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Designing assessments

School's out – forever...

You used to ask it in school all the time: Is this going to be on the test? Yes, it's going to be on the test. But...shhh...it's not going to be hard. If you can just retain these simple facts about the history of this piece of legislation for 10 minutes, you'll get through it. Once you get 80% (and we don't care how many goes that might take), we'll all pretend you've had an education and we'll move on with our lives.

Sound familiar? Too often we all encounter e-learning modules that have not moved on much from the classroom. Most e-learning tests are not an indicator of anything much other than short term memory recall, and we'll all a little too long out of school to care much about that.

Designing effective e-learning assessments means working a lot harder. In this guide we'll look at

Why we need to use assessments

Five design principles for assessments

How to make the most of different question types and approaches

Examples of assessment in action

Which types of assessment are right for different learning needs

When and how to deliver the assessment – including mobile

Assessment – do we have to?

Most learners would be a lot happier if we just dropped it. And sometimes you can – see the box below. When it's got to be there, it's usually because you want to know, or need to show that your learners have reached the desired level of competence on all the key learning points you included in your e-learning programme. Competence isn't the same as knowledge level. We want to go beyond recall to ability to apply.

Usually you need to say yes to assessment in these situations:

- It is part of a **qualification** programme and so you have to assess learner ability to award a qualification

- You have to prove to external bodies that all your learners have completed and reached a minimum level of ability **(e.g. compliance training)**

- **It is part of an overall blended approach** and you only want learners who have reached a certain level of knowledge going on to the next stage (which could be a workshop for example.)

You should always inform learners that they are about to take a formal assessment in which their scores will be stored and will go into their learning and development records.

Our view: Don't assess for the sake of it

Sometimes it can be a knee jerk reflex to include a test at the end of e-learning – just to keep learners on their toes or because your stakeholder wants to know, after all this development work, that his or her people learnt something. Let's put in an assessment, why not, can't hurt. But if it's not really necessary, do we really need it.

This is where you need to go back to the initial objectives of the intervention. Why was the learning required in the first place? Outside the world of academia, it is usually because you want your learners to be able to perform better. Having the underpinning knowledge is all well and good but the true test of any learning programme they go through should be observable and quantifiable improvements in their performance.

This could be:
- **Reductions in errors**
- **Increased sales**
- **Higher customer satisfaction ratings**

In this regard, your learners are being assessed every day through business metrics – those are far more important indicators. In a recent project for M&S, we were set targets of achieving improvement in mystery diner scores – that was far more important than passing the assessment in the module.

A learner knowing what they should be doing is fine but if they do not apply this knowledge then the training investment is wasted, however high their marks in the exit test in the e-learning.

Increasingly we're designing learning experiences that are meant to be there as resources to support decision making. They're not really designed to be assessed, any more than you'd expect a quiz on every 100th visit to Google. Make sure you're clear on whether you're designing a performance improvement intervention or a supporting resource – don't assess the latter.

Do learners get anything from it?

Someone quipped that assessments – in compliance e-learning at least, are there to prevent the CEO from going to jail. And when they're just box ticking question sets, that's probably true – nobody benefits except the organisation and the regulator. But if they're designed right, assessments can provide benefits for learners too.

An assessment at the end of a module (known as a summative assessment) or ongoing assessments throughout (formative assessments) can help learners:

- **Work out for themselves their areas of weakness** and encourage them to review the relevant parts of the e-learning

- **Set themselves a challenge -** some learners (the competitive ones especially) like to check how much they know

- **Compare their knowledge at the beginning and at the end** and get satisfaction from seeing proof that they have learnt something.

But that only works if there is a sensible design approach to the assessment.

What makes for good assessment design?

Here are five steps you can take to produce well designed assessments:

1. **Don't lock it down:** We're not in school any more. Adult learners expect freedom to go straight to the assessment if they think they can prove their competence. It can be a frustrating experience if it's locked down until all the learning is completed. This is especially true in compliance modules where there may be a degree of prior knowledge or when it's an annual refresher. Let learners test out and get on with their lives if they can prove they're up to speed.

