Online Learning in 8 Steps

The 8 Steps have been adapted from
"***7 Steps to a Learning Guide***",
[Anne Walsh (1996) PDN]
and material has been drawn from the
PDN Instructional Design Online site

http://www.oten.edu.au/id/login.cfm

The PDN team highly recommends that
NSW TAFE Online teams access and work through
the information available on the ID Online site.

Prepared by Anne Walsh
And Chris Celovic
For Round 4 Orientation

Step 1 – Clarify the learning outcomes

Before you develop your online learning, you need to have a clear idea of what the learners are trying to achieve. The easiest way to do this is to respond to the following four questions.

1. What will the student be able to do after completing the learning? This needs to be quite specific – ie a learning outcome rather than a general aim. Your "performance statement" should use an active verb (such as list, describe, label, make, define, etc.) rather than an abstract verb (such as understand, know, appreciate, be familiar with,etc.)

2. How much learning is enough? In other words, is there a standard of performance that needs to be met? What is the required depth and scope of learning? You might place a numerical, time, tolerance or other criteria on the performance. Eg describe in 200 words, list 7 items, machine to +/- 0.01mm, calculate to 3 decimal places, label using correct technical terminology.

3. How will the learners know they've reached the required standard? What type of feedback mechanism will be used? Will there be a self assessment or test or does the learning activity itself provide the feedback? If there is no feedback neither you nor the learner will know when they are ready to move on to the next learning activity.

4. What are the conditions under which the learning is to take place? Some conditions are implicit and others need to be made explicit. For new learners it's advisable to make all the learning conditions explicit. For example, is a particular piece of equipment, software or procedure to be used? Are there time or location limitations? Is the learning to be done individually or in groups? What resources are available to be used?

Clarify the Learning Outcomes – notes from ID Online

Analysing the learning outcomes begins by deciding whether or not the outcome can be achieved online or not. In many cases, some aspects of an outcome can be achieved online but others can't. Consider the following example.

Outcome: develop a working lighting circuit that demonstrates three way switching as might be used in a domestic household.

Clearly the actual physical connection of the wires and fittings involved in the required circuit cannot be done online. However, a simulation of the circuit could be developed online and confirmed by the facilitator prior to the learner doing the physical task in their workplace under the supervision of their mentor.

Now consider this case study…

Jane has been asked to write the online version of a module in the course Local Government Certificate 2. The module is **Work Team Communication**. Jane thinks it is important to make the subject work visually in the online version, and comes up with some ideas for cartoon-style animations showing people communicating in work teams. She feels confident that this, together with some reading notes and reflection questions, can form the basis of the module. She checks this idea against the TAFE NSW curriculum document and immediately notices the learning outcomes:

> **Learning outcome 1**: Participate in small group discussion to reach agreement on a workplace related issue
>
> **Learning outcome 2**: Cooperate with team members to plan and prepare a simple presentation
>
> **Learning outcome 3**: Make a job-related presentation.

Jane realises her design idea for the module does not necessarily help students achieve these outcomes, which are based very much on interaction with real people, not just interaction with a set of web pages, no matter how visually effective they may be. So she decides to focus on a case study approach, and creates a storyline based on a character called Ted, who is asked by his supervisor to join a team of people from different departments in the local council. Jane believes that Ted's story, as he learns to work with the team, provides a good model to the learners for participating in a team. She will include plenty of reflection questions at different points in the case study to facilitate learning. Jane plans for her students to form a group, plan and prepare a job-related presentation with the planning process being done in parallel with progress through Ted's story.

Step 2 – Analyse the target learners

This is about finding out who the target learners are and what (if any) are their special needs.

It is important to analyse who will be using the online products you develop. You need to know who they are, their learning needs and preferences so that your materials can be designed effectively. You also need to understand how other teachers and online facilitators may use your online materials so you can accommodate their needs also.

When thinking about your learners some of the things to consider are

- learning styles and preferences
- age range
- gender mix
- cultural backgrounds
- ability/disability
- educational experience
- related work experience
- full or part time study
- employment status
- reasons for learning
- language, literacy and numeracy levels
- technology literacy
- access to technology
- access to mentor or similar support

This list is by no means exhaustive but does indicate the wide range of learner characteristics that need to be taken into consideration.

Analysing Target Learners – Example from ID Online

Consider a situation where a group of teachers are designing an online component of a mainstream course. They have chosen some generic communication modules to begin with and are at the stage of considering the characteristics of their target learners. This is their analysis.

