Degree-Level Expectations and Course Learning Outcomes

Introduction to DLEs

Degree-Level Expectations (DLEs) are a threshold framework for the expression of the intellectual and creative development of students. All Ontario universities are expected to ensure graduates meet base-level expectations and acquire a set of skills defined by the DLEs framework.

Degree-level expectations set clear expectations for students pursuing a program of study. This ensures that programs have a clarified purpose, as well as a set of defined goals and expectations that provide guidance at the department, program, faculty, and student level.

Benefits for faculty members

1. Clarity regarding program and course expectations
2. Increased awareness of courses in context
3. Outcomes-oriented language to facilitate communication of program goals and course expectations
4. Outcomes-oriented language to facilitate assignment and assessment design

Benefits for students

1. Clarity regarding program and course expectations
2. Outcomes-oriented language to facilitate understanding of program goals and course expectations
3. Outcomes-oriented language to facilitate understanding of assignments and assessments
4. Experience of a more unified and coherent program

The Degree-level expectations (DLEs) specify six areas of ability required at the undergraduate and graduate levels. These areas include:

1. Depth and Breadth of Knowledge
2. Knowledge of Methodologies
3. Application of Knowledge
4. Communication Skills
5. Awareness of Limits of Knowledge
6. Autonomy and Professional Capacity

One example of a degree-level expectation for the "depth and breadth of knowledge" area would be "by the completion of the program students will have acquired the following set of skills: a developed knowledge and critical understanding of the key concepts, methodologies, current advances, theoretical approaches and assumptions in a discipline overall, as well as in a specialized area of a discipline."

The full set of undergraduate and graduate degree-level expectations are available on the LTO website:
http://ryerson.ca/lt/programs/curriculum/degreelevelexpectations/index.html

Outcomes-Based Curriculum

Degree-level expectations are the starting point in a sequence that lead all the way from the academic plan down to individual course design:

Degree-Level Expectations -> Program Goals -> Program Learning Outcomes -> Course Goals -> Student/Course Learning Outcomes

Assessment determines if the students have achieved the goals of the program. For this we need some form of evidence, reference points, benchmarks, or results:

Learning Objectives -> Course Activities and Assessments -> Learning Outcomes

Learning Objectives and Outcomes

Learning objectives are statements that describe specific instructional goals that are both observable and measurable (Cusson, 2012). Learning outcomes describe what students are expected to have learned or achieved; as a result, they usually describe what students will be capable of doing, or what evidence will be provided to substantiate learning. Learning outcomes identify the various specific pieces that go into the cultivation of the knowledge, skills and attitudes the program is intended to develop.

As summarized by Deakin University, "each intended learning outcome should describe the observable knowledge or skills that you expect students to be able to demonstrate as a result of their work in the unit. It should contain:

- A verb that is appropriate to the type of knowledge or skill required
- A noun that describes the content that the verb is meant to address

Example of a learning objective and learning outcomes developed by Cusson:

- Learning objective: In this course, students will be expected to explain the political and economic factors that contributed to the start of WWII by contributing to in-class discussions and writing a research paper
- Learning outcomes:
    - By the end of this course, students will be able to explain the political and economic factors that contributed to the start of WWII
    - By the end of this course, students will be able to synthesize information from a variety of sources and express arguments, both orally and in written form (Cusson, 2012).

Writing Effective Learning Outcomes

One common way of structuring learning outcomes is through the use of Bloom's Taxonomy as a framework. Bloom's Taxonomy breaks learning down into six categories representing cognitive skills, and moves from the lowest to the highest order skills:

Knowledge -> Comprehension -> Application -> Analysis -> Synthesis -> Evaluation

A key part of an effective learning outcome is the assessment of learning. This part of the outcome describes what a student will be able to do if they have successfully met the learning outcome. For each level of Bloom's Taxonomy, there are sets of skills that can be used to demonstrate student learning. The University of North Carolina gives the following examples as to how the cognitive levels of Bloom's Taxonomy can be assessed:

1. Knowledge: rote memorization, recognition, or recall of facts
2. Comprehension: understanding what the facts mean
3. Application: correct use of the facts, rules, or ideas
4. Analysis: breaking down information into component parts
5. Synthesis: combination of facts, ideas, or information to make a new whole
6. Evaluation: judging or forming an opinion about the information or situation

When writing an effective learning outcome, there are verbs associated with the levels of Bloom's Taxonomy to help clarify the level of learning you are hoping to achieve. Some of these verbs, as compiled by Kelly & McDonald, are included below:

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
List	Summarize	Solve	Analyze	Design	Evaluate
Name	Explain	Illustrate	Organize	Hypothesize	Choose
Identify	Interpret	Calculate	Deduce	Support	Estimate
Show	Describe	Use	Contrast	Schematize	Judge
Define	Compare	Interpret	Compare	Write	Defend
Recognize	Paraphrase	Relate	Distinguish	Report	Criticize
Recall	Differentiate	Manipulate	Discuss	Justify	
State	Demonstrate	Apply	Plan		
Visualize	Classify	Modify	Devise		

Assessment Methods

The Higher Education Quality Council of Ontario has broken down common learning outcomes into five areas. For each area they have provided suggested assessments that are "likely to be authentic in multiple disciplinary and professional contexts" and adaptable for individual, pair, or group work in face-to-face, online, blended, or hybrid courses.