2. **Test behaviour, not memory:** Nobody needs to remember legislative or even product detail any more. They just need to know where to get it. So there's no point in testing recall of facts. 'What year was the DDA written in?' is a lazy, useless question. It's easy to write, which is why its ilk appear very frequently in assessments. We need to concern ourselves with assessments that test whether learners are competent and confident that they know what to do in a given situation. So we aim to design questions that test behaviour, not recall – think 'what if' questions rather than 'what is'. This can mean creating a full scenario with characters, realistic situations and challenges -- all the effort you put into the learning expertise should be there for the assessment too.

3. **Make it tough enough:** Lazy questions are usually easy to guess. Well structured behavioural questions with evenly weighted and plausible choices are much more difficult to write – but they're worth it, because they're much more difficult to guess. And you need to make your assessment tough if you're going to give people freedom to test out. We heard one learner in a focus group say "I tried to guess my way through like usual, but I kept failing, so I decided to try and get it right for a change and it was quicker that way'. Good feedback to get...

4. **Use a range of question types:** Don't stick with a one track multiple choice question. Depending on the authoring tool or environment you're working in, you will probably have many options available to you. Open Source LMSs like Moodle have great in-built assessment tools – explore all of the different options available. We look at a few of them later.

5. **Don't be afraid of some fun:** We've found that learners respond well to quiz techniques, such as timers, lifelines, and the like – adding sometimes a sense of pressure. Works for some audiences, doesn't for others - you need to know whether it's right for you.

Type of question	When should you use it?	Top tips
Multiple-choice – Single answer	Can be used widely Useful when there is a clear right answer but plausible wrong ones Can be used effectively in mini simulations if the question branches to a secondary question which poses a 'what would you do now?' style question You can often provide specific feedback for each option selected –allowing very tailored reinforcement of learning.	Make the alternative options (sometimes called 'distractors') as believable as possible If you know there are common mistakes or traps that people fall into on certain topics, make one of the options relate to this and then the feedback you give can be useful and quite directive. You could send them back to try again with a hint or a clue – but reduce the score to reflect the initial mistake Do not put in funny or silly alternatives to make up the numbers. It's irritating. Ask yourself – would a sane person consider this a viable option? Avoid making the right answer the longest – this is a common mistake and easily spotted by learners Phrase questions as neutrally as possible. You can try and lead the learner into wrong answers if the question is used within the learning programme Alternate which answer is correct in as random a fashion as possible. Learners often like to think they can guess which will be the right answer this time.
Binary choice (True/false, Yes/No, Go/No Go)	Testing knowledge that is very clear (no grey areas) e.g. legislation and health safety issues	You can add a 'Not Sure' option if you want learners not to guess. Since it is feasible that a whole set of binary choice questions could by pure chance lead to a 50% score, you need to put pass marks high or add a scoring system which strongly penalises incorrect answers (and so deters guessing)
Multiple-choice – Multiple answers	Ideal if there are number of correct answers Useful for testing whether learners can recall checklists or sets of information	Be careful about doing too many 'they are all correct' questions Keep learners guessing by including varying numbers of correct answers. Don't always have one incorrect one, for example

