

e-Learning: Blended Learning e-Learning

3.1 Identify opportunities to integrate e-learning

3.1.1 Investigate appropriate examples to establish how learning outcomes can be supported through the use of e-learning

LEARNING OUTCOMES

After working through this information sheet, you will be able to:

- Understand what is meant by the term learning outcome.
- Be able to apply active learning verbs to situations with reference to ILT.

Learning outcomes provide reference points to both learners and tutors. They enable tutors and learners to be specific about the knowledge, understanding and new abilities gained on completion of a course or a module. They also help identify shifts in a student's knowledge, skills or attitude as a result of the completed learning experience. They allow course members to assess their own progress towards the outcomes, and therefore their progress on the course. Very often the Learning Outcomes for a course can lead to appropriate assessment questions.

Searching the web for "writing learning outcomes" will bring many examples from organisations across the world. Your own organisation may already have comprehensive guidelines for writing Learning Outcomes, and these should be applied when designing e-learning content for your own courses.

Whatever delivery method you choose, (and you may choose more than one), it is important that your learning outcomes are:-

- Clear.
- Measurable.
- Achievable.
- Help your learners learn more effectively.
- Inform assessment decisions.
- Help tutors to develop schemes of work and lesson plans.
- Help tutors to chart a learner's progress through a learning experience.
- Help learners and tutors to see learning goals and measure the distance traveled.

BLOOMS TAXONOMY OF LEARNING AND LEARNING OUTCOMES

In 1956, Benjamin Bloom headed a group of educational psychologists who developed a classification of levels of intellectual behavior important in the learning process. He found that over 95% of the test questions encountered by students require them to think only at the lowest possible level...the recall of information.

Click the image to see this in more detail.

BLOOMS TAXONOMY	
<p>In 1956, Benjamin Bloom headed a group of educational psychologists who developed a classification of levels of intellectual behaviour important in learning. He found that over 95% of the test questions encountered by students require them to think only at the lowest possible level...the recall of information.</p> <p>He identified six levels within the cognitive domain, from the simple recall or recognition of facts, as the lowest level, through increasingly complex and abstract mental levels until highest order which is classified as evaluation. Verbs examples that represent intellectual activity on each level are listed here.</p>	
Knowledge	The ability to remember information that has already been learned arrange, define, duplicate, label, list, memorize, name, order, recognize, relate, recall, repeat, reproduce
Comprehension	The ability to take in the meaning of information classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate, understand
Application	The ability to use information that has been learned apply, choose, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use, write
Analysis	The ability to break up information to understand its structure and organization analyze, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test
Synthesis	The ability to link or put together information to form a whole out of the parts arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set up, write
Evaluation	The ability to judge the value of information for a specific purpose appraise, argue, assess, attach, choose, compare, defend, estimate, judge, predict, rate, rate, select, support, value, evaluate

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BLOOMS TAXONOMY OF LEARNING

Knowledge	arrange, define, duplicate, label, list, memorize, name, order, recognize, relate, recall, repeat, reproduce, state
Comprehension	classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate, understand
Application	apply, choose, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use, write
Analysis	analyze, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test
Synthesis	arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set up, write
Evaluation	appraise, argue, assess, attach, choose, compare, defend, estimate, judge, predict, rate, core, select, support, value, evaluate

Using these (and other) learning verbs it is possible to define learning outcomes to match your learning objectives and to support differentiation.

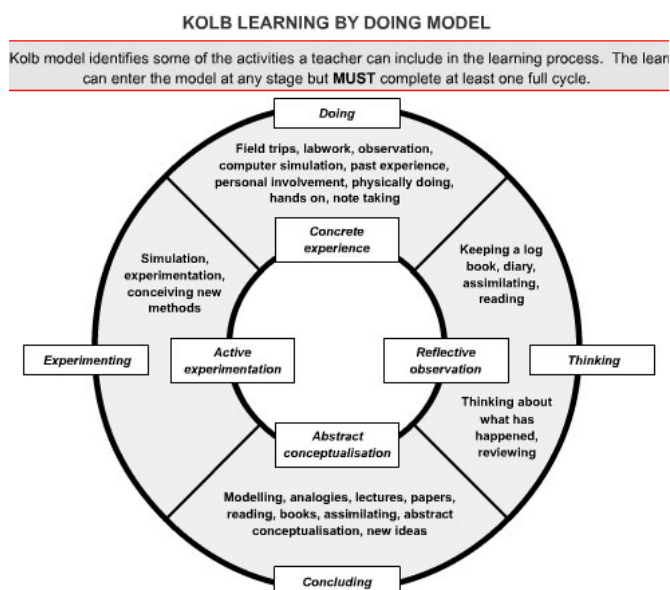
KOLB - EXPERIENTIAL LEARNING MODEL

Another model to consider when designing learning objectives is shown in the image. In 1984, David Kolb published his learning styles thesis, and this led to the experiential learning model. Although based on work of previous educational theorists, it is regarded as an very important piece of work.

Students progress through the four-stage cycle using **'immediate or concrete experiences'** to provide a basis for **'observations and reflections'**. **'Observations and reflections'** lead to the formation of **'abstract concepts'**. These abstract concepts can then be **'actively tested'** as **hypotheses**.

Learning takes place when a full cycle has been achieved, that is a cycle of experiencing, reflecting, thinking, and acting

Click the image to open the Digital Learning Resource. Also **click on the image in Tasks** to complete the self assessment using the e-effective teaching resources identified in the transforming teacher training through e-learning (LSN) and also look at Maslow to



Using the learning verbs from Bloom and the activities suggested by Kolb, the two models will enable the derivation of learning objectives tailored to students needs.