1. **Critical thinking, problem solving, judgment and insight**
    a. **Case studies and open problems**, when well-designed, have been found to be "highly relevant, motivational, and cognitively demanding." They give students the opportunity to "synthesize and apply a broad array of content and process knowledge."
    b. **Modified essay questions** "combine the strengths of case studies and essays in an exam setting by presenting students with a structured series of open-ended essay questions to answer in relation to a case study." MEQs follow a path of increasing complexity, where students are presented with a bit more information after answering one question and

moving on to the next, requiring them to show a deeper level of integration, analysis and evaluation as they complete each question.

   c. **Problem sets** "are relatively easy to design and grade, can be scaffolded by using gradually more complex problems to build on each other, and are fairly rigorous and reliable if well designed."

   d. **Debates, mock court sessions, oral arguments, and other simulated problem-solving** allow students to apply critical thinking skills to real-world situations and can be adjusted to meet different levels of learning.

   e. **Analysis**, defined as "distinguishing parts of a whole and distilling information so that it is clearly understood" can be assessed by asking students to break up an argument into its component claims and logic, deconstruct assumptions embedded in a data set, or problematize a "seemingly unproblematic statement."

2. **Research and Scholarship**

   a. **Research reviews and annotated bibliographies** work best when "students must synthesize the results of their review rather than leaving the individual contributions disconnected" or "specify the sequence in which others should read the entries" along with a rationale explaining the reason for the intended order.

   b. **Long-term research projects**, which can take the form of reports, theses, research papers, presentations, posters, or videos, encourage students to "use information to develop and test hypotheses and predictions, measure and compare multiple outcomes and variables, classify phenomena using schemas of principles or taxonomy, conduct experiments… [or] synthesize large bodies of scholarship."

   c. **Inquiry-based learning**, when properly implemented, requires "synthesis, interpretation, evaluation, and application of what students learn in the program and not just the particular course." These large-scale final projects can also be used to assess communication, time-management skills, and project management skills.

3. **Communication**

   a. **Essays and visual essays** – these types of assessments can work for a variety of learning outcomes depending on their structure. Essays can be critical, reflective, or persuasive, or use multimedia to visually convey an "in-depth and sustained engagement with ideas."

   b. **Reports, short stories, memos, proposals, briefs and online journals** can be used together with other forms of assessment to capture several learning outcomes. This can be done, for instance, by combining a research report with a "critical reflection on the process of research, followed by advocacy for a course of action the student believes is justified by the research results."

   c. **Oral assessment** can be a valuable tool to assess "adaptability, quick thinking, and grace under pressure" and a student's ability to "answer questions, debate or converse in the moment." One benefit of oral assessment is that it can provide students who may not excel at written communication the opportunity to demonstrate their understanding of the course material in a way that may suit them better. By combining oral presentations with slideshows and videos, instructors can assess students' oral, textual and visual communication skills simultaneously. Oral assessments can be intimidating for students who find public speaking difficult, so HEQCO recommends that they be provided as a choice amongst other assessment options, or by allowing students to build up to a final assessment with many opportunities to practice in class.

    d. **Poster shows** are especially effective for assessing the skills needed by students completing degrees in science, engineering, health sciences and business. Posters can be assigned to individuals or groups and can provide students with scaffolded formative feedback. Students creating and presenting posters are required "to summarize a mass of information succinctly, interpret and communicate it visually, and answer questions about it while competing for time and attention."

4. **Creativity and Design**
    a. **Diagrams, design simulations, role-plays, and visual models** assess creativity alongside "research skills, comprehension of course content and communication skills."

5. **Self-Regulation and Professional Competence**
    a. **Reflective writing** will assist students to "integrate course material into their own thinking, make connections between ideas initially perceived as isolated and gradually see the course and the discipline as relevant to their own lives and the world." This form of meta-cognition may help students develop self-regulatory and critical thinking skills.
    b. **Practica** require students to demonstrate their mastery of the course material as applied in real-world or simulated real-world settings. They are, by their nature, useful for authentically assessing almost any learning outcome at multiple levels and can provide students with immediate feedback from instructors, supervisors and peers.
    c. **Simulations** can provide a similar learning experience to a practica in the controlled environment of the classroom. This can be a good way of providing students with the necessary skills for completing a practicum later in their academic career, or building authentic experiences into a large class.
    d. **Learning portfolios** are excellent for assessing either course or program-level outcomes, as they require students to collect and revise evidence that they have collected over time. This evidence can include multimedia or electronic material, and can be aligned with other assessments, such as journals or other forms of reflective writing. The learning portfolio allows for the "triangulation of evidence, demonstration of change and meta-cognitive reflection on strengths and weaknesses related to program-level learning outcomes."

