BRIEFING PAPER

Title: "9D Programme Design"

Introduction

Many assumptions are made about how students learn and what different learning modes mean. In reality there is a flexible learning spectrum on which a course may fit. In fact it may be designed to fit to many points on that spectrum, particularly if the course is offered online.

There is no reason to think that an online course cannot be used to support distance learning, as well as blended learning and face-to-face teaching on-campus. Of course, these different options will involve different decision making about the characteristics, design and delivery of the course but this is a healthy as it implies that there has been some actual consideration of the design of the course in the first place.

There is also the argument that all students should be treated as distance learners, whether or not an institution is involved in distance learning or not, as this is the most demanding of the modes and the one that needs the most deliberate of designs and delivery capability.

CAPDM have been pioneers of distance learning for 25+ years, but the courses and programmes we have developed are almost all used across this spectrum, supporting distance learners but also blended and on-campus learners too. One programme, many modes.

Our web site contains many articles that describe our approach and beliefs, but this article:

> https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

caught our attention as it lays out the design options that we have promoted for years in a simple ready reckoner form. It is also a first step towards choosing a deliberate design for an online programme, in contrast to the many courses that have been developed through the need to rapidly react to the Covid crisis.

Nine design dimensions

Before studying the details, be aware of the pitfall of holding an assumption about distance and online learning. In a recent article from Times Higher Education (21st October 2020), the author states:

> "It is therefore important that when moving standard teaching online, we remain flexible."

which is something we would wholly agree with. Flexibility is probably the number one characteristic to design and build into an online course. However, in the next paragraph we read:

> "This flexibility is not usually present in DL courses, which are designed to exist (and remain) exclusively online. Their weekly structures are built around an online platform, often consisting of elements such as an introduction to the week ahead, a list of activities …"

If this is the case, then flexibility has never been a design feature of the author's courses, but certainly not something lacking in the courses we have designed and built over the years. In short, flexibility is probably the number one characteristic to design and build into an online course.

In the following table, the left hand column contains the nine dimensions to consider in your online course design. The other columns are our comments on the application to three different scenarios – undergraduate, post graduate and CPD.

Design Option	Undergraduate BL	Postgraduate Masters DL	Employed CPD (not uni)
1. Modality: • Fully online • Blended (over 50% online) • Blended (25–50% online) • Web-enabled F2F	Undergraduates tend to be younger and have little experience of tertiary education. They will be more appreciative of a blended approach, in general, or potentially an online approach that has good instruction. There is a strong argument for treating all learners as fully online (distance) learners, as this is the most demanding design option but capable of supporting all modes.	Masters students can cope better with fully online OR blended (over 50% online) as they will have previous experience of tertiary education and/or experience of self-learning in the workplace.	CPD learning is probably best done fully online as learners will either be in work or looking for work.
2. Pacing: • Self-paced (open entry, open exit) • Class-paced • Class-paced with some self-paced	Undergraduates will benefit more from being part of a cohort, all marching to the same drumbeat. This is more community-oriented and offers a higher level of support.	Many masters programme students are in work (e.g. medical masters, MBA) so self-paced is a realistic option, though there is no reason not to offer an element of class-paced too.	CPD is probably best offered self-paced, with open entry, as most students will be learning in a just-in-time manner.

