TOOLKIT FOR DIGITAL LEARNING

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The findings of the study on 'Digital Learning in police forces of England and Wales: enablers and barriers in its application' led to the development of a toolkit that aims to help police workforce professionals with guidance for promising practices when designing digital learning packages.

Digital learning is a complicated term to define. It is an inclusive term; it allows an educator to blend learning experiences, to personalise and individualise learning, to provide better opportunities for feedback while putting a learner at the centre and uses technology as a tool to achieve the design of learning (Guenther, 2018). Digital learning may cover formal and informal learning techniques such as video and audio content, text, webinars and virtual classrooms, virtual learning simulations and games, online social communities and media (CIPD, 2019).

The toolkit corresponds to the core attributes set out in the Destination Map 2025 developed through the Implementing Transformation in Police Learning and Development project. These are:

Core Attribute 3 Learning approaches encompass: a) Learning pathways - accredited and informal, b) Access - anywhere and anytime.

Core Attribute 4 Maximising the benefit of technology.

The toolkit also includes elements of pre-design decisions, development learning support, assessment of learners and evaluation of packages.

The 'toolkit for digital learning' in the policing context is a derivative of 'Online Course Design Guide' by Muramatsu, B. and Ludgate, H. Authors and Contributors: Adams Becker, S., Caswell, T., Jensen, M., Ulrich, G., and Wray, E. used under CC BY 3.0. The toolkit is licensed under CC BY 3.0 by Dr Tina Papathoma.

The Online Course Design Guide that this toolkit derived from, was produced by the Massachusetts Institute of Technology (MIT) Office of Educational Innovation and Technology (MIT-OEIT), in collaboration with the New Media Consortium (NMC), to support instructional designers, educators, and facilitators in

the development and implementation of online courses (i.e. digital courses). Each section of the MIT guide contains critical information, recommendations, examples, checklists, and resources for further exploration to create and deliver effective online learning experiences.

The reason for basing the toolkit for digital learning on the Online Course Design Guide is the online learning expertise of MIT and its resources. MIT has long been committed not only to developing but also to delivering high quality online learning experiences such as the Open Course Ware (i.e. a web-based publication of virtually all MIT course content — accessible internationally?). Through Open Course Ware, educators improve courses and curricula and students find additional resources to help them succeed. Additionally, MIT partnered with Harvard University to launch edX, one of the top 5 MOOC (Massive Open Online Courses) platforms in 2016 according to Class central (Shah, 2016) with 10 million registered users. EdX, as an online educational platform offers free, open source, online courses that can be taken by anyone from anywhere.

This toolkit for digital learning provides a means for supporting and recognising a police professional's effort in developing expertise in digital learning and includes elements on the pre-design process, the design and development of digital learning. Additionally, the toolkit involves components to assist with learner support, assessment of learners as well as evaluation of the digital learning packages. Table 1 below shows some practical info about the toolkit.

Practical information about the toolkit	Explanations
How can a toolkit be used?	-as a practical guide for professionals in L&D who wish to develop digital learning packages by linking theoretical underpinnings of digital learning and subject matter expertise or -as a way to evaluate existing digital learning packages
Who will benefit from a toolkit?	This toolkit will provide a means for supporting and recognising a police professional's effort in developing expertise in online/digital learning
What is the main objective of a toolkit?	The main objective of a toolkit is to assist professionals in a police context develop digital learning packages designed to drive learning; ~~and~~ to explore whether existing packages do so, and update them.
What are the main components of the toolkit?	A toolkit has the following components to support people to deliver ? digital learning packages: 1. Pre-design inventory 2. Design and development of digital learning 3. Learner Support 4. Evaluation of learning packages / courses

Table 1Practical information about the toolkit

The components of the toolkit and their detailed elements are presented on Table 2 below followed by a detailed discussion about those.

Components of TOOLKIT	Elements to be taken into account
Pre-design inventory	-Why pre-design is different online? -What information should be collected upfront?

	-Learner analysis
Design and development of digital learning	-Why design and development is different online? -Objectives and Outcomes -Consistent design -Creating content relationships -Content development with media -Content licensing -Designing for interaction between learners and teacher -Designing assessments -Digital learning package checklist
Learner Support	-Why is learner support different online? -Teacher presence -Learner feedback -Time management
Evaluation of learning packages/courses	- Assessment of learners - Learning Analytics

Table 2 Components of the toolkit

1. PRE-DESIGN INVENTORY

Pre-Design is the first step in building a digital learning package/course, and one that will guide the design and development process. This phase entails gathering all of the necessary information to ensure that the package will meet the needs of the learners and engage them throughout the learning journey. Articulating clear learning goals for a learning package is one of the most important components of this phase because it sets the tone for the content and learning materials you will produce, as well as the assessments you will design.

