

Assessment Design Workshop

Participant Manual

2018

About this Manual

This manual and accompanying resources were developed to extend existing curricula from the Instructional Skills Workshop (ISW) Network (http://iswnetwork.ca). CDW is a supplement to ISW's core curriculum, but it is not supported or certified by the ISW Network.

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About Instructional Skills Workshop

This workshop is modelled after the Instructional Skills Workshop, first developed in Canada in 1978 by Douglas Kerr and Diane Morrison. Since its creation, ISW and its accompanying resources have been supported by an international network of facilitators, who have introduced ISW to more than 30 countries. For more information, please visit http://iswnetwork.ca.

About Assessment Design Workshop

In this workshop, participants learn to design test blueprints, test questions, rubrics, and assignments that align with course competencies and outcomes, focusing on such topics as learning outcomes and competencies, assessment validity and reliability, instructional alignment, question types, test blueprints, rubric design, self- and peer-assessment, marking efficiency, feedback, and so on. Participants must design and present a test blueprint with example questions and an assignment rubric so they can receive feedback from their peers.

- **Workshop design:** 3 or 4 non-concurrent days
- **Prerequisites:** ISW (advised)

Required Preparation

To get the most from this workshop, it is advised that participants bring a syllabus and/or plan for a course they've already taught or will teach, as well as a test they've used or designed.

Related Workshops

In addition to ISW, this workshop integrates with and relates to other workshops that might be offered by your school, including Course Design Workshop (ADW) and Learning by Doing Workshop (LBDW). To be the best instructor and designer you can be, you might consider taking one or more of these workshops, which go into much more detail about some skills and topics introduced in ADW. For information on these and other workshops, see the Appendix.

Facilitating Assessment Design Workshop

If you have completed ISW Network's Facilitator Development Workshop and wish to facilitate this workshop, please contact Andrew Marchand for digital copies of resources and

training (if required). It is strongly advised that in addition to completing FDW, you also have lots of experience designing tests and rubrics in higher education.

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Starting the Reflective Process

In order to get the most from this workshop, you will be encouraged to set goals related to what you want to learn about assessment. In the first session, your goals may be quite specific (e.g., "I want to learn how to design and mark tests quickly") or they might be rather general (e.g., "I want to understand how to be a good instructor").

As the workshop continues, you will be asked to discuss what your goals are so all participants can help you to meet them. Goal setting can be done informally while thinking or speaking with others. However, many individuals find it useful to write down their goals.

Goals for the Workshop

You'll be asked on the first and last days of the workshop to briefly describe your learning goal(s). You can write them here:

Exercise 1: My Goals for the Workshop (Self-evaluation)

Example topics: Instructional alignment, Validity, Reliability, Fairness, Marking efficiency, Rich feedback, Test blueprints, Question types, Rubrics, Scoring sheets, Rating scales, Authentic assessment, Self- and peer assessment, Portfolio assessment, etc.
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My Learning Designer's Toolbox

In addition to recording your goals, you'll also be encouraged to record the tools and techniques you find most useful as a course designer. Each technique or strategy is a tool you can use to be more professional and efficient, and as you learn to use more tools effectively, course design will become easier and easier for you. In time, you'll have a toolbox filled with different techniques you can use to best support the varying needs of your learners.

As you encounter new strategies in the workshop, you should return to this page to write down the ones that you want to practice and incorporate into your own courses. At the end of the workshop, this list of tools should help you remember what you've learned and what you hope to implement in your own practice as a teacher.

Exercise 2: My Favourite Course Design Tools and Strategies (Note-taking)



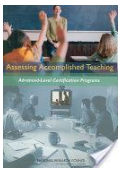
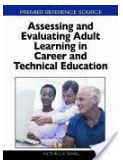
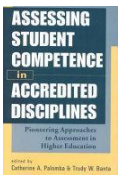
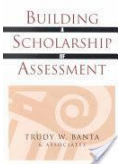
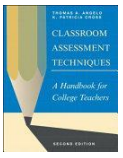
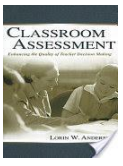
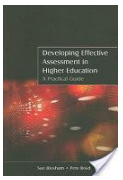
Important Assessment Terms
Favorite Assessment Tools and Techniques
Favorite Learning-by-doing Assignments
Favorite Classroom Management Techniques