Type of question	When should you use it?	Top tips
Drag and Drop	Good for engagement as they involve a bit more user activity. Good for checking learners understand the right order in which processes take place Good for questions involving correct sequencing or steps in a process, or ordering priorities.	This is the least accessible of the assessment questions as they cannot provide enough information for a screen reader for visually impaired learners. If accessibility is important for your target audience then avoid them. For an accessible version of this type of question, you should be able to use keyboard controls to select and drop options
Matching Lists	Ideal to test understanding of relationships among objects or terms. Good for definitions of technical terms for example	Keep the lists short and manageable You can possibly have one extra option so the last choice is not always obvious
Fill in the blank	A traditional type of question that is useful for precise syntax or language identification Because it gives quite a lot of structure and context, it is good for less confident learners	Can be combined with a multiple choice i.e. the blank is replaced by a drop down menu with possible options Be careful about anything that the learner has to type in because there is a high likelihood of typos. This will mean you have to accept a number of alternate correct answers or look for key phrases or letters It can be complicated so not advised for most rapid e-learning solutions
Open input	A variation of the above approach This either assumes some degree of key word checking (which is complicated) or an assessor who reviews what the learner has typed in Useful when you really want to know what they know. Multiple choice options are a simple register of knowledge and can unrealistically cue people's memory when they see the correct option amongst the possible answers	This is not much different from a standard exam model You will need standard marking systems and model answers if you go down this route Open Source LMS tools like Moodle have quiz tools that will enable you to capture short or long essay questions, and tutors can then review and score them – but you need to have resource to do this

| Type of question	When should you use it?	Top tips
Rating	This is useful if you want people to reflect on what they think they know. Combined with a set of multiple choice questions, you can see if they are both confident and knowledgeable, and take a diagnostic approach	Use these questions to prepare for subsequent learning events You can see what people think they know and what they are still unsure of from these kind of survey style questions
Hot Spot or Graphical MCQ	Visual and engaging. Very useful for IT training – click on screen areas to open applications or input into correct fields. This can be combined with keyboard entry (see below) for IT-based assessments Good for identifying objects, areas e.g. spotting health and safety hazards in a room	Can prove to be complicated for those who have visual disabilities, so be careful if this is a target audience Do not give away the correct areas by having the cursor change over dead areas. If this cannot be avoided put in a whole series of dummy areas which give either hints or direct feedback for a wrong choice Make the click areas large enough – at least 20x20 pixels and make them visually very distinctive
Keyboard input	Useful in IT simulations when you want users to type in entries into fields	Be careful that you are only testing their ability to remember names or personal details. So, try to provide any data that you expect them to type in on screen or easily accessible during the assessment

Assessment in action: some examples

Here's an example of a scenario-driven approach from a recent compliance module.

We start by setting the scene for the assessment and explaining that it's a problem-based approach, and also make clear the passmark and quantity of questions. Like any piece of learning, you need to set expectations:


Challenge screen: As we do in all scenario-based questions, we create a context and then ask a behaviour based question:
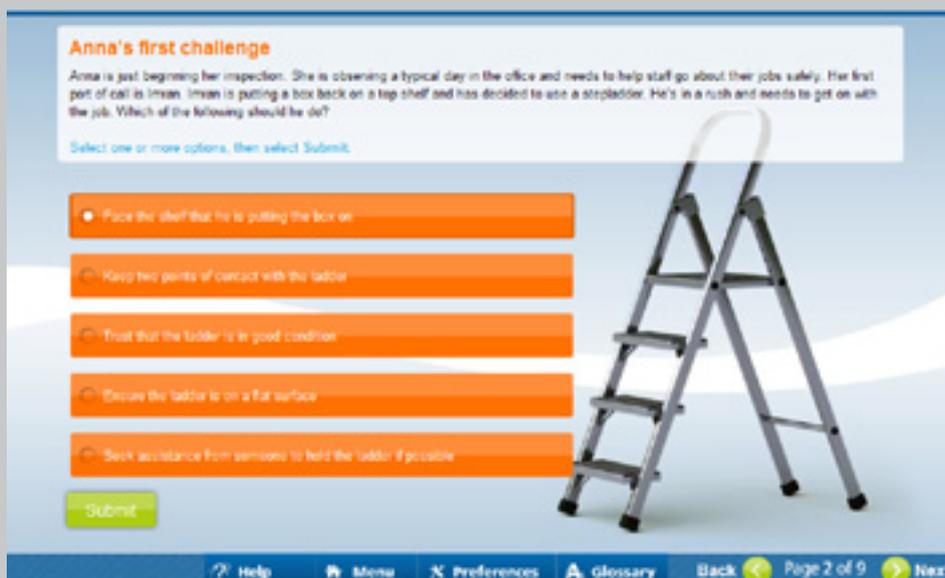
Here's another question, here showing how we can use a graphical approach to testing:
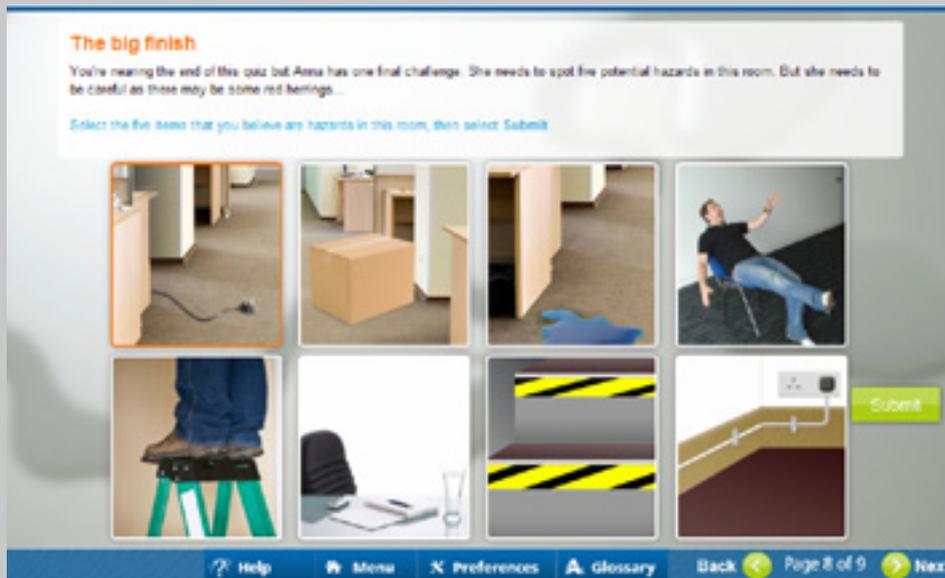