Target learner characteristics	**Implications for instructional design**
Aged from 18 to 50	Examples and activities will need to take into consideration the different interests of different age groups as well as the different levels of life experience.
Predominantly female	Care needs to be taken that language and examples do not constantly assume the audience is female.
Lots of different cultural backgrounds	Examples used need to be culturally sensitive and perhaps even deliberately include examples from specific cultural contexts to help the learners relate to the material.
Mixed levels of English language skills	Focus on Plain English and include a glossary.
High levels of previous education but not necessarily in Australia	This may indicate that the learners have experience with independent activities and that more self directed learning activities can be used.
Very few currently employed in related industry	Clear examples of how the theoretical concepts are applied in industry will need to be included throughout the material.
No known disabilities	Will still be important to ensure that the online materials are Bobby compliant and meet minimum standards for accessibility.
Access to technology only through TAFE facilities and internet cafes	The materials and facilitator support will need to encourage the development of regular study habits and recognisable progress milestones so that the learners become accustomed to seeking out the technology to do their work. Regular follow up using other communication technologies (phone, post) may be required.
Basic technology skills only	Online activities need to be designed such that they do not require sophisticated user skills.

Step 3 – List possible learning strategies

The second step is to list all the things the learners could do to achieve the learning outcomes. Don't limit your list to the learning strategies that you're familiar with of prefer to use. The more you list the more flexibility you have further on in the design process and the more likely you are to accommodate a variety of individual learning needs.

Your list should take into account that learners have different:

- Learning literacy levels – language, text, numeracy, research and technology.
- Preferred learning styles:
  * Activist, theorist, pragmatist, reflector (Honey and Mumford)
  * Why, what, how, what if – McCarthy 4Mat model
- Preferred learning modes – talk, text, touch, see, do.
- Previous learning experience – prior formal and informal learning experience.
- Learning interests – motivation, motives, relevance, context.

When you've completed your list, review it to make sure you have listed "learning" strategies and not "teaching" strategies. In other words, list the things that the learners can do to achieve the learning. This advice is not intended to design the teacher out of a job. Rather, it is to ensure that you focus on helping the learners achieve their outcomes.

List Possible Learning Strategies - notes from ID Online

Instructional strategies refer to all the teaching and learning strategies employed to help learners achieve the learning outcomes of a course. For online courses, factors that influence strategies to be used include:

- the types of learning outcomes
- the assessment criteria
- the characteristics of the learners
- the technology available
- whether or not the online material is support by other modes of learning (eg workshops, workplace activities, etc)
- the availability of off-line resources for the learners
- the support available to learners.

If the learning outcomes are well written they can give strong clues about the types of activities that learners can use to achieve them. For example…

Outcome 1 - participate in small group discussion to reach agreement on a workplace related issue.

Clearly the learners will need at some stage to engage in one or more discussions with each other. This will be the primary "activity" through which they will learn. As the designers of the online materials, you and your team need to decide if other activities are also required. Reading a case study or viewing a video of a team having a similar discussion would be appropriate activities and can be done by individual learners in the online environment before they get together for their own discussion.

It is very important that the instructional activities you provide for your learners enables them to achieve the learning outcomes and prepares them for the final assessment tasks.

To some extent the decisions you make about the instructional activities will determine the role that the teacher/facilitator will have in the learning process. In face to face learning environments the teacher is usually quite pivotal in the learning process. Online, the teacher can become almost invisible depending on how you design the learning activities.

Your team will need to discuss the type of role you expect the teacher to have in the learning process and design learning activities to promote that role. If you feel its important that the teacher has a prominent role it will be important to design the learning activities to accommodate that. On

the other hand, if you plan for the learners to work quite independently, the teacher will become more of a resource.

Another aspect of the teacher's role that needs to be thought about is when and how they will give feedback to the learners. If learning activities rely on the teacher providing feedback to students, communication strategies (such as email, forums and chat) will need to be built in.

A group of teachers preparing their very first online module had already analysed their target learners and considered the learning outcomes. They then developed a table to help them decide the most appropriate instructional strategies.