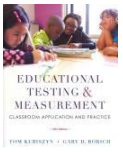
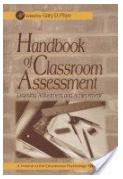
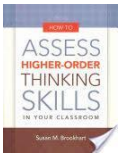
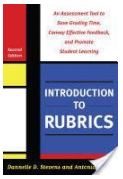
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Favorite Self- and Peer-assessment Strategies	
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Favorite LMS Tools and Techniques for Assessment	
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Further Readings on Assessment

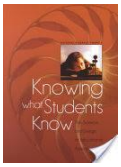
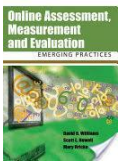
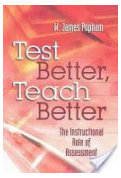
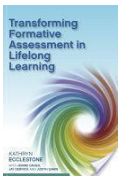
Exercise 3: Further Readings on Assessment (Research & Reading)



Books - *Ask your facilitator to see copies, if available*			
	Assessing Accomplished Teaching: Advanced-Level Certification Programs (Elliott, Koenig, & Hakel, 2008)		Assessing and Evaluating Adult Learning in Career and Technical Education (Wang, 2010)
	Assessing Student Competence in Accredited Disciplines: Pioneering Approaches to Assessment in Higher Education (Palomba & Banta, 2001)		Beyond Testing: Towards a Theory of Educational Assessment (Gipps, 2011)
	Building a Scholarship of Assessment (Banta, 2002)		Classroom Assessment Techniques: A Handbook for College Teachers (Angelo & Cross, 2015)
	Classroom Assessment: Enhancing the Quality of Teacher Decision Making (Anderson, 2003)		Developing Effective Assessment In Higher Education: A Practical Guide: A Practical Guide (Bloxham & Boyd, 2007)

	Educational Testing and Measurement: Classroom Application and Practice (Kubiszyn & Borich, 2013)		Enhancing Learning Through Formative Assessment and Feedback (Irons, 2007)
	Formative Assessment Improving Learning in Secondary Classrooms: Improving Learning in Secondary Classrooms (OECD, 2005)		Handbook of Classroom Assessment: Learning, Achievement, and Adjustment (Phye, 1996)
	How to Assess Higher-order Thinking Skills in Your Classroom (Brookhart, 2010)		Innovative Assessment for the 21st Century: Supporting Educational Needs (Shute & Becker, 2010)
	Innovative Assessment in Higher Education (Bryan & Clegg, 2006)		Introduction to Rubrics: An Assessment Tool to Save Grading Time, Convey Effective Feedback, and Promote Student Learning (Stevens & Levi, 2013)



Books - *Ask your facilitator to see copies, if available*			
	Knowing What Students Know: The Science and Design of Educational Assessment (Glaser, Chudowsky, & Pellegrino, 2001)		Online Assessment, Measurement, and Evaluation: Emerging Practices (Williams, Hricko, & Howell, 2006)
	Rethinking Assessment in Higher Education: Learning for the Longer Term (Boud & Falchikov, 2007)		SAGE Handbook of Research on Classroom Assessment (McMillan, 2012)
	Test Better, Teach Better: The Instructional Role of Assessment (Popham, 2003)		Testing: Friend or Foe?: Theory and Practice of Assessment and Testing (Black, 2002)
	Transformative Assessment (Popham, 2008)		Transforming Formative Assessment In Lifelong Learning (Ecclestone, 2010)

About Assessment Design Workshop

Assessment Design Workshop (ADW) is an adaptation of the Instructional Skills Workshop (ISW). ISW is a training workshop that balances instructional theory and practice so that even the most experienced teachers can develop and grow through the course of the workshop. ISW is an internationally recognized workshop that is offered at universities and colleges across Canada, the United States, and numerous other countries worldwide. The ISW network (http://www.iswnetwork.ca) supports facilitators of Instructional Skills Workshop and Facilitator Development Workshop (FDW). This workshop is not supported or certified by the network, although your facilitators have completed FDW to help them facilitate ADW.