1.1.   Why pre-design is different online?

During the pre-design phase of digital learning packages development, you will make careful considerations about who your learners are and how to best introduce and engage them with learning material. While this process also occurs in the pre-design of face-to-face courses, you can make more spontaneous adjustments and redirects during learning activities that take place in a physical space. Because support/facilitation methods are different online, with many of the learning activities being asynchronous, it is important to anticipate and integrate opportunities for check-ins and redirects into your online curriculum.

1.2.   What information should be collected up front?

Asking the right questions and then seeking answers is a recommended place to begin.	
Who are my learners?	… you need to make sure you can produce content for their level and with the correct voice.
What do they currently know?	…so you can avoid repetition and focus on growing what they have learned.
What do they need to know before starting the package?	…you can provide prerequisite materials to learners and they can plan accordingly up front.
Who are the subject matter experts?	…you should refer learners to other field experts to encourage further exploration.
Do you have existing material that can be used in the course?	…curating content you already have means not having to start everything from scratch.
What other content is available that supports meeting learning outcomes?	…being able to identify other resources that support your key topics adds greater depth to the course.
What content must be revised for a digital format or created from scratch?	…taking inventory of the varying stages of content will inform the design phase and give you a better sense of how much work it will require to prepare the content for online use.

After pinpointing answers to the above, you will be ready to ask yourself:

- Is my course ready?
- Am I ready?
- How much time is needed to teach the content?

1.3.   Learner analysis

A learner analysis will guide the pre-design process taking into account the following points:

- Understanding the size and demographic of your learner population enables you to design a package that best addresses their range of needs. For example, the types of interactions in the

course and the level of feedback you can provide will vary, depending on whether it is a large number that is required for a learning package with hundreds (!) of learners or a small scale seminar with just a few learners. Additionally, individual learner profiles should inform your course design.

- The considerations listed below are important when you are thinking about your learners and determining what kind of course design, content, and delivery method will help them grow.

- Being able to answer these questions as well as understand the reasoning behind them is critical to genuinely connecting to your learners and creating an effective digital environment for them.

Factors to Consider about the Learners	
Characteristics: Who are my learners? What is motivating learners to take this package? Are learners taking my package to earn a certificate or expand their professional skills in this subject area? What professional experience do my learners have?	**Why:** Understanding the unique characteristics of your learners will help you design a package to leverage their intrinsic motivations. Additionally, identifying characteristics of a cohort or group can offer additional opportunities to engage your learners on that common ground. For example, there might be programs that may expect a police workforce in an operational area (e.g. stop and search) to have some degree of professional experience, while another chunks of learning may expect to serve police officers with no relevant experience, for example an emerging or new form of criminality (i.e. a new form of 'legal high' and its impacts).
Prior Knowledge: What do my learners already know? Are learners familiar with the subject matter? Have the learners completed the appropriate prerequisite coursework? Do the learners have the technology skills necessary to complete assignments?	**Why:** Having an idea of your learners' knowledge base will help you focus your instructional goals. This way, valuable time is not spent reviewing material that is already known, or expect them to succeed with concepts for which they do not yet have sufficient foundation. Also, it might be the case the police workforce might not have the digital literacy to participate in a digital learning environment; so sufficient written instructions should be given (i.e. how to start a video, how to navigate on a page etc.).

Access to Technology:	Why:
How does access to electronic and web tools impact the learners? How will learners access your course? (e.g., computer lab or personal devices) Do the learners have access to all equipment necessary to complete assignments? (e.g., video camera or software) Are your materials universally accessible? (e.g., mobile-friendly, closed captioned, meaningful link titles, etc.)	As an educator, you want to be certain that all of your learners have the tools they need to succeed. If the content is developed and shared digitally, it is best to design with these considerations in mind so that you do not have to retrofit the content. You should develop flexible content that can be presented and consumed across various devices so that you do not exclude learners with limited technology options.