Learning Outcome	**Possible learning strategies**	**Implications and considerations**	**Decision made**
- identify the main features of a letter of demand	-examine samples -brainstorm features -read material about letters of demand	-need to find or create samples -can samples be found for different business contexts to refect the different types of organisations the learners are working in -is this topic in an existing text or other resource	-put a range of samples available in an online resource area -refer to relevant sections in the two texts commonly available
- distinguish between a letter of demand and other business letters	-examine a range of business letters and try to identify those that are letters of demand -discuss the differences with other students -read through descriptions of different types of business letters	-need to find or create samples -can samples be found for different business contexts to refect the different types of organisations the learners are working in -is this topic in an existing text or other resource -discussion needs to be online because all students are working off-campus -discussion will need to be structured or guided by the facilitator because the students are inexperienced in the use of forums and chats	-put a range of samples available in an online resource area -refer to relevant sections in the two texts commonly available -prepare a set of guiding questions to be used in an asynchronous forum
-prepare a letter of demand based on a given scenario	-work with a group to discuss and prepare a draft -work individually to prepare a draft	-students are all off-campus so group work might be difficult	-students to do individual draft only, submit via email and get feedback from the facilitator

Bring your project team together and talk about the role of the teacher in the course that you are designing. Discuss the types of interaction you expect the teacher to have with the learners and what contribution you expect them to make to the learning process.

When you do begin to make decisions about instructional activities the following prompts/suggestions might be helpful.

- building in the teacher/facilitator or designing independent activities
- establishing communication strategies between the learners and the teacher a relationship is established and ongoing feedback and support is provided
- designing activities that promote mutual and collaborative learning between the students where appropriate
- providing activities which enable learners to practise skills within realistic contexts rather than asking them to memorise and recall information
- using a problem based approach via case studies, etc, to enable learners to solve problems or make inferences rather than activities which ask them to state or describe processes
- using discussion forums for 'group' activities
- using self-assessment, reflection activities, etc, with built-in feedback
- providing links to online and offline enrichment materials
- integrating support facilities in the lessons, eg online facilitators, libraries, etc.
- using clear illustrations, flowcharts, tables and concept maps to present information
- presenting information relating to procedures in clear discrete steps, with diagrams where appropriate
- providing examples, non-examples and analogies to illustrate complex concepts

Step 4 – List possible media and resources

The learning strategies you have listed in the previous step will rely on different types of media. These might include videos, audio, samples, texts, papers, reports, CDRom, computer files, models, posters, photographs, computer slide shows, computer animation, other students, work colleagues, work places and equipment, and even a teacher! For example, if you have identified a group discussion as a learning strategy, some possible media are face-to-face, teleconference, video conference, online forum or online chat. Resources you might need could include pre-reading materials (hard copy and/or online), other learners, guest speaker and the teacher/facilitator.

When listing the possible media, keep in mind the skills and knowledge the learner will need in order to use the media. For example, to use the internet, students will need to have basic computing and research skills. Also consider whether or not the learners all have equal access to the media. For example, is it reasonable to expect that all the students will have access to a computer with graphics card?

Selecting Media – notes from ID Online

Selecting the right media to use is an important part of the instructional design process. For example, if your team is including discussion as an activity, will you use forums or chat for this? Or perhaps teleconferencing? Using the right media for the instructional activity is essential.

The type of media used will also be influenced by the learning outcomes. For example, skills often require an accurate visual representation of the concept, whereas more abstract knowledge domains might be represented through text, verbal or written case studies or perhaps a visual metaphor. Attitudinal outcomes may require multiple modes to engage all senses at both the conscious and subconscious levels (affective domain).

While the instructional activities and learning outcomes are usually the major determinants for the choice of media, many other factors need to be considered before the final selection is made.

Some of these considerations are…

- learner styles and preferences
- degree of value added to the learning experience
- development cost
- technical infrastructure
- availability of technology to learners
- need for downloads or software updates by learners
- complexity for learners to use
- ease of maintaining and updating

While different media can reinforce the learning process they can also be distracting. "Cognitive load" is the term used to describe the amount of input a user can manage before disengaging. For example, running a text transcript in parallel with a video may cause the user to become distracted and disengage. During the development phase of your online materials it's essential to assess whether media choices enhance the learning, and don't result in overload.

When you discover the marvellous things that various media can do it's a great temptation to want to include a wider range than might be necessary. Regularly consult with your team and ask yourselves "is this media value-adding or distracting from the learning?"

Selecting Media - Case Study 1

After deciding that one of the learning outcomes in their online course could be achieved through group discussion a project team chose to include live chat. When the course was released for trial the feedback indicated that learners in remote areas did not have reliable or fast enough connections to allow them to effectively participate and others who were accessing from TAFE campus computers were blocked by the TAFE firewall. Feedback from other teachers suggested that their NESB learners felt very threatened by live chat and were unlikely to participate. As a result the project team had to rethink the media and changed over to a forum instead.

Selecting Media - Case Study 2

As part of an online multimedia course the development team included many video clips. Although this was initially well received by the learners, longer term feedback indicated that this media was overused. Learners began to find the videos frustrating and more time consuming than reading text. As a result the developers altered the site so that where video was used the learners had the choice of playing the video or reading the transcript.