The difference between this workshop and ISW is that ISW concentrates on classroom instruction while ADW concentrates on designing course-level tests and assignments. Although ADW integrates ISW theory like the Bloom's Taxonomy, the focus of ADW is on designing valid and reliable assessments that encourage multiple levels of thinking and learning. So by the end of the workshop, you'll have the opportunity to create and receive peer feedback on:

- **Day 2:** A test blueprint and example questions that target different learning levels and domains using Bloom's Taxonomy;
- **Day 3:** A detailed rubric for a course-level assignment; and
- **Day 4 (optional):** A self- or peer-evaluation task and tool.

The goal of ADW is for participants to create authentic products they can use in their course planning and instruction. It is therefore advised that you design your assessments for a course you have taught or will teach in the future.

ADW's Format

ADW follows one of two formats, depending on the focus of the workshop:

- A *3-day, ~21-hour format* that focuses on teacher-based assessment (i.e. making tests and assignments); or
- A *4-day, ~28-hour format* that focuses on teacher-based assessment as well as learner self- and peer-assessment.

ADW is usually run with six or 12 participants and one or two facilitators per workshop, where participants review various assessment strategies while developing a various assessment tools like test blueprints, rubrics, and self-/peer-evaluation tools.

Within the workshop, participants are asked to create these assessment products while experimenting with learning models like Bloom's Taxonomy. It is a highly participatory approach to improving assessment design skills where participants get to practice creating assessments and receive feedback from their peers. The heart of ADW is the feedback you'll receive from other participants as you develop assessments for your course. All participants practice giving and receiving constructive feedback both verbally and in writing.

In addition to getting feedback on your assessments, content-oriented theme sessions are offered throughout the workshop to provide participants with information and ideas about how to design valid and reliable assessments. In the three-day workshop which focuses on teacher-based traditional assessment, these theme sessions might include such topics as designing test blueprints and rubrics, creating different types of test questions, giving rich feedback, becoming an efficient marker, using classroom assessment techniques, and so on. If your workshop is a four-day workshop, it also focuses on learner-based assessments, and may include sessions like peer- and self-assessment, portfolio assessment, and so on.

An important aspect of the workshop is team-building. This means that ADW relies on an intensive and supportive learning environment where all participants must work collaboratively in a group. *It is very important, therefore, that each participant attend the workshop in its entirety and complete learning tasks required for full participation.*

ADW's Goals

There are many general goals for ADW's participants. For instance, as a participant of ADW, you will practice several different skills, including:

- **Writing course objectives and lesson outcomes:** Write clear course objectives and associated lesson outcomes using Bloom's Taxonomy to target and define specific behaviors within different domains and levels of learning;
- **Aligning objectives and outcomes with assessments:** Align course objectives and lesson outcomes with different course- and lesson-level assessments using such tools as test blueprints and rubrics;
- **Designing assignments for deep and authentic learning:** Create various opportunities for authentic practice that allow learners to meaningfully interact with the curriculum and each other by creating products and performances that demonstrate mastery of program-level competencies;
- **Evaluating assessment tools and practices:** Evaluate tests, questions, rubrics and other assessment tools for their pedagogical strengths and weaknesses; and
- **Building community:** Share ideas and strategies about learning design and instruction, give and receive constructive feedback, and develop deeper relationships with colleagues.

If your ADW includes a fourth day that focuses on learner-based assessment, you will also practice such skills as:

- **Supporting learners' meta-learning and self-evaluation:** Design peer- and/or self-assessment tools that support learners' learning and evaluation skills; and
- **Integrating student portfolio in assessment:** Discuss and plan the integration of portfolios in learner assessment.

In addition to these goals, it's likely you have many questions and challenges that you face as a learning designer and teacher which you'd like addressed during the workshop. Be sure to write these personal goals down on at the beginning of this manual and raise them with your facilitators and colleagues when appropriate.