3. Student-Instructor Ratio: • < 35 to 1 • 36–99 to 1 • 100–999 to 1 • > 1,000 to 1	Many undergraduate programmes are large so there is no reason to aim low. As undergrads may need a high-ish levels of support then the 100-999 ratio may be best. Beyond that will scare many universities, but the key is the quality of the course, its design and its delivery. Poor quality will demand high levels of support.	Bigger sizes worry many universities so keeping tutor/student ratio down to 'large class' size is more manageable. However, with good quality designs there is no reason to aim low. There are good examples of very high ratios (e.g. London, Heriot-Watt) being very viable.	If fully online, with open access and self-paced then there is no reason to put a limit on numbers. Of course there will be demands elsewhere, but these can be managed.
4. Pedagogy: • Expository • Practice • Exploratory • Collaborative	There is no reason, by exploiting the capabilities of technologies in learning, not to aim to cover all aspects of these pedagogies. Practice is one of more difficult as this may be beyond the capabilities of technology and delivery (e.g. lab work), but that is why an element of blended is advisable for undergrads. Zoom + Forums	Masters should at least be Expository and Exploratory in nature. Collaborative can be considered but many postgrad learners are happy to be individual learners, dipping into collaboration if and when desired.	CPD probably demands a blend of Expository and Practice in an effective pedagogy, simply because learners with want to learn of new skills and be able to apply them.
5. Instructor Role Online: • Active instruction online • Small presence online • None	The easy step to make is to try to take active instruction online, but this is not scalable nor does it take advantage of what online can offer. Undergrads will need some instruction, but this might perhaps play a flipped classroom-type role to be most useful. Some concepts may be best done through active instruction, but this should only be used where necessary.	Masters students should only need a small instructor presence online, and potentially even none. This makes programmes scalable and efficient but requires a much more deliberate design than many institutions are willing to do. It usually results in a higher quality offering. Students should not be forced to have mandatory contact with tutors, but there must be the guarantee of help.	Again a minimal instructor presence would be the ideal, with the potential of none. Flexibility is a key characteristic here, including sign-up. With a core of individual, self-paced learners the need for instruction has to be minimised. Also again, quality is essential.

6. Student Role Online: • Listen or read • Complete problems or answer questions • Explore simulation and resources • Collaborate with peers	The undergrad learning experience should be as rich as possible, therefore all of these elements are key to develop the individual. Many online programmes downplay the need to be able to read (e.g. via textbooks), as this is a lifetime requirement, but emphasis should also be on critical thinking and collaboration.	Collaboration with peers is always something that an institution likes to boast about, but many masters students like to learn on their own. Many masters programmes are content heavy so the ability to read, understand and complete problems is important.	Completing problems and answering questions has to be at the heart of CPD, particularly where there are compliance issues at stake. Many CPD programmes are box-ticking exercises, but students should leave evidence of understanding and application, e.g. via a personal portfolio, particularly if there is a compliance need.
7. Online Communications: • Asynchronous only • Synchronous only • Some blend of both	Purely synchronous takes no advantage of being online, but undergrads will want, and benefit from, some synchronous contact. However much of their learning can take place asynchronously, as it does on-campus (e.g. students who miss lectures, have part-time jobs, etc.)	While a blend of synchronous/asynchronous is useful, and probably desirable, the synchronous aspect should be kept to a minimum and to aspects where it adds an obvious educational value. In the case of masters aimed at a working population (e.g. medical, MBA) this will be essential.	Again, if CPD learning is to be flexible, then communications will be predominantly asynchronous.
8. Source of feedback: • Automated • Teacher • Peers	The value of peer feedback should not be underestimated and, in fact, it should be encouraged – not just because of the value of the feedback but also as it enhances other aspects of the learning, such as collaboration and communication. Many students will solicit feedback and views from peers before contacting a tutor,	Masters courses should tend towards automated feedback as much as possible, backed up by peers with a cohort. Of course, there are many types of learner: some will want teacher feedback, others will prefer to consult peers and accept automated feedback.	CPD should focus as much as possible on automated feedback and, potentially, peer feedback.

	however for undergrads all forms should be considered. Automated feedback requires a careful and considered course and content design, coupled with a highly functional delivery able to make use of this information and its meta-data.		
9. Role of Online Assessments: • Determine if student is ready for new content • Tell system how to support the student (adaptive instruction) • Provide student or teacher with information about learning state • Input to grade • Identify students at risk of failure	Online delivery and learning technologies open up new opportunities for assessment but, while all of these roles are desirable, that opportunity is lost if the online pedagogy, the content and its delivery are all dumb. To achieve the roles achievable in the classroom (i.e. all but Input to Grade) requires a rich pedagogy, content that can measure achievement, and delivery functionality that generates meaningful learning analytics. Undergrads require all of these.	Masters students should expect exactly the same benefits as those of undergrads. This dimension impacts heavily on the initial online course design and construction. Using a learning environment as a simple file store for poor Powerpoints, word files and PDFs takes little advantage of learning technologies. Adopting an impoverished learning environment that restricts pedagogy is equally bad.	CPD imposes fewer demands, but evidence of the learning state is – or should be – important, e.g. as evidenced through a personal portfolio. Merely ticking over pages or downloading dumb PDFs is to be avoided

There is no such thing as a standard course – or a standard learner – so there are many potential scenarios to consider. Here are some, with examples of possible design considerations for each. There is no prescription, so feel free to re-interpret and augment.