2. DESIGN AND DEVELOPMENT OF DIGITAL LEARNING

Outside of the actual teaching and facilitation within your digital learning packages, design and development represent the largest and most time-intensive stages. In this phase, learning strategies are mapped out, learning content and media are developed, organisd, and sequenced, and supporting technology is selected. The choices you make in the development of the course will directly and can significantly impact the quality and perception of the learning experience.

In the design and development phase, you will be describing learning objectives and outcomes for the course/package in a way that is approachable for the learners, and then defining specific activities and tasks that fulfill those objectives and outcomes.

Digital learning requires the maintainence of a social presence, because it is important that the learners see the platform consisting of real human beings. Similarly, this notion must be echoed in the online learning environment itself — learners should feel like they are part of a community where they can openly initiate and participate in discussions.

### 2.1. Why the design and development are different online

In face-to-face learning settings, the teacher can physically provide important instructional materials and verbally direct and redirect learners through various learning activities. Such moderated guidance is not available in the same manner online, where learning is more exploratory by nature. In most cases, learners are accessing course content and interacting with learning activities asynchronously. A great deal of care must be given to the creation, organisation, placement, and support of course content. The easier it is for learners to locate and engage with learning activities, the more mental energy they will have to focus on the content.

2.2. Objectives and outcomes

The design phase starts with keeping your desired learning objectives and outcomes at the centre of every component of your package. While many educators in the university contexts have started using the terms

learning *objectives* and *outcomes* interchangeably, they are each rooted in distinctive definitions. In the context of policing the same use of objectives and outcomes does not differ. When properly described through writing or multimedia, these elements will provide a foundation for the course and guide you in making appropriate curricular and assessment choices. Clearly expressing the objectives and outcomes informs learners as to what is expected of them. Learners can subsequently monitor their performance and learning against these stated objectives and outcomes.

Bloom's Taxonomy covers three areas: the cognitive, affective, and behavioural learning domains. Each of these domains is further divided into levels of higher order thinking and performance, as seen in the accompanying graphic. Ideally, each of these levels should be represented in the learning objectives and outcomes you design for your package. These levels do not correspond with the difficulty of the subject matter in your package, but rather the level at which the learner demonstrates their mastery of the material. For instance, even lower level courses can include evaluation and analysis activities.
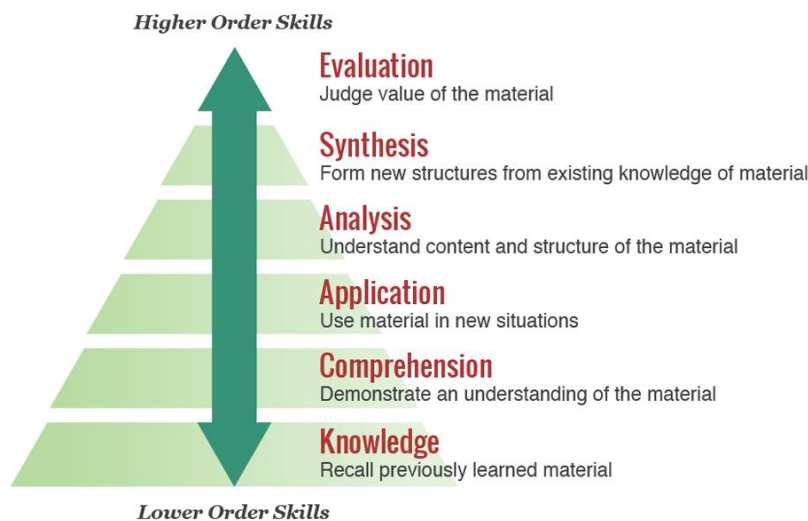
Learning outcomes are general statements that describe the essential learning (knowledge, skills, and attitudes) that learners will achieve by the end of the course. They should encompass the depth of the knowledge and skills that you will be ultimately assessing. When composing outcomes, be mindful not to combine elements that cannot be assessed by a single method. Outcomes are broader than objectives in the sense they apply to an entire course. Several objectives may align with and support a single learning outcome*Example of a learning outcome statement for a police context course:*

When asked to solve a problem in police contexts, the learners will be able to draw upon previous knowledge, theories, and concepts from their coursework to explain and demonstrate their solution.

Example of a learning outcome statement for a police context course:

All learners will be able to explain the theoretic basis of Z, presented in their final portfolios.

Objectives vs. Outcomes	
…are intended results of instructional activities.	…are evidence that learning took place.
…focus on specific types of performances that learners are expected to demonstrate.	…specify what learners will know and be able to do as a result of the learning activity.
…are teacher-centred in that they indicate the subjects the instructor intends to cover.	…are learner-centred in that they describe what the student should learn.

