

Engaging Content for Online

Learnovate has compiled a series of guides to support Higher and Further Education lecturers and tutors. The purpose is to provide support in these challenging times to those providing teaching and assessment activities to their students through the use of digital tools and technologies.

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This report was created by Learnovate at Trinity College Dublin.

1. Context

In light of the recent COVID-19 global pandemic there has been an urgent need to move higher education teaching and learning online. Lecturers have been at varying levels of comfort with this requirement. As a leading learning technologies research centre, Learnovate has compiled a series of guides to support lecturers and tutors. The purpose is to quickly provide support to those providing teaching and assessment activities to their students through the use of digital tools and technologies. Learnovate may well follow these publications with more comprehensive resources in the future.

Learnovate, hosted by Trinity College Dublin, is an industry-led centre of excellence for research and innovation in learning technologies.

Learnovate boasts a multidisciplinary team of specialist researchers in learning sciences, computer science, user experience and user-interface design – as well as industry experts at the forefront of e-learning and EdTech innovation.

1.1. Online engagement

As we transition to the need for online teaching and learning one of the factors lecturers concern themselves with most is the lack of face to face contact, the ability of lecturers' to read and understand a class with very little need for verbal interaction.

It will probably always be the case that face to face, especially in small classes, is the ideal but there are approaches you can adopt on digital channels to maximise engagement and learning for your students. Here we look at two ways to enhance your approach to digital teaching and learning:

- Mixed Media
- Content Pacing.

We hope you will find this information useful.

For any further queries, please do not hesitate to contact us at Learnovate.

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2. Mix-it Up

2.1. What is it?

In Online Learning Environments (OLEs), mixing it up means delivering the learning content in a wide variety of formats with the aim of encouraging the maximum student engagement as well as enhancing the learner experience.

It involves using formats such as; text, presentations, infographics, video, audio, case studies, assignments, scenario-based exercises, group discussions, knowledge checks, quizzes and gamified learning to deliver different content within the same module or even lesson.

2.2. What it does

Mixing up content allows for a variety of multimedia formats to be used to provide the learning experience.

The most appropriate format to use can be influenced by the type of learning content – for example, video is an excellent medium for showing events and processes as they unfold since it preserves spatial relations and the look and feel of processes. The use of voice over with video makes it possible to explain what is happening and why, at the same time it happens. This can be especially useful for teaching complex concepts and processes.

Likewise, animation, infographics and illustration can be used to deliver complex content in a way that is easier to understand.

Additionally, mixing up content can also allow for active/experiential learning to be incorporated into online learning courses by using, using case studies after which students collaborate to solve a problem. This can help students to become more actively involved in their own learning thanks to a greater variety of learning activities.

2.3. Why for digital?

Learning delivered entirely online presents new challenges when compared to a traditional classroom because students are physically separated from their instructor and their peers. One of the key

challenges involves engaging students in the online content in order to keep them motivated and avoid any sense of frustration or isolation from taking root.

The importance of student engagement in OLEs is highlighted by the fact that it has been shown to have a major impact on the development of critical thinking skills, higher grades and a general embracing of learning that sees students taking responsibility and carrying out actions to achieve intrinsically motivated goals (O' Shea, Stone and Delahunty, 2015).

Significantly, research also indicates that students learn better and faster through multimedia presentations that supplement text-based coursework which allow them to review content at their own pace (Buzzetto-More, 2015).

In another study, it has been shown that by failing to use the richness of delivery methods afforded by digital learning, the learner experience was adversely affected (Boling *et al.*, 2012). In their study, the research team found that most participants viewed courses that emphasised text-based content, individualized learning, and limited interaction with others as being less helpful than those courses that were more interactive and incorporated the use of multimedia.

In courses that offered little to no interaction with others, students reported feeling disconnected with their instructors, the course content, and their fellow classmates.

2.4. Best practices

The design of any online lessons should be influenced by the type of learning content and should make use of a combination of the following instructional methods:

Expositive methods

With expositive methods, the emphasis is on transmitting new information and, in OLEs, it normally involves a tutor delivering content on a particular topic in the form of a live or pre-recorded video tutorial consisting of some, or all, of the following:

- Presentation of the learning content
- Case studies related to the topic
- Worked examples of the topic
- Demonstrations of a task being performed (where applicable)

Application methods

Application methods involve the learners in activities to practically apply the knowledge they have learned.

Examples of application methods are:

- Demonstration/practice (where students attempt a task or process they have just been shown)
- Case-based exercises
- Simulations or even serious games
- Guided research
- Project work

Collaborative methods

Collaborative methods involve students working together on course content to either acquire new knowledge, use knowledge recently learned and to learn from each other.

Examples of collaborative methods are:

- Online discussion groups (ideally guided or monitored by the tutor)
- Collaborative assignments and projects
- Peer tutoring

The above design can be complemented by the notion of interleaving developed by Taylor and Rohrer in which the practice of different skills is intermixed rather than grouped by type of skill (known as blocking).

Applying interleaving to learning design means that each lesson is followed by a set of practice problems drawn from many previous lessons so that no two problems of the same kind appear consecutively.

Taylor and Rohrer highlight that several studies have shown that interleaving yields better performance in subsequent tests than blocking.