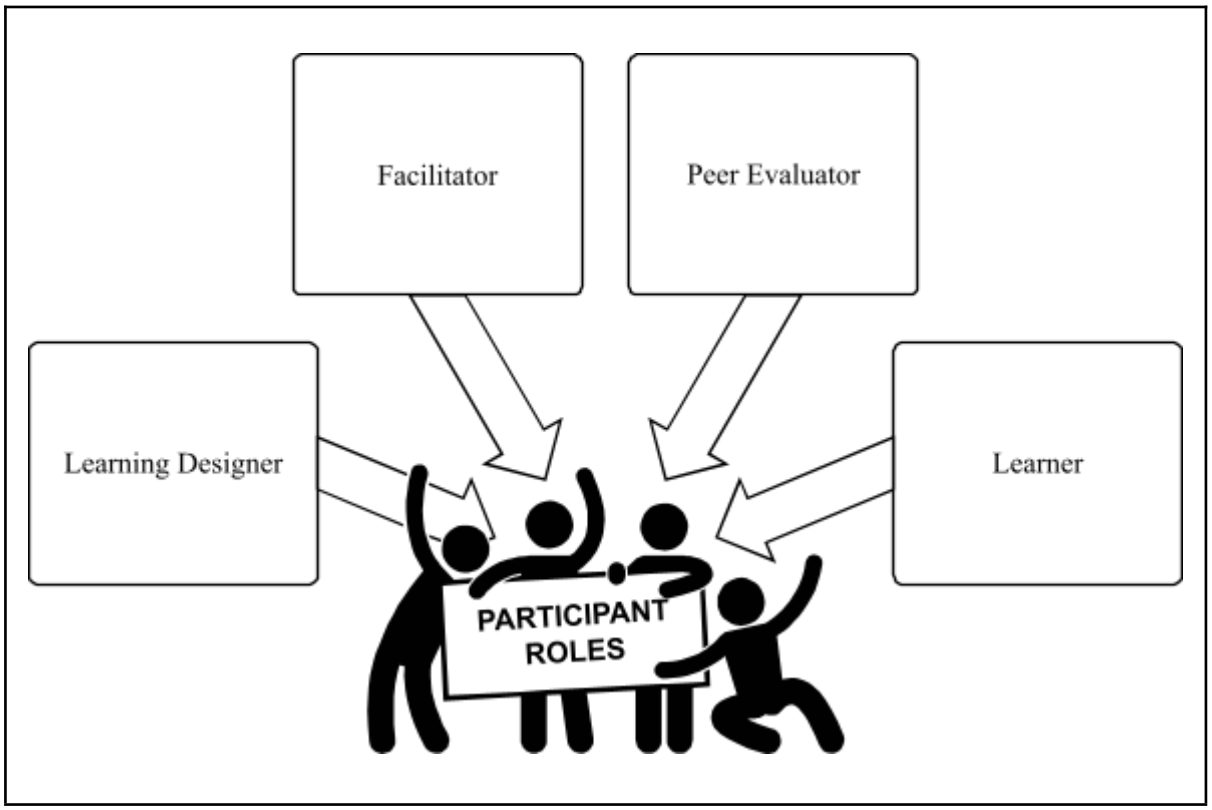
Participant Roles and Activities

In ADW, each participant takes on the roles of both designer and peer evaluator. Each participant will be given time to present their assessment products each day, for example a test blueprint, rubric, or self-/peer-assessment tool. When someone else in the group is presenting their work, the other participants act as supportive peer evaluators.

Immediately following each presentation, audience members give the presenter feedback on their assessment design choices. This peer feedback takes two forms: written feedback and verbal feedback. During the workshop, participants are asked to engage actively as peer evaluators, and to give and receive feedback that is honest, constructive, and focused on learning design choices that can be changed and improved.

Besides giving you several opportunities to practice using assessment design tools and techniques, ADW is an excellent opportunity to view others' learning design styles and strategies. When you design your assessment tools, it is an excellent time to experiment and receive feedback on different course planning and instructional strategies that you may not normally use. It is also a time to practice reflecting on your assessment design skills to determine how you can improve in the future.