2.3. Consistent design

When designing your course/package, it is essential to have a comprehensive plan and to design with the big picture in mind to ensure you reach every milestone and build consistency throughout the curriculum.
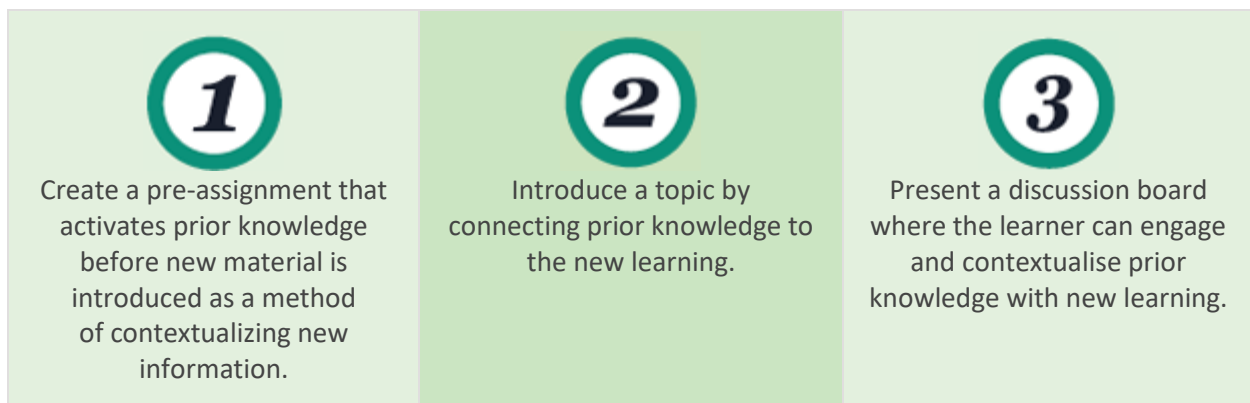
Key elements of a consistent design are:

- Course information
- Course learning objectives and outcomes
- Lesson topics and format
- Learning resources
- Activities and assessment

2.4. Creating content relationships

Strategically organise and present all course content to leverage the learners' existing expertise on a topic against the concepts and skills they are going to learn. Maximizing the use of their prior knowledge base can help the learner identify patterns in new material by associating their existing knowledge with new concepts.

This can be accomplished through the following actions:

1	**2**	**3**
Create a pre-assignment that activates prior knowledge before new material is introduced as a method of contextualizing new information.	Introduce a topic by connecting prior knowledge to the new learning.	Present a discussion board where the learner can engage and contextualise prior knowledge with new learning.

2.5. Content development with media

Depending on how you choose to introduce, curate, or present the learning topics, creative applications of media can further engage learners in the material. A traditional lecture style approach to teaching is not effective in the online classroom. Simply posting your slides within the MLE does not leverage the interactive learning opportunities available in this dynamic environment.

The integration of media and technology can:

- Introduce and guide main concepts
- Generate interest in a subject
- Reinforce confusing or complex ideas
- Frame overarching themes
- Set the stage for an activity
- Curate a particular approach for how the learner should explore a topic

There are a wide variety of free resources available online to help you create or enhance your lessons with media. Teachers can leverage tools, such as the ones outlined below, to develop dynamic, engaging learning activities.

- Animation
- Audio Editing
- Blogging
- Bookmarking
- Copyright Free Media
- Desktop Publishing
- Image Editing
- Instructional Videos
- Management Learning Environment
- Mind Mapping
- Photo Sharing
- Presentations
- Slide Sharing
- Social Networks
- Storage
- Surveys
- Timelines
- Video Editing
- Video Hosting

2.6. Content licensing

When you begin designing and sharing content for your package, including articles, videos, music and other media, it is important to understand the content licensing laws of the UK. There are many venues to access and share open materials. If you are looking for content you can repurpose or adapt for your course, the Creative Commons offers an extensive, searchable database of media with flexible licensing. Resources about licensing are also readily available online for instructors, and that same information should be shared with the learners so they understand the legal parameters surrounding the dissemination, re-posting, and re-mixing of the content.

2.7. Designing for interactive community of learners-teachers

A robust online learning community is born in the design phase through preliminary organisation and planning, and the authoring of clear community expectations. While meaningful learning can happen outside of a community, the overall learning experience usually benefits from community.