Another design approach we show below uses more of a game-element to the final assessment. This one uses some scoring on different levels. In this example (on sales and product knowledge) the learner is faced with customer questions and how their response is reflected by remedial feedback and increases, or decreases, in the dashboard style product knowledge and sales ability meters. It also uses a timer and lifelines to raise the stakes here:
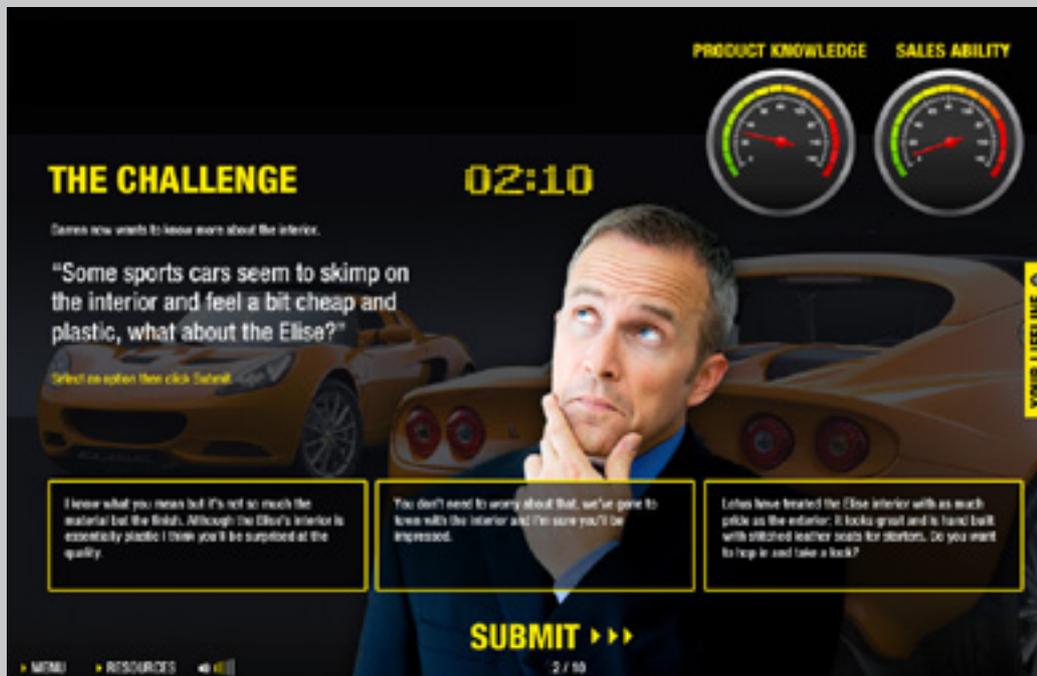
Here's another example from our work with Nikon, where we use game like elements throughout the challenges, which appealed to the competitive nature of the sales population (and yes, there was a big prize).
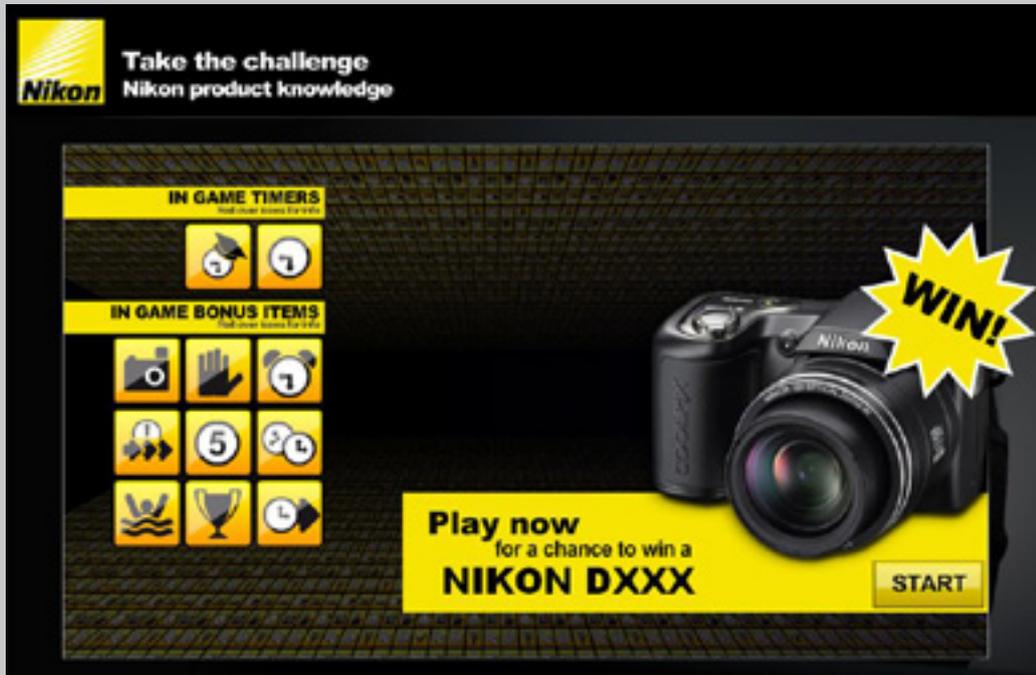
Given the subject, a graphical approach was appropriate here too:
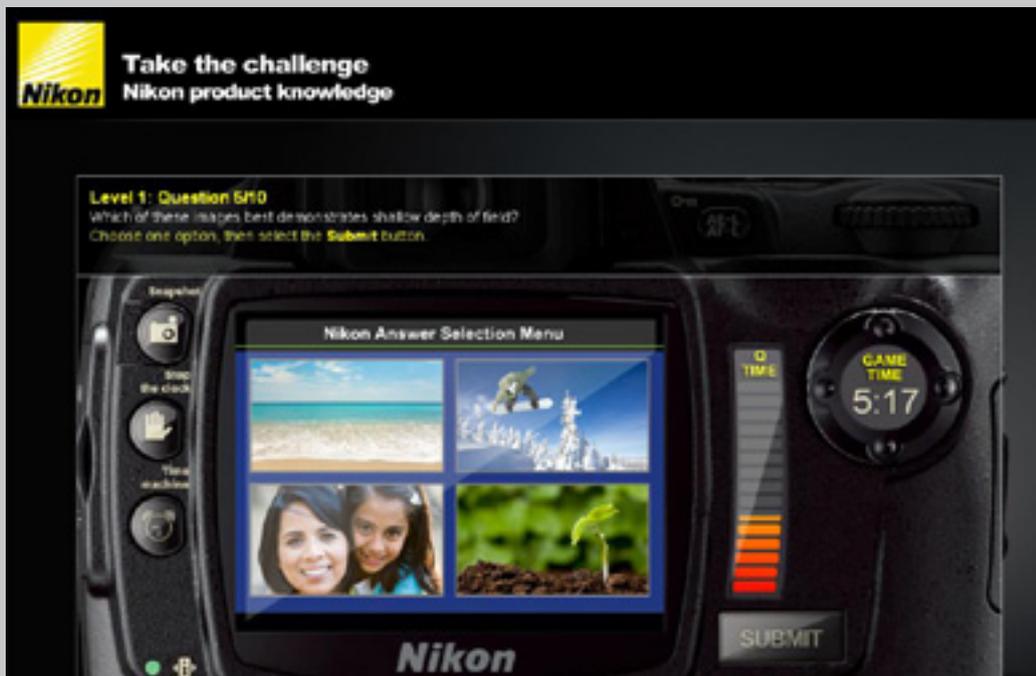
What assessment model is right for which topics?