Figure 1: Participant Roles During the Workshop



Participant Assignments

This workshop will require you to create authentic and practical products related to assessment design that you can use right away or when teaching in the future. This means that in addition to attending the workshop, you will also need to spend time at home designing the following:

Table 1: Workshop Assignments for ADW

Due on Day 2	
A Test Blueprint	A matrix that organizes test questions according to their targeted topics and learning domains and levels using Bloom's Taxonomy
Example Test Questions	Example test questions that follow your test blueprint that demonstrate your ability to target different learning levels and domains and use different types of questions
Due on Day 3	
An Assignment Plan	An assignment plan outlining an authentic assessment that requires learners to create a practical and meaningful product or performance that aligns with course and program competencies
An Assignment Rubric	A matrix that organizes and communicates the assignment's criteria, including their descriptions and weighting
Due on Day 4	**(optional)**
A Self- or Peer-evaluation Plan	A plan outlining a self- and/or peer-evaluation activity that demonstrates and scaffolds meta-learning and evaluation skills for learners
A Self- or Peer-evaluation Tools	A self- and/or peer-evaluation tool that support the above activity, which could be a rubric, checklist, rating scale, and/or question table

Although creating these items may sound daunting for a three- or four-day workshop, your ADW *facilitators will provide templates, examples and support* when you are tasked with completing them. Creating these products is a mandatory part of the workshop, as you'll be expected to present them to your colleagues each day to receive feedback and make improvements. These products were incorporated into ADW to help you demonstrate to learners, administrators and colleagues that your course and assessments:

- **Are Instructionally Aligned:** Your course and its lessons and assessments align with program-level competencies and other courses in your program;
- **Are Pedagogically Strong:** You are carefully and deliberately choosing teaching methods and learning activities that support deep learning, for example through learning by doing tasks that result in products that are authentic to the workforce and/or meaningful to learners;
- **Focus on the End User:** You focus on the needs of learners by gathering and using their feedback about their motivations for learning, life goals, learning preferences, and reactions to your course design, assessments and instructional approaches; and
- **Meet International Standards:** Your course design, assessments and instruction clearly follow the standards of international organizations like CDIO and AUN-QA.

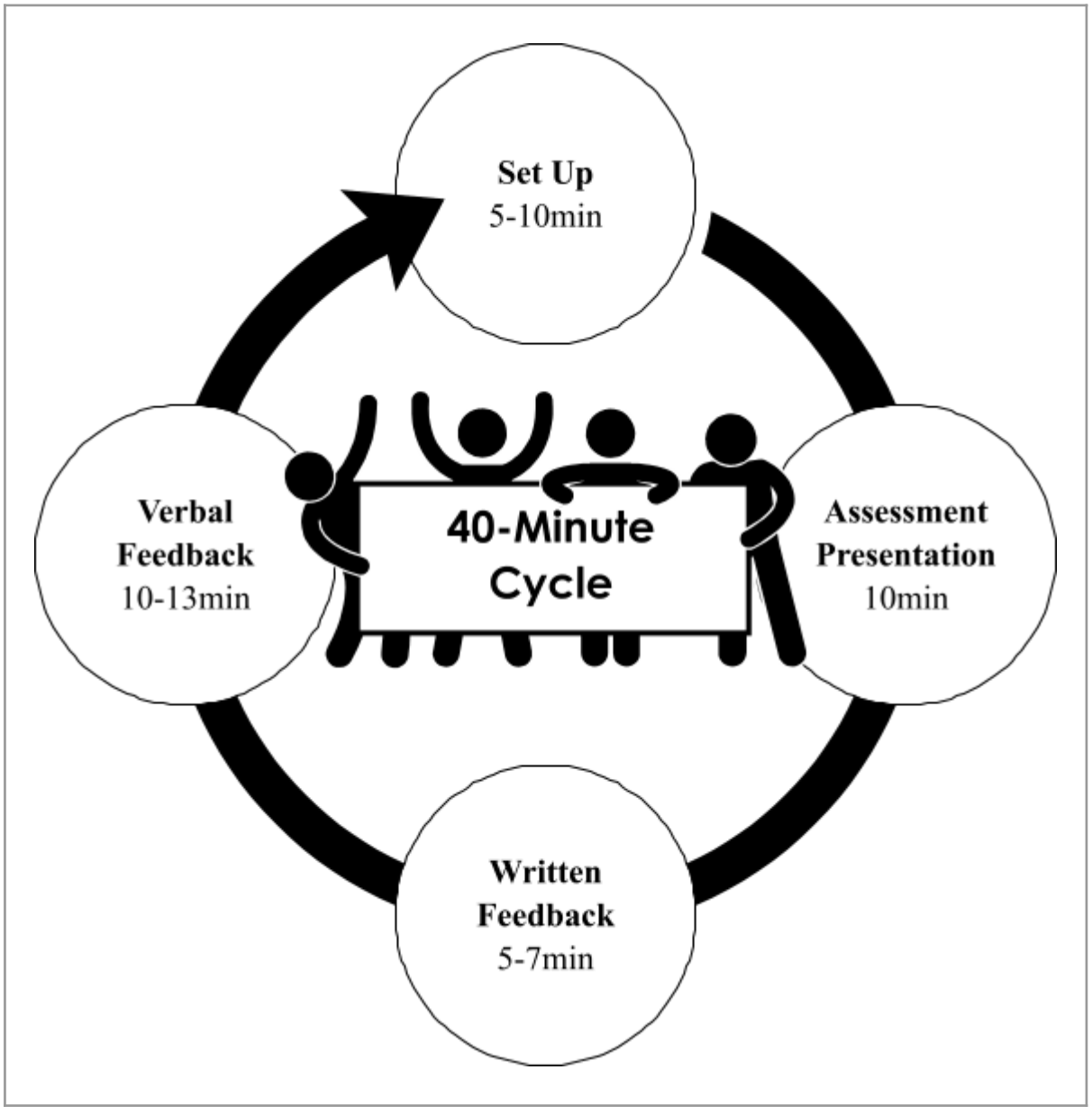
After completing ADW and designing these products, you will know how to document and communicate your assessment design decisions to others in the future. You will also have designed or redesigned different assessment products that you can perfect and use right away.

