technology support staff, and particularly instructional designers, will help you manage your workload teaching online. Well designed online courses should mean that your workload is roughly the same as for face-to-face teaching (although you may need to spend more time initially on course design as there is always a steep learning curve).

Similarly, it is much better to work with other instructors, particularly if they have more experience in teaching online. It has already been suggested that decisions about the right mix of online learning and face-to-face teaching is best done at a program level. Working with other instructors can save you a lot of time. For instance, they may have already designed a graphic or animation of a particular piece of lab equipment

that you could also use in your own teaching. Or three chemistry teachers working together are more likely to produce three online courses (or one course with three sections) that fit together and share resources than each instructor working on their own.

STEP 4: BUILD ON EXISTING RESOURCES

Most institutions provide a learning management system (LMS), such as Blackboard or Moodle; think of these as "online classrooms." An LMS is where you organize your online teaching. It provides a structure for the students' learning, with a weekly schedule of work, content, activities such as online discussion forums, and a place to post work or assignments. Don't get caught up in LMS "wars." There's not much functional difference between the different LMSs. It's more important to get started than to try and find the perfect tool. Broader technology issues are discussed later.

You will find that some areas of online teaching require much more in the way of resources than others, because such activities cannot be done within an LMS. For instance, if you are teaching science, you may need to use simulations or animations to replace some of the practical work. Creating animations and simulations from scratch is expensive and requires a team of skilled specialists. It may be justified if the program is high profile or will reach many students, but be careful. Ask around and make sure that such material does not already exist before commissioning such work.

Lastly, perhaps the most overwhelming case for online teaching is that it can save you a great deal of work if you use existing materials that are already available online. There is a vast amount of quality instructional material available for free over the Internet (often called "open educational resources" or OERs).

In particular, look for teaching modules (short chunks of online material, often with student questions or activities), videos, animations and simulations that are already developed. The UK Open University's OpenLearn, Merlot, MIT's Open Courseware, iTunes U, and the Khan Academy are perhaps the most publicized sources of open content, but there is much else scattered throughout the Internet. Use your library staff to help locate appropriate resources (students can help with this work too). These resources can be easily integrated with your LMS through a simple hyperlink to the resource.

Concentrate then not so much on developing content, but more on defining learning outcomes, selecting and organizing content, helping students to evaluate educational content on the web, providing learning activities, and assessing students. If you still feel the need to create content, focus on providing unique content, maybe resulting from your own research or research interests, preferably working with other subject specialists, to ensure quality control.

STEP 5: MASTER THE TECHNOLOGY

Your main challenge is not going to be the technology, but rather adapting your teaching to a different learning environment. Nevertheless, the technology matters. In particular you need to know how to use whatever learning management system your institution is using. Unless you know what the LMS is capable of, you won't be able to make the right kind of decisions about how you want to teach. Far too often, instructors claim that the LMS doesn't allow them to do what they want when often they are simply unaware that the facility exists.

So if you are planning to teach online, take whatever courses are offered by the institution on using an LMS. In particular, try to relate what you learn about the technology to how you want to teach.

However, you are also probably aware that there is a great deal of development in the technology field outside LMSs, particularlyWeb 2.0 tools such as search engines, social media, WordPress (allowing students to create digital materials or demonstrate their learning), e-portfolios (collections of students' digital work), and so on. What you may not be aware of though is that LMS technology is changing rapidly, with several new providers based on cloud computing and open source software. These are giving instructors the choice of managing their own learning environments without having to go through central IT services.

This comes down to being clear about your role as an instructor. You cannot possibly keep up with your own research, your mainline teaching responsibilities, and new developments in learning technologies. Focus first on using and mastering a conventional LMS. They will enable you to achieve 90% of what you want to do online, at least initially.

When you have more experience with online teaching, then start exploring some of the newer technologies, particularly if you want to change your teaching so that learners are more involved in selecting and creating their own learning. And again, work with the learning technology support specialists, whose job it is to keep up with technology trends and who can advise whether the tool you are interested in is appropriate for the kind of teaching you want to do (for instance, does it need a license, is it reliable and secure, and does it need a lot of technical support?).