Selecting Media - Case Study 3

Two development teams were asked to prepare an example of some online learning as part of their proposal for a tender. The target learners were young persons in the 18 – 28 year age group. Both teams presented dynamic examples of online learning using similar media. However, the development team that won the contract based their design an adventure game approach. It was the way the media was used that won them the contract.

Selecting Media - Case Study 4

When asked to prepare a design brief for an online course a development team focussed on the target learners, the learning outcomes and the technical infrastructure of the organisation. They were very surprised to find their brief was not accepted. Inquiries revealed that they had not taken into consideration plans to upgrade the organisation's technical infrastructure in the very near future. As a result their design was considered too modest.

Step 5 – Identify any existing resources

Now its time to search for any existing resources that you could use. Its time to check filing cabinets, catalogues, data bases and clearing houses, libraries, colleagues, internet and any other source you can think of.

One of the most important places to check is the list of ANTA Toolboxes.

Step 6 – Adopt Adapt Develop

When you've identified existing resources its time to establish how useful they might be for you. To do this, apply the adopt/adapt/develop rule. This rule is based on the premise that by ***adopting*** pre-existing materials you save the time and cost of developing your own. However, you need to be aware of copyright and intellectual property implications when adopting the work of others.

If the materials you've found aren't entirely suitable for your purpose, consider ***adapting*** them. Making minor changes to existing materials can be less time consuming than developing your own but again you need to be careful not to breach copyright.

If you can't find any suitable resources or copyright law prevents you from using them, you'll have to ***develop*** your own.

Step 7 – Design and create the learning object

This step is where you have to make some very important decisions. You now have to decide which of the learning strategies you are going to use and which media. This is both an educational and a technical decision. Your preferred combination might not be technically possible or the media you prefer to use might not suit the activity. Another consideration is whether or not you have identified an existing resource that can be used or adapted to become part of the learning object.

This step is also about deciding how big the learning "chunk" will be. Is the learning object to be the size of a topic? A single activity? The size of the learning object will impact on how re-usable it is. The smaller the size, the more likely it is that others can re-use the object in another area of the course or in another course all together.

The design of the learning object is particularly important if the chunk of learning is generic – ie something that is common to more than one module or competency.

Design and Create Learning Object – notes from ID Online

After you have designed the instructional activities for your learners you are ready to make decisions about how much content needs to be presented online. In many circumstances the content is embedded in the activity itself. For example, the activity might require the learners to research a topic and respond to some questions in a forum. In this case the learners will find the content themselves. Another example would be if you were to ask the learners to examine a case study. For this you would need to either have the case study online or available as a downloadable document somewhere on the site.

You may feel it necessary to provide background information prior to a learning activity or afterwards as a supplement. No matter when or why you choose to include content online you will need to decide how it is structured and presented.

At the simplest level, content may be entirely online and follow the sequence of the curriculum. But in many cases the sequence of the learning outcomes does not translate directly into learning activities and associated content outline. When this is the case you will need to decide the order in which learning activities are completed, how the associated content is presented and how learners access it. In all cases you need to carefully map any included content against the learning outcomes, learning activities and assessment criteria.

NOTE: An excellent resource for anyone preparing written material for inclusion in your online learning can be found at **Quality Web Content** by Rachel McAlpine on http://www.webpagecontent.com/. There you'll find purchase details for a training CD-Rom for web writers. This CD Rom teaches how to write powerful web content, intranet content, metatags, titles, keywords and alt-text. There are tutorials on how to write body copy that grabs attention, and gets your message across instantly; plan web strategy and optimise a web site for top search engine results. And much, much more! It includes 30+ interactive learning tutorials and powerpoint presentations, 400 sample web pages, plus many checklists and articles. This CD Rom is useful for webmasters, content managers, journalists, marketers, students and teachers. No technical knowledge of web design needed.

Step 8 – Trial and Incorporate feedback

One of the advantages of developing your online learning as a collection of learning objects is that they can be tried out individually rather than having to wait for an entire module or course to be completed.

These trials or evaluations should focus on several aspects including (but not limited to) the following.

- Appropriateness for the unit/element of competence or the module outcome.
- Appropriateness for the target learner group.
- Usability and whether the instructions and similar aspects can be easily understood.
- Functionality of links, activities, and similar technical functions.
- Compatibility of the learning objects, metadata tagging and other aspects.
- Bobby compliance and accessibility for learners with disabilities.

Its highly recommended that different people be asked to provide feedback on different aspects of the learning object(s). For example, it makes sense to ask prospective students for feedback on usability.