Given these reasons, hopefully you can see that completing these assignments is an effective use of your time

The Presentation and Feedback Cycle

As a participant, in the second, third and fourth days of ADW, you will need to make 10-minute presentations demonstrating the products outlined in the previous section. Your 10-minute presentation will include time for setting up and receiving feedback from peers, giving you a total of 35-40 minutes for each of your feedback cycles. Your peers will also receive 30-35 minutes for their presentations, so the ADW cycle will repeat several times beginning on the second day of the workshop.

Figure 2: The ADW Presentation Cycle



The 10-Minute Presentation

During your ten-minute presentations, you'll want to make sure you discuss different topics about the different design elements and strategies you'll learn more about in this manual and the workshop. In your presentations, the topics you can discuss are described in the following table:

Table 2: Example Elements of an Effective 10-minute Presentation

Topic	Goals
Outcomes and Context	Describe the outcomes and context of the assessment. For example, what is the program and course, where in the course is the assessment used, what outcomes and competencies does the assessment target, and what are the characteristics of your learners that require assessment accommodations?
Demonstration	Show your assessment tool in detail and describe how it will be or should be used in your course.
Design Rationale	Discuss your rationale or reasons for your design choices using pedagogical theory, international standards, and your beliefs about best practice.
Analysis	Discuss the strengths and weaknesses of your design as you see them.
Desired Feedback	Discuss the problems or questions about your design that you have and would like help with.

To save time during the workshop, it is perfectly acceptable—even preferable—to use existing assessments that you have already taught as the basis for your course design products. Ideally, however, *you should be rethinking and redesigning your assessments* to ensure they are instructionally aligned, are focused on deep learning, and incorporate learner-centric design principles. For more information about these ideas, please see the next module.

It will be up to you to complete these assessment products in your own time in the evenings or between workshop days, but if you are struggling, make sure that you ask your facilitators:

- **What types of extra support are available,** for instance, one-on-one support, study groups, etc.;
- **What tools or resources are available to extend your learning,** for instance, extra readings, software, etc.; and
- **For digital templates** if they aren't already provided to improve the quality of your work and save you time.

Peer Feedback

Since you will present several time using the cycle above, ADW will give you different opportunities to receive feedback on your assessment products. It will also allow you to see and learn from others, giving you many opportunities to give constructive peer feedback.