STEP 6: SETTING APPROPRIATE LEARNING OUTCOMES OR GOALS FOR ONLINE LEARNING

While it may be perfectly feasible to carry over the same learning outcomes or learning goals from an already existing campus-based course (and this may be necessary anyway for accreditation purposes), it is also useful to spend a little time thinking about whether you should adapt the goals to take advantage of some of the unique possibilities that online learning offers.

Again, these possibilities will vary from subject to subject but here are some points for consideration:

- Online learning can easily be designed to develop 21st century skills

such as independent learning, critical thinking, team work, initiative, collaborative learning, communications skills, and information management by embedding them within the subject discipline.

- Development of the necessary information and communications technology skills needed within the subject discipline: how to find, evaluate, analyze, and apply information appropriately within the subject domain; the use of appropriate subject-based software within the subject domain (e.g. use of geographic information systems in real estate management).

- Bringing in experts or practitioners from the outside world as resources within the course or program, in the form of video clips, online interviews, or discussion moderators.

More familiarity with teaching online will suggest other possible outcomes that could enrich or extend the learning goals.

Lastly, it is particularly important for online learners that the goals for the course are clearly communicated. One way to do this is to use sample assignments or student work from previous iterations of a course as examples of the goals and standards expected.

STEP 7: CREATE A WELL DESIGNED CURRICULUM AND STRUCTURE FOR THE COURSE

Classroom teaching provides a structure through timetabling. Students attend at set lecture times, and assignments are due by certain dates. Similarly, students need to know the structure and timetable for online teaching. Again, though, this needs to be adapted to the online environment.

An important design principle is to ensure that students can manage the work set in the time available. This means converting the structure of say a three credit classroom course into an online environment. One benchmark is to consider a three credit course equivalent to about 100 hours of total study time for a student, or just under eight hours a week, including covering content, completing activities, and doing assignments. However, this can be bunched or spread out, depending on the student's schedule, so long as there are some fixed "anchor points" in the course such as assignment deadlines. For students new to online learning, a regular weekly structure works best with always some work to be done and demonstrated each week (e.g. readings and participation in a discussion forum). For more experienced online learners, or for graduate students, more flexibility and responsibility for organizing their own work is possible.

In fact, online teaching enables much more flexibility in structuring the work. It is possible to retain a set weekly structure of readings, activities and assignments, but since you don't have to book lecture theatres in advance, you can organize the course in more flexible ways.

For instance, the first three weeks of a course could be largely instructional, with students learning concepts, doing readings, etc. They

can then be organized into work groups, where students spend four weeks working on group projects that require them to apply the principles taught in the first weeks of the course, and to find new information that will facilitate their project work. Students then report back in groups, with personal reflections on what they have learned in a blog or e-portfolio in the next two weeks.

The instructor could then spend the following two or three weeks of a course covering extra ground and focusing on areas where the project work showed weaknesses, with the last two weeks given over to a major individual online assignment.

The possible variations in structure and organization of the course are endless, but above all, it is important to make expectations clear and for students to have the big picture of the course right from the start.

STEP 8: COMMUNICATE, COMMUNICATE, COMMUNICATE

The more students work online, the more isolated they can feel. There is a lot of research that indicates the importance of instructor "presence" in online learning (e.g., Mandernach, Gonzales and Garrett, 2006). While this can be compensated for to some extent through the organization of peer-to-peer discussion forums, and automated testing, students need to know that you are "there." The challenge then is to balance the demand for "presence" with your workload. It is easy to be overwhelmed by all the online activity going on in an online class.

This again comes down to good course design and careful time management. It will depend on the subject area, but in general, the less time you spend on personally delivering content and the more time you spend interacting with students online, the better. In other words, you are trading off content delivery against interaction with students. Organizing group work is another way to cut down on time. Marking five group assignments is much less time consuming than marking 30 individual assignments, although usually you will want a mix of group and individual work.

The trick is get the students doing as much of the work as possible such as finding and evaluating content on the web, helping each other through group work and other collaborative exercises, doing their own individual project work, focused and monitored discussion forums, etc. These activities should be related to the learning goals and outcomes and in particular, the skills that students will be assessed on.