A second evaluation should be done when all the learning objects are completed and put together to make a topic, module or unit of competence. The focus at this time will be on how well the objects link together and whether or not the learning
"flows" and can be navigated effectively by the learners.

Of course, further evaluations should be carried out as each cohort of students work through the online learning that you've created. Each group is likely to give different feedback and the challenge will be to interpret that and make decisions about what feedback is peculiar to a particular group or represents a legitimate concern with one or more aspects of your online learning.

Trial and Incorporate Feedback – notes from ID Online

We are all quick to judge an online product, using a mix of criteria, but for various reasons we are often guilty of not applying the same critical faculties to our own products. Evaluation is about using a framework to objectively assess your online course against a set of general and specific criteria.

One way of understanding evaluation is to use Kirkpatrick's Four Levels of Evaluation. Using Kirkpatrick's model, your online course might be evaluated at four levels which are as follows.

Level I : Reaction
This is about participants' reactions to a course. Trainers often assess this through a survey, often called a "smiley sheet" or you could use focus groups and similar methods to receive more specific comments. The information gained from this level of evaluation will tell you about the superficial impressions that your learners have about your online materials. Its about whether or not they "like" it.

Level II: Learning
This is about the amount of information that participants learned and to some extent is determined using the assessment tasks for the course. It is a measure of whether or not the students were able to achieve the intended outcomes of the course which in turn infers that the online materials, activities and facilitation were effective. A thorough Level II evaluation will also seek feedback from teachers, students and employers about the effectiveness of specific aspects of the online course such as the content, online materials and activities, off-line materials and activities, facilitation processes, assessment strategies and feedback processes.

Level III: Transfer
Assesses the amount of material that participants actually use in everyday work 6 weeks to 6 months (perhaps longer) after taking the course. This assessment is based on the objectives of the course and determined through tests, observations, surveys, and interviews with co-workers and supervisors. Very often this information is of more interest to the employing organisation and hence Level III evaluation is more likely to be done by them rather than by the RTO.

Level IV: Business results
In the context of your online course, this level is about whether or not the move to online achieved the longer term outcomes that your team were aiming for. For example, if you provided your course online in order to increase access for a particular group of students, then your Level IV

evaluation should show an increased number of enrolments and retention rates by persons from that group. On the other hand, if your aim was to decrease delivery costs, then your Level IV evaluation will focus on measuring and comparing the costs of classroom delivery vs the costs involved in the delivery of your online course. Other reasons for going online include any one or more of the following:

- increasing enrolments,
- gaining a share of the overseas student market
- reducing delivery costs
- providing greater accessibility
- providing flexible options for current and potential students
- meeting organisational strategic objectives
- provide access to students unable to attend face-to-face
- provide revision and remedial opportunities for students

For many reasons, Level IV is the most difficult level to measure because training courses do not have explicitly written business objectives, such as "this course should reduce support expenses by 20 percent."

Evaluation should be an ongoing process that begins in the development phase of your online project and continues throughout and after implementation. It is reasonable to focus evaluation of online courses on Levels II and IV of the Kirkpatrick model as these are the aspects that your learningware team are most able to influence.

Trial and Incorporating Feedback – more notes from ID Online

There are many links between Reviewing and Evaluating and often the two functions are not clearly distinguished. Reviewing tends to focus on the quality of your online course while evaluation is about the value it provides to stakeholders or the extent to which it achieves the intended aims.

When developing your evaluation strategy you are basically answering four questions:

1. Why are we evaluating?
2. What are we evaluating?
3. How will we evaluate?
4. When will we evaluate?

Your responses to the first question might centre around meeting contractual obligations associated with the funding for your learningware or determining the extent to which the learningware accomplishes the aims and objectives of the Institute. It is important to know exactly why you are evaluating in order to be able to determine what to evaluate.

If you are evaluating in order to establish how well your learningware reduces delivery costs (for example) then "what" you are evaluating becomes clearer. In this case it would be the relative costs of face-to-face vs online and would need to examine development, running and maintenance costs. On the other hand, if you are evaluating to determine if the learningware actually adds value to the learning of the students, the "what" becomes a totally different set of criteria.

How you will evaluate depends very much on the answer to the previous question but might include surveys, interviews, focus groups, observations and examination of associated reports, activity logs, financial data and so on.

Again, depending on why and what you are evaluating, the timing may vary from progressive (development stage through to implementation) or may be done at one or more points along the way, or only at the end of the development or implementation stage. Formative evaluation is done throughout the development phase and the results are used to inform further progress towards the final product. Summative evaluation is done when the learningware is complete and being used. This evaluation is similar to a final test.

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