Common learning outcomes and ways to assess them

Once you've identified a desired learning outcome for your course and a matching assessment method, think about the way to phrase your learning objective so that the outcome and assessment method are aligned. Here are some examples of assessment methods matched to learning outcomes.

1. **Think critically**
    a. **Identify a problem**
        i. *Assessment method*: In-class group work and short presentation.
        ii. *Learning outcome:* Working together in small groups, the students will identify a problem and "acknowledge reasons for enduring uncertainty and absence of a single 'correct' solution." They will work together to create a short presentation for the class that explains why people disagree about solutions to the given problem and why the solution to the problem can't be known with certainty (Wolcott & Lynch, 2001).
    b. **Propose a solution to a problem**
        i. *Assessment method*: Discussion on Blackboard
        ii. *Learning outcome*: Working together in groups, the students will prepare a solution

to the problem. The students will collaborate on a post on Blackboard that explains their solution to the class. The post must identify the issues they weighed while developing their solution, explain how they prioritized those issues, and describe how the solution might change given different priorities. Each group must also ask the other groups questions about their solutions, and be able to respond effectively to arguments that support other reasonable solutions (Wolcott & Lynch, 2001).

   c. **Integrate, monitor, and refine strategies for addressing a problem**
      i. *Assessment method*: Report
      ii. *Learning outcome*: Working together in groups, the students will acknowledge and explain the limitations of their endorsed solution, and demonstrate skill in "generating and using information to monitor strategies and make reasonable modifications." The students will develop a professional report that includes their proposed solution to the problem, describes the limitations of their proposed solution, explains the implications of those limitations, and establishes a plan for monitoring the performance of their proposed solution (Wolcott & Lynch, 2001).

2. **Write competently**
   a. **Evaluate academic sources**
      i. *Assessment method*: Annotated bibliography
      ii. *Learning outcome*: The student will select five peer-reviewed journal articles to support their research paper's argument, and evaluate the multiple viewpoints that each article presents. The student must demonstrate why they selected each article, explain the arguments being made by each, and explain how each article supports or disproves the other four, and how each article supports their paper's argument.

   b. **Develop a thesis statement**
      i. *Assessment method:* Research paper proposal.
      ii. *Learning outcome:* Using the five peer-reviewed journal articles that they analyzed in their annotated bibliography, the student will analyze the scholarly debate surrounding their research question and formulate an answer to their research question. The student will write a short research paper proposal that includes their thesis statement, the questions to be answered by their research, and a summary of their analysis of the relevant perspectives in the scholarly discourse.

   c. **Organize a research paper**
      i. *Assessment method*: Research paper outline
      ii. *Learning outcome*: With their research paper proposal as a base, the student will create an outline for their research paper, detailing each topic and subtopic, and organizing their points to build their argument toward a conclusion. The student will create an outline that sets out their introduction and thesis statement, provides the background for their research, lays out the major and minor points of their argument, and gives a conclusion along with the next steps for their research (Walden University).

   d. **Critique writing**
      i. *Assessment method*: Peer review of drafts
      ii. *Learning outcome*: The students will divide into pairs and each will conduct a peer review of the other's paper. Using rubrics and models provided by the instructor, the student will provide constructive feedback on their fellow student's draft. The

student will praise what works well in the draft, comment on large issue with the draft (For example: Is the paper effectively organized? Is evidence used properly? Is there a clear focus?), identify what is missing, needs further explanation, or could be cut, make specific suggestions for revision, and explain in clear and specific terms the reasoning behind all their comments (University of Wisconsin).

3. **Display their knowledge**
   a. **Explain their research**
      i. *Assessment method:* Oral presentation
      ii. *Learning outcome*: The student will summarize the findings of their research paper in a clear and succinct manner. In a five-minute presentation to the class, the student will provide a brief background for their research, articulate the implications of their findings, and successfully defend their argument during a short question and answer period.
   b. **Teach others about a topic in the course**
      i. *Assessment method*: Slides for a presentation
      ii. *Learning outcome*: The student will build a slide deck that could accompany a presentation on a topic in the course. The student will choose a topic from the list provided by the instructor, an audience for their presentation (i.e. high school, academic conference, etc.), and then use PowerPoint or Google Presentation to construct a presentation appropriate to that audience. The presentation should effectively organize the content, convey the important points of the lesson, and support the content via well-chosen visuals (Eggers & McNierney, 2007).
   c. **Answer a variety of questions on the course content**
      i. *Assessment method*: Final exam with both fixed-choice and open-ended questions
      ii. *Learning outcome*: The student will be able to successfully answer a series of multiple-choice questions, selecting the correct response from one or more choices provided. The student will also be able to answer a series of short answer questions by supplying "the appropriate words, numbers, or symbols to answer a question or complete a statement." Finally, the student will write a short essay that will "demonstrate through writing his/her ability to a) recall knowledge, b) organize this knowledge, and c) present the knowledge in a logical, integrated answer" (University of Texas).

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