So you've seen some ways to develop assessment. But what works for different topics?

Induction – Don't assess

Sometimes, you don't need to know what people have learnt if there is a danger it provokes a negative reaction. This is definitely the case with induction or orientation programmes. It is their first few hours in the organisation, the aim here is to be helpful and not give any suggestion of a 'big brother' mentality.
If they want to check their understanding, offer them a light-touch quiz - but make it voluntary and do not track the scores.

Management skills – Assess through application scenarios

Unless it is a formal academic qualification, you are in most cases looking to test the application of knowledge as much as possible. So, avoid testing knowledge of management theories via sets of multiple choice questions. Managers will see through that. Instead present situations and ask how the learner would handle them.
These could be simple multiple choice questions or more ambitiously you could branch to set up simple simulations where the learners see the consequences of their actions. In the case of the latter approach, the score could simply be a successful or unsuccessful end to the scenario.

Sales - Assess through application scenarios

Sales training needs to be very practical and applied and so assessments need to be the same. As in Management Skills, the scenario based test is very engaging for the average salesperson as it concentrates on the application of knowledge rather than an assessment of the knowledge itself.

Product knowledge – Assess through application scenarios, provide access to supporting resources

Since this product knowledge is often used in the context of dealing with a customer, you should aim to design an assessment with a scenario approach in Sales. This will show if the learner's product knowledge can be applied in real-life scenarios. We'd recommend providing access to resources with product information to support the learner. On the job they'll be looking it up in most cases anyway, so the assessment should be 'open book' too.

Customer care – Assess through application scenarios or system simulations

This is an area best suited to simulations or scenario-based questions. Customer Care is as much about attitude as knowledge and so is notoriously difficult to test through simple interactive questioning. In the end the best way of assessing someone's competence in this area will be through direct observation.