This again needs to be communicated to online students. Students will often complain about having to do this work online ("it's more work than a face-to-face course"), but again research has shown that online students do tend to spend more time on task and this often leads to better results (Means et al., 2009). Again, though, be sure that students are not overloaded; give them clear guidelines on how much time they are expected to spend in group discussions, researching online or just reading.

One way to provide feedback is through automated answers and/or frequently asked questions. Again, though, if you have designed the course well at the start, you will get less requests for clarification and feedback, and hence less individual e-mails to deal with.

Sometimes the most useful e-mail is: “Read the instructions” or “the answer is on the course web site; read it again.” That depends though on anticipating problems ahead of time and building the necessary information into the web site.

Again, depending on the subject area, online discussion forums can be an important part of the course. There are several books on managing online discussion forums (Paloff and Pratt, 2001; Salmon, 2000). Research shows that students need to know the instructor is monitoring and following the discussion, even if their role is relatively passive.

Above all, provide timely feedback to students. Quick responses to discussions getting out of control or to misunderstandings and requests for help are even more essential in online learning. Offering office hours is one way of controlling interaction with students, but this may not fit the schedule of working students, although it is important to indicate to students that there are times when you will not be available, so they can work around that.

Assessment is a very important way of communicating with students. Research shows that the sooner online students receive feedback, the better they do (Rekkedal and Paulsen, 1997). Some institutions require all graded assignments to be marked and returned to students within 48 hours– it is part of the service standards of the institution. This is a good standard for all to aim for.

Many instructors find it difficult to believe that online students can develop just as strong a “community” as on-campus students, but experienced online instructors report that with good design and good communication, online learning can be just as collegial and effective.

STEP 9: INNOVATE AND EVALUATE

Although there is a good deal of research to support the best practices outlined above, online learning is dynamic and still developing. In particular, the needs of learners and the context in which they learn in the 21st century are vastly different from previous times. Technology itself is one of the drivers of change in the external world. This means that as instructors, we need to be flexible and constantly learning.

In most industries, technology is initially used to replicate existing practice, but over time we’ve learned that technology can be used more effectively if processes are changed to maximize the benefits of technology. This is true in education as well.

The new Web 2.0 technologies give learners powerful tools for finding, evaluating, analyzing and applying information. The Internet opens up a vast warehouse of potential learning materials. We can use these tools and resources to enable students to do their own research, or even to

determine their own curriculum or help their fellow students in learning. We can immensely enrich the curriculum and help students develop the technology-related skills they will need in work and leisure.

Steps 1-8 aim to enable the development of competency and effectiveness in online teaching.

Once these steps are mastered though, instructors should be ready to experiment and try new things in their online teaching to further advance the field of online teaching and learning. Most successful innovation is not derived from a leap into the dark or a sudden change of direction, but by gradually building on sound practice and advancing in small but sustainable steps.

So if you are already an experienced online instructor, it may be time to move outside the LMS and experiment with, say, a content management platform such as WordPress, and encourage students to use it to create their own learning materials; or use a wiki for collaborative writing in history or in language teaching; or to use mobile learning to encourage students to collect and share real life examples of what is being taught in the course; or get students to use Twitter to provide instant feedback and questions as the course progresses; or create a course blog that is open to the public and invite students and instructors from other institutions to collaborate and provide guest posts.

Of course, every time you do this it should be to provide some kind of learning benefit for the students, and this means carefully evaluating what you do, through analysis of grades, student questionnaires and your own experience of how well the experiment worked.

IT'S AN EXCITING TIME TO BE AN INSTRUCTOR

New technologies open up new opportunities to make learning more engaging, more effective and more relevant to 21st century needs. We now know a good deal about what works and what fails in online learning, so where possible, we should incorporate best practices into our work. At the same time, there are opportunities for exciting innovations and new ways to approach learning that can be developed to create the innovative entrepreneurs, the caring social and health workers, and the high quality research scientists and engineers that Ontario needs.

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