Consider designing the following community-building elements prior to course start:

Build rapport:

- Create a welcome video introducing yourself and the course
- Design a discussion area where you and your learners introduce yourselves
- Create a welcome note on the course's landing page that contains directions and first steps. (e.g., read syllabus, review course layout, and introduce yourself in the discussion forums)

Encourage interaction with clear expectations:

- In your syllabus or a similar document, convey to learners the importance of participation and the expectations for their contributions throughout the course
- As part of the design of the various assignments and activities, include opportunities for questions and other types of interaction
- Create standalone participating guidelines that provide tips for learners on best practices in interacting

2.8. Designing assessments

When you design and develop online assessments consider the following best practices:

- Align each assessment with specific learning objectives and course outcomes. There are several methodologies to use when mapping assessment to objectives and outcomes, including Bloom's Taxonomy and Outcomes Based Assessment
- Diversify assessment types to align learning with particular objectives; the learner is assessed around competency of a particular objective with different strategies, such as projects, group work, and simulations
- Create both formative and summative assessments to evaluate the progression of learners throughout your course. Formative assessments are employed during the learning process, whereas summative assessments are employed after the learning process is complete

2.9. Digital learning package checklist

Designing and developing a course/package is an intricate, multi-step process. A final guided review of the course will ensure alignment between course objectives, instructionand assessment. The checklist below is an example of how to perform a review that reflects your course blueprint.

Course Introduction

- The syllabus that was created as a part of your blueprint clearly describes the course and its connection to the overall degree/certification program and to the profession/discipline
- There are easy-to-understand instructions for learners about how to get started
- It is clear what materials will be used in the course and how they can be accessed

Learning Objectives and Outcomes

- The course landing page and syllabus state clear course objectives
- The syllabus clearly states what outcomes the learner will achieve after successful completion of the course
- The learning outcomes are measurable
- The course objectives and outcomes are appropriately designed for the course level
- Learning Resources
- The learning resources support the course objectives
- The learning resources are appropriately designed for the level of difficulty of the course
- The learning resources are diverse to cater to a range of different learning styles

Assessments

- Levels of learner performance are clearly outlined
- The assessment measures are aligned with the stated course outcomes

- The assessment methods are consistent with activities and learning resources
- The assessments fit the appropriate level of difficulty for the course outcomes

3. Learner support

After designing and developing your package, it is time for the instruction to start in the live online environment. One of the critical components for a successful online learning experience is effective facilitation of the course. The learners should be able to absorb the information presented and share their interpretations and knowledge with their peers so that the online environment feels like a collaborative community.

3.1. Why is learner support/facilitation different online?

Facilitation is arguably the area with the biggest distinction between online and face-to-face learning. In a classroom, the instructor's presence is easily felt because of the physical nature of someone standing in front of a room. Eye contact, body language, and all kinds of human gestures foster an unspoken connection with learners. Additionally, face-to-face environments offer the chance for learners to ask and answer timely topical questions. In an online environment, the instructor must design opportunities to engage learners at the same level. Online instructors should establish a reliable presence through active and consistent participation in discussion forums by offering continual feedback to the group as well as individual learners, in addition to being accessible for questions or check-ins on a regular basis.

3.2. Teacher/instructor presence

There is a misconception that the online environment replaces the teacher/instructor. For digital learning, the role of the instructor is pivotal and can be the single largest influencer of learning and the learner experience; learning online does not mean learning in isolation. Actively support your learners by guiding the learning process, encouraging interaction, and prompting reflection.

Welcome Learners

One of the first ways to set up learners for success is to create a welcome letter or video for the course. This will help the learners make an initial connection with you. This letter or video should summarise the course and the associated learning goals along with providing the ways that they can reach you. Make sure to include any scheduled synchronous events they need to plan to attend.

Encourage Community

In order for a community to emerge within the online/digital environment and to build trust, learners must feel your presence throughout the course. Regularly communicate to your learners about the status of their performance by providing opportunities for both individual and group feedback.

Connect with Learners

Create a discussion forum that provides a venue for learners to get to know you and each other. This is also an excellent way for you to model desired behavior in the forum. The interactions you initiate will be mostly related to the subject matter you are teaching, but make sure they feel personal and conversational.

Actively Participate

Be present in the learning experience by actively leading, nurturing, curating, and stimulating the learning at both the course and individual level. If you build learning communities and activities that involve dialogue, consistently participate in the process.