Once you have designed your learning outcomes, you can begin to identify areas within your teaching that will be enhanced by the use of ILT. As with any learning or teaching aid, the value of an ILT resource can only be measured by its impact on learning and achievement. Rather than try to include ILT opportunities during every session, sometimes it is better to focus on specific learning goals, for instance the introduction of a new topic, revision materials, difficult topics, boring parts of a session or stimulating teamwork within your groups.

The table below, taken originally from the FERL website, shows examples of how ILT can be incorporated into learning. FERL (Further Education Resources for Learning) is an advice and guidance service which provides support for individuals and organisations who wish to make effective use of ILT. Their web address is listed below.

LEARNING OBJECTIVE	APPROPRIATE USE OF ILT
Concepts that are difficult to understand	Use Powerpoint to build up ideas bit by bit. Use it to provide a simple animation. Use video clips in an online format – avi or mpeg.
Ideas explored through different scenarios	Hyperlink word-processed documents or web pages to allow learners to choose different scenarios. Use spreadsheet software, such as Excel, to model simple scenarios - for instance, learners change values and examine the resulting figures. Use PowerPoint with action buttons to allow learners to jump to different slides with different scenarios
Boring aspects of the topic that need to be made more exciting	Use Hot Potatoes, (software for developing interactive tests) or other quiz software to create interactive quizzes on key facts and ideas. Use word-processing software to create interactive mix-and-match activities. Use comment boxes, for example in Word, to make complex materials easier to understand. Use PowerPoint to create more visual or more animated resources. Encourage effective revision by creating interactive quizzes.
Storing key course documents which learners may mislay	Course handbooks and schemes of work; Assignment dates Assignment templates

LEARNING OBJECTIVE	APPROPRIATE USE OF ILT
Helping learners with difficult skills	<p>Use Word text boxes to match graph labels and interpretations to the appropriate part of the graph.</p> <p>Use Word or Excel drop down fields to match labels to appropriate parts of complex images.</p> <p>Use Word text boxes to annotate significant figures or patterns in tables of data; to mix and match arguments with evidence.</p> <p>Use partially completed essays to help learners to focus on key essay skills such as prioritising, sequencing or evidencing.</p> <p>Use interactive quizzes to practice difficult ideas.</p>
Producing materials to match different learning styles	<p>Use visually rich resources such as images from a digital camera.</p> <p>Use interactive resources such as drop-down menus, pop-up comments or text boxes in Word.</p> <p>Use interactive web pages that contain image swaps, pop-up information, forms to complete or drag and drop.</p> <p>Use multimedia resources involving video and sound clips</p>
Making 'stimulus' materials for introducing a topic	<p>Access up-to-date news reports.</p> <p>Explore good quality web sites which differ in focus or bias.</p> <p>Explore 'trade sites' which offer information on relevant issues and topics.</p>
Helping with revision for a topic	<p>Link together all the resources and handouts used on the course so that learners have access to a hyperlinked overview of how the course elements fit together.</p> <p>Create interactive quizzes; tests on key vocabulary, dates, names and concepts.</p> <p>Have a bank of sample questions on line alongside sample mark schemes.</p> <p>Have sample answers which the learners have to assess.</p> <p>Have sample essay outlines which the learners need to complete, sequence, evidence or mark.</p> <p>Provide web links to quality resources on the Internet.</p>

TASKS

The following links have been identified as part of the E-effective teaching LSN project for transforming teacher training through e-learning:



1. Click on this **image** (Kolb) and research further details about the Kolb cycle and complete the self assessment
2. Also, use this image of **Maslow's** Hierarchy of Needs to teaching and learning and complete the self assessment
 - Can you identify from your current practice:-
 1. A group of students who would benefit from being able to access an ILT resource at anytime?
 2. A particular topic that students find difficult to grasp, which may be broken down into component parts and made more accessible using ILT?
 3. A particular topic that may be generic to different courses within your department, which could have an ILT content added to it?
 4. ILT resources that already exist which you may be able to use within your teaching.

WEBLINKS

The following websites will help you to investigate Learning Outcomes.

- <http://lmu.uce.ac.uk/outcomes/#2.%20What%20are%20Learning%20Outcomes>
- http://www.inspiringlearningforall.gov.uk/measuring_learning/learning_outcomes/default.aspx
- <http://www.businessballs.com/kolblearningstyles.htm>

The following websites contain links to subject matter which you may be able to map into your own curriculum area.

- An advice and guidance service supporting individuals and organisations in making effective use of ILT within the Post Compulsory Education sector. Ferl has resources designed by current practitioners which are free to use. <http://ferl.becta.org.uk/display.cfm?page=628>
- The Teacher Resource Exchange (TRE) is a moderated database of resources and activities created by teachers. All resources on the TRE are checked by subject specialists to ensure they are of the highest possible quality and are free to use. <http://www.tre.ngfl.gov.uk>
- The Hot Potatoes suite includes six applications, enabling you to create interactive multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill exercises for the World Wide Web. <http://hotpot.uvic.ca/>

CROSS-REFERENCES TO OTHER INFORMATION SHEETS

- Unit 1 - Learning Styles
- Unit 8.3 - For another example of the use of Bloom in supporting learners
- Unit 10 - For examples of e-tools which may bring further accessibility to your materials.