- **Boutique versus mass market**. Most distance learners (e.g. the Open University, London University and some universities such as Heriot-Watt) operate at scale as they design, build and deliver from the right-hand end of the learning spectrum. Most others are cautious of and/or frightened by scale so take the tentative step along from the left into blended learning. Mass market absolutely does not equate to poor quality – quite the converse, as any lack of quality is disastrous at scale. By contrast, trying to repeat the on-campus experience through blended learning often skips the design and deliberation that goes with

distance learning, and hence does result in poor quality. Whatever the choice, boutique or mass, design is important.

- **Open access/self-paced**. If flexibility is key then students should be the drivers of their schedules and be able to start at any time. This has implications for support. But this can be partly addressed by quality and by building a community. Self-paced courses probably obviate the need for mandatory tutor contact, but this has to be supplemented by the guarantee of support if and when needed.
- **A rich online pedagogy**. There is no reason for an online pedagogy to be a poor relation of its on-campus equivalent. In fact, with careful and deliberate design, it can be better in many aspects. An online pedagogy can be, and should be, rich and rewarding, as should its delivery. Many environments are in their infancy while online learning has been gently maturing through highly effective deliveries. London University has 160+ years of distance delivery experience. The Open University, very much its junior, has 50 years. These institutions have learned a lot in that time and that experience is available to others.
- **Support needs vary**. Student audiences will be a mixture of individual learners (e.g. for reasons of location, work, or simply preference) and cohorts. There will be a corresponding variety of support and communications needs. Again, it is dangerous to think that there is only one model.

An example use of the 9D approach

As a concrete example, lets consider possibilities for an online MBA programme. This was chosen for the very reason that this was the origins of CAPDM, but also typically one of the first programmes that a university will look to develop online (because it potentially results in a positive income stream from a wide market?).

The following example is for a 'mass' market, not a 'boutique' offering and it will assume that the online courses will support not only distance learners, but also blended and on-campus learners too. Distance learners therefore a high-quality learning experience and level of support, and staff use a single platform to support all forms of learning.

Design Option
Modality: • Fully online (DISTANCE) • Blended - over 50% online (BLENDED) • Web-enabled F2F (On-CAMPUS)
Pacing: • Self-paced (open entry, open exit) • Class-paced (ON-CAMPUS) • Class-paced with some self-paced (ON-CAMPUS, BLENDED)
Student-Instructor Ratio: • 36–99 to 1 (ON-CAMPUS) • 100–999 to 1 (BLENDED, DISTANCE)
Pedagogy: • Expository (ALL) • Practice (ALL) • Exploratory (ALL) • Collaborative (ALL)
Instructor Role Online:

• Active instruction online (ON-CAMPUS, BLENDED) • Small presence online (DISTANCE)
Student Role Online: • Listen or read (ALL) • Complete problems or answer questions (ALL) • Explore simulation and resources (ALL) • Collaborate with peers (ALL)
Online Communications: • Asynchronous only (DISTANCE) • Synchronous/Asynchronous - some blend of both (ON-CAMPUS, BLENDED)
Source of feedback: • Automated (ALL) • Teacher (ALL) • Peers (ALL)
Role of Online Assessments *: • Provide student or teacher with information about learning state (ALL) • Input to grade (ALL) • Identify students at risk of failure (ALL)

* Ideally assessments should be adaptive but few online systems are truly adaptive at present. There is a whole argument to be had around this area, particularly as online courses that deliver 'dumb' content can do to be adaptive. On the other hand, courses that have content and assessments carefully crafted around higher-level meta-data, such as learning objectives, can begin to use that extra information to monitor and adapt the individual learner's progress and also to provide much more meaningful learning analytics.

Conclusion

Very few institutions have ventured into this area of programme design. Arguably, just as there is sense in treating all students as distance learners, the nine dimensions is something that should be used to contextualise every course design – especially for a set of courses in a programme that has a presence at multiple points on the learning spectrum.

There is sense in developing any new course in this fashion.

Visit https://www.capdm.com/ for more CAPDM briefing papers.