3.3.   Learner feedback

Provide learners with regular check-ins to evaluate their performance and communicate feedback. This allows learners to assess their progress, identify areas for improvement, and celebrate achievements.

Examples include:

- Providing weekly self-diagnostic or diversified assessments that give immediate and detailed formative feedback on learner performance
- Responding substantively to learner contributions in discussion forums or other dialogue tools
- Providing weekly summaries of general class performance through video or other media-rich formats
- Sharing topical or weekly introductions through video or other media-rich formats
- Maintaining regular and accessible virtual office hours for learners to communicate with you

Leverage Learner Contributions

If you have discussed a particular topic in previous courses, you may be able to predict learner responses. Plan to use these expected responses to challenge learners to think deeper or differently about a topic.

Encourage, Nurture, and Recognise

Publicly acknowledge learners within a forum when their contributions are particularly strong or reflect exceptional preparation and understanding. Inspire these high performers to take their work to the next level by personally recommending additional resources to them. Their contributions and your

engagement enhance the overall course dialogue. Encourage participation in your regular announcements and private correspondence with individual learners. Make sure to also motivate less advanced learners with positive reinforcements when they contribute.

Focus the Discussion in Forums

Regularly check the forums to ensure responses are appropriate and relevant. If a subject veers away from the intended material, you can reign in the group and guide them back on-topic. Sometimes a conversation may go off-course in a positive way and touch upon other instructional objectives. Find the balance between meeting learning objectives and sustaining the health of a community. Be careful not to publicly single-out or scold a learner. If one person is regularly derailing a discussion, initiate a private conversation. If several people are going off-track, gently bring the group back to the desired focus.

Respond to Individual Learners

Each week, it is not necessary to respond to every posting by each learner. You can respond at least once to each person or you can develop a schedule that shows that you are attuned to individual learners. Responding to a learner's post demonstrates that you are listening. This is a significant factor in learner satisfaction, and large classes may require a modified approach.

Involve Learners as Co-Facilitators

Leverage the learners who are excelling with their participation by asking them to be co-facilitators for the discussions. Provide clear expectations for this role and tie a grade or another qualifier to the work. While co-facilitation can enhance a forum, do not use this strategy to replace your active engagement.

Facilitate Synchronous Events

Synchronous refers to real-time communication and instruction — think of it as a live conversation with your learners. The use of synchronous tools, such as web conferencing applications, chat, and other real-time collaboration tools, can enhance the learner experience and support learning goals. Real-time community tools are great for team-building, walking through complicated processes, and offering opportunities for questions and the exchange of ideas.

Tips for facilitating synchronous events:

- Test equipment
- Use a checklist of items before event
- Manage roles
- Encourage participation
- Build in interaction
- Use visuals

3.4. Time management

Teaching online requires a shift and re-evaluation of how you manage your schedule. The first few times that you teach a course online will require more time and effort, so plan accordingly. There are also several aspects of online facilitation that are more time-consuming than in face-to-face settings. For example, the learners are going to have to navigate through all of the content in the environment, in many cases without your real-time guidance. If the content is not organised in a manner that makes sense to all of the learners, questions will arise that may prompt you to make adjustments to the layout and workflow.

Online courses afford more flexibility for learners, as they are able to log in anytime from anywhere. As such, it is important for you to clarify expectations upfront that you cannot always be personally logged in to provide immediate responses. This is why it is critical to clearly communicate your office hours as well as how long it will generally take for you to reply to a question or comment.

4. EVALUATION OF LEARNING PACKAGES/COURSES

Evaluation is a critical part of the teaching and learning process. It completes the feedback loop, and helps you determine if the learners have understood the material presented to them. During this phase, you should be assessing the knowledge and skills that were defined in the learning outcomes statements. These evaluations will also help you improve your facilitation and the course design as you will see how well learners have engaged with the subject matter.

In addition to giving you the sense of how learners comprehend the material, evaluations can help learners gauge their own level of understanding.

4.1. Why is assessment different online?

Digital learning environments require more assessment measures because of the inherent lack of informal feedback that a face-to-face learner can immediately gain from chatting with a classmate mid-lecture to clarify a point, or by casually approaching the instructor with questions after class. As such, it is essential to build in such opportunities for reflection through various forms of assessment. It is equally important that your feedback, to the group and the individual, go beyond simple questioning or agreeing in order to model the level of critical thinking you expect from them.