The best ways of testing knowledge and competence in customer care is through a challenging scenario in which there are not always obvious answers (e.g. subtle ways of greeting customers or explaining bad news). We often use a visual indicator of performance in these scenarios to indicate gradual movement towards the overall aim. This might be a thermometer for example, if you're challenged to calm a situation down.

IT or Systems training – Assess through systems simulations

The best way to test ability to use an IT system is to simulate that system using a tool like Captivate. These types of tools can capture screens very easily and you can put in interactive steps all the way along to check understanding. Each correct input or click will score a point and the final score can genuinely test how well a learner can carry out a task using any kind of IT system.

Compliance - Assess through application scenarios

As with product knowledge, we could be aiming to assess ability to apply the rules, not the memorisation of the rules. So it is important that learners can show they can apply this knowledge. So, try scenario-based to see what they would do in certain circumstances e.g. dealing with a potential bribery situation (which might be observing others).

When should you assess? Choose your moment carefully and think mobile

It is very convenient for learners to complete an assessment immediately after they have finished the module. That's what many e-learning programmes do. But this really only tests short term memory. A day or so later much might be forgotten.

So, when is the best time to assess knowledge? It really depends on the purpose of the assessment process.

Did people learn from something?

Is it to check if people really learn from the e-learning for instance? If this is a major driver then you should test within a day or so. If it is much longer, they will have started to acquire knowledge from other sources and so you won't have a true reflection of the effectiveness of the e-learning. This argument of course breaks down if you haven't run a pre-course test to see their previous level of knowledge.

Have learners met a standard?

You just want to know your learners have met a minimum criteria – they have done the programme (tracked via the LMS) and have met the minimum assessment target score. Does it really matter when they do this?

The simple answer is try and get them to return to an assessment in a reasonable timeframe but in most cases you will have to accept that it is much easier to catch your learners while they are still on the system, luring people back to do a test is a very hard.

Make it easier for them – make it mobile

In both cases, thinking mobile may be a good way to go. While there's a healthy debate about the best methods and types of content for mobile learning, assessments are one are that are very well suited for mobile.

We've been designing assessments to run on mobile devices for one of our clients for product knowledge. These assessments, meant to be taken on the fly as quick check to see if you're still sharp, are well suited to the retail environment. Passing back test data to the LMS is made easier too.

We're currently looking at a project for offline assessments for pilots to complete for iPads in the air, when they're not flying, of course...

Mobile learning and assessment – some options

If you want to explore mobile delivery for assessment, there are a few options to consider

1.   Build it in your LMS or LCMS, if it has a mobile version

Most LCMSs have an assessment tool within them, and most of them can be run on mobile devices. For example, **Moodle for Mobile** enables you to display Moodle Quizzes on a mobile device (of course you can look at Moodle through the browser on the mobile device anyway, albeit it may not look great if you're accessing it through the browser). This can be a quick, cheap way of testing out the appetite for mobile assessments.

2.   Use a mobile authoring tool

Tools like Hot Lava Mobile will enable you to develop basic quizzes and publish to a wide range of devices, and give you plenty of control over how you present and track the quiz. Obviously a licence fee comes with it, so you need to know there's an appetite for it

3.   Look at the apps market

If you're seeking native app to design and deliver quizzes, there are a few apps out there that will enable you to write quizzes, like QuizMe for Android **(http://appinventor.googlelabs.com/learn/tutorials/quizme/quizme. html)** and Quiz Creator for iOS **(http://itunes.apple.com/us/app/quiz-creator/id294168017?mt=8)** – but you may find these more restrictive, and the reviews are less than glowing. We'd recommend exploring one of the other routes – or of course, hire someone to build an assessment tool for you, if you have more specific requirements.

**Hopefully we've shared some ideas to help you design assessments that actually improve performance and make more of an impact.
There's no test at the end of this guide, just one question: How can we help you design your assessment to make a difference?**

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