2.5. Tools to help

There are a range of tools that can be used for mixing up content in OLEs:

- Text – using Google Docs, Word or PDF documents.
- Presentations – this can be PowerPoint, Prezi or other presentation software. It is worth noting for online you can use Insert > Audio > Record Audio to add voice to your presentation.
- Imagery - While use of certain copyright material is acceptable under education circumstances (<https://www.tcd.ie/library/support/copyright.php#TeachingMaterials>) you should not forget that most of us have excellent cameras in the form of the smartphones we carry, compose an interesting shot to supplement or augment your point. The two best tips are ensure good lighting and frame the content tightly.
- Infographics – these can easily be created using tools such as Adobe Spark or Piktochart.
- Video tutorials – these can be synchronous or asynchronous and created using video tools such as YouTube. Tools like Vialogues or Edpuzzle can be used to add interactivity. More complex videos can take the form of explainer videos, videos for storytelling or interactive scenarios that students work through.
- Audio – either individual lessons or podcasts created using tools such as Audacity.
- Case studies, scenario-based exercises and assignments – these can be created using standard LMS functionality and could be either individual or group.
- Group discussions – either using the LMS chat function or other discussion apps such as WhatsApp or Slack.
- Knowledge checks – these can be set in the form of true or false/multiple choice questions within an LMS.
- Quizzes – this can be done from within an LMS (e.g. Quiz Tournament in Blackboard) or by using a separate tool such as Kahoot!
- Gamified learning – this can be done in a simple form from within an LMS (e.g. Badges in Blackboard). However, more complex gamification requires using of authoring tools such as Articulate or Raptivity.

2.6. Additional resources

MIT Digital Learning Toolkit

<http://dltoolkit.mit.edu/online-course-design-guide/resources/>

Gamification Design Framework

<https://www.gamified.uk/2017/04/06/revised-gamification-design-framework/>

3. Break it up

3.1. What is it?

Breaking up learning involves delivering the content in shorter, bite-size pieces that are more manageable and easier to remember while at the same time easing the cognitive load of learners. It is often referred to as “chunking”.

It is based on the principle, originally put forward by Harvard psychologist George Miller in the 1950s, that people have a limited capacity in their short-term or working memory. Since then, many have argued that this should be incorporated into learning design by building content in small enough “chunks” that the brain’s working memory can easily process.

3.2. What it does

Breaking up learning content into smaller chunks serves a number of important purposes:

- complex concepts can be broken down into smaller, more digestible chunks giving the learner a better chance of absorbing and retaining the information
- chunks of content can be linked by recalling material learned in previous chunks thus providing opportunities for spaced repetition
- the learner can more easily find and access specific pieces of learning content
- content delivered in smaller, shorter chunks makes it easier for students to fit their learning into busy schedules
- if content needs to be downloaded by students, then breaking it up into smaller chunks makes it more manageable in the case where network bandwidth may be an issue

3.3. Why for digital?

Hardy and Bower (2004) have argued that in moving to digital learning, tutors must take on roles such as mentors, coordinators and facilitators of learning as opposed to simple conveyors of information.

Mayer highlights the risk of cognitive overload in multi-media content and suggests segmenting the learning into bite-size chunks. He also refers to what he calls a segmentation effect: Students understand

a multimedia explanation better when it is presented in learner-controlled segments rather than as a continuous presentation.

3.4. Best practices

When designing content, only include relevant and carefully chosen content.

Break up content so that the essential “need-to-know” information can be highlighted with the “nice-to-know” supporting information provided separately (for example, as a hyperlink).

Connie Malamed, the eLearning Coach, suggests four key steps in breaking up learning¹:

Step 1: Start at the highest level.

Use a chunking strategy while determining the content hierarchy of a course. Determine how modules, lessons and topics will be organized into a logical and progressive order.

Start with large chunks of conceptually related content and use these as your modules. There are numerous organizational strategies, such as simple to complex, cause and effect, sequential, etc.

Step 2: Modules into lessons into topics.

Divide modules into smaller related chunks and these will become your lessons. Continue with this process until content is broken down to the topic level. As you become more familiar with the content, fine tune the internal structure.

Step 3: Chunk at the screen level.

When you have a solid module-lesson-topic structure, organize the content so each screen consists of one chunk of related information. Depending on how you design, this could be at the topic level, at the detailed learning objective level or at the concept level. As a guiding rule, avoid introducing multiple topics, learning objectives or concepts at one time.

Step 4: Do a working memory check.

Throughout the process, think in terms of working memory. Do you really need to include all the content you have in front of you? If not, get rid of extraneous content. Less is more.

Each piece of content within a chunk should aim to support, and not distract from, one major concept or topic.

¹ http://thelearningcoach.com/elearning_design/chunking-information/

After breaking up content into chunks, make sure to leave time for students to practice what they have learned with learning activities challenging students to apply the knowledge contained in the learning chunks.

3.5. Tools to help

The following tools can be used to break down content into smaller pieces of content:

Video editing - tools such as Blender or Lightworks can be used to break up longer video recordings into smaller chunks. YouTube also has a built-in video editor.

Infographics – these can be used to present engaging and informative content in bite-size chunks and can easily be done with tools such as Adobe Spark and Piktochart.

Social media - platforms such as WhatsApp, Facebook, Trello and even Twitter can be used to break down and deliver learning content.

4. References

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