Many learning management systems allow learners to publicly post their work. Having learners review each other's work and post feedback to one another is a type of effective informal assessment. As the instructor, you can respond to the critique as necessary to emphasize or redirect key points.

4.2. Assessment of learners

An assessment is the process of documenting the knowledge, skills, attitudes, or beliefs of the learner after they have completed instructional activities. Assessment provides information about an individual learner, a group of learners, an institution, or an entire professional development system.

The term assessment is generally used to refer to all activities used to gauge learner progress. When thinking about assessments for your package/course, it is important to tie them to the concrete goals and objectives that were stated at the beginning. Provide feedback to learners early and often so they feel they are supported.

Note that the terms "assessment" and "evaluation" are often used interchangeably, but they each have distinct definitions:

Assessment refers to how you will collect tangible data in your course in order to monitor whether the learning objectives and outcomes are being fulfilled. Simply stated, assessments determine what learners learned and how they learned it.

Evaluation refers to your overall judgment on whether the course/package has met the learning outcomes and objectives you conveyed at the beginning of the course.

In the evaluation phase of your digital learning package/course, you will examine the data that you collected through the assessments in order to make this judgment about whether the course was successful. As such, the assessments you develop are crucial components for evaluating your course.

While you will be assessing learners' performance, perpetuate a learner-centred environment by creating opportunities for feedback from the learners on whether they believe these goals and objectives are being supported by the course activities and the resources made available to them. Additionally, teaching them techniques for self-assessment will allow them to chart their own growth throughout the course and take more ownership of their learning.

Types of Assessments

Objective	Formative	Formal
A form of questioning in which each question only has one correct answer	Qualitative feedback that focuses on the details of content and learner performance	Assessments that quantify the knowledge gained, such as an exam or paper, and impact learners' final grades or providing a certificate
Subjective	**Summative**	**Informal**
A form of questioning in which each question has more than one correct answer	The measuring of learning at the end of a package or course to determine achievement of the learning objectives and outcomes	Assessment activities that do not contribute to learners' final grades or certificate achievement that can be used to give guidance on where they need to focus their studying for professional development

4.3. Learning analytics

Whereas assessments look at the performance of learners or groups of learners, learning analytics takes this notion a step further. Learning analytics leverages a wide range of data about learners and their behaviours to help determine the optimal learning environment.

Excerpt from the New Media Consortium's definition:

Learning analytics is education's approach to "big data", a science that was originally leveraged by businesses to analyze commercial activities, identify spending trends, and predict consumer behavior. Education is embarking on a similar pursuit into data science with the aim of improving student retention and providing a high quality, personalised experience for learners. Learning analytics research uses data analysis to inform decisions made on every tier of the educational system. This data can be leveraged to build better pedagogies and target at-risk learners.

There are several different categories of usage for analytics:

Identifying At-Risk Learners

Tracking learner performance on initial activities will give you a sense of which ones are at risk of failing the course or not being able to grasp the material. Identifying these individuals early in the process allows you to give special attention to the learners before it is too late.

Tracking Interaction

Gathering data on how long learners are interacting with readings or videos you posted will help you see how engaging the learning content is and how well certain topics are being understood.

Pinpointing Effective Techniques

Learning analytics are often used by instructors to identify the success of their pedagogies. Integrating systems (e.g., polling) that capture data about how comfortable learners are with the material as it is being taught can help you make the necessary adjustments to better align your teaching methods to their learning styles.

References

CIPD, (2019) Digital Learning, Retrieved August 31, 2019, from https://www.cipd.co.uk/knowledge/fundamentals/people/development/digital-learning-factsheet

Guenther, B., (2018). Digital Learning: What exactly do you mean? HUB for Innovation in Learning and Technology. Retrieved August 31, 2019, from https://hub.msu.edu/digital-learning-what-exactly-do-you-mean/

Muramatsu, B. and Ludgate, H. Authors and Contributors: Adams Becker, S., Caswell, T., Jensen, M., Ulrich, G., and Wray, E. (2014). Online Course Design Guide. Cambridge, Massachusetts: Massachusetts Institute of Technology.

Shah, D. (2016). By the Numbers: MOOCS in 2016. How has the MOOC space grown this year? Get the facts, figures, and pie charts. Retrieved March 15, 2019, from https://www.class-central.com/report/mooc-stats-2016/