This feedback should provide you with enough meaningful information to determine how effective your assessment products are and to what extent you have met your goals. To be constructive and useful, your feedback to others should help them make changes that will improve their assessment skills and increase their effectiveness. The same is true for feedback that others give you.

Criteria for Giving Feedback

When you give feedback in ADW, you should try hard to make it as meaningful and helpful to your peers as possible. For example, good feedback should be:

- **Descriptive rather than evaluative:** Describe your own reactions and observations. This includes what you saw and heard, and how it affected you. Avoid using language that conveys judgments.
- **Specific rather than general:** Give direct, "here and now" feedback to help the receiver focus on immediate behavior. General, non-specific feedback can be confusing, and lacks impact.
- **Solicited rather than imposed:** Feedback is most useful when it answers a question that the receiver has asked that the observer can answer.
- **Directed toward behavior that can be changed:** Frustration can result from receiving feedback about something that the receiver cannot readily change.
- **Well-timed:** Feedback is most useful when it is given as soon as possible after the behavior.
- **Emphasizes strengths:** Receivers will be more open to suggestions for improvement when they understand their strengths and how they can be built on.
- **Given in a caring manner:** Defensiveness and anxiety are reduced when the receiver feels that the giver is being respectful of her or his feelings.
- **Given in amounts the receiver can hear:** Too much information at once can be overwhelming and unhelpful or destructive if the receiver isn't prepared to hear it.

Criteria for Receiving Feedback

When receiving feedback, it is important to be open, to listen actively, and to respond honestly. For instance, you can follow these guidelines to gain the most from your feedback session:

- **Ask for specific information, examples or reasoning:** If you don't fully understand or agree with the someone's feedback, as for an example or more clarity.
- **Paraphrase what you hear:** You can see if you understand someone's feedback by paraphrasing and repeating what they said.
- **Be initially accepting of all feedback:** Even if you ultimately don't agree with and won't use the feedback, be affirming and show gratitude when it's given.

- **Respond honestly and respectfully:** Especially when negative feedback is given, try not to quickly defend yourself or deny the feedback's validity and instead respond respectfully; and
- **Record and review other's feedback:** After completing the feedback cycle, keep and review your peers' completed feedback forms and take a picture of the feedback chart after the verbal feedback circle is complete.

Improving the Feedback You Receive

After you finish each of your assessment presentations, you should be able to reflect on and answer several different questions with your facilitator as a means of self-evaluation. While your peers are writing their written feedback after your 10-minute presentations, you can discuss the following questions with your facilitator:

- **Achieved goals:** Did your assessment product accomplish its purpose? How far did your assessment product divert from your original plan?
- **Successful design elements:** What in your assessment product worked well?
- **Unsuccessful design elements:** What in your assessment product could have improved?

When receiving verbal feedback from your peers during the 13-minute feedback circle, you should also ask yourself:

- **Most important feedback:** What feedback surprised you or made you think the most?
- **Unanswered questions:** Do you have further questions for your peers?
- **Application of feedback:** Do you need to do anything or make changes as a follow-up to the feedback?

Module 1: Getting Started with Assessment



Module 1 Outcomes

By the end of this module, you should be able to:

- Describe the different directions and types of assessment that are possible in the classroom;
- Define and use common assessment terms and concepts;
- Justify why careful design of assessment is important, using terms like validity, reliability, and alignment; and
- Write and evaluate learning outcomes using Bloom's Taxonomy and SMART criteria.

Even if you are an experienced teacher, learning to design valid, reliable, and assessments may not be a simple thing for you. This is because assessment is at the center of everything we do as teachers—if we are reflective practitioners, we use assessment to constantly evaluate our curricula, courses, lessons, learners and our own teaching. Assessment is also challenging because there are many purposes, strategies, and tools for assessing learners, and each strategy and tool may be more or less effective depending on the goals of your courses and curricula.

This workshop is an introductory workshop, so it will help you learn to use several basic strategies and tools that are fundamental to assessment. After the workshop is complete, you should be able to design valid tests, rubrics, and other assessment tools. But it will then be up to you to continue practicing and developing your skills until the assessments you design in the future are as valid, reliable, and pedagogically strong as they can be. This module introduces some basic ideas about assessment to help you get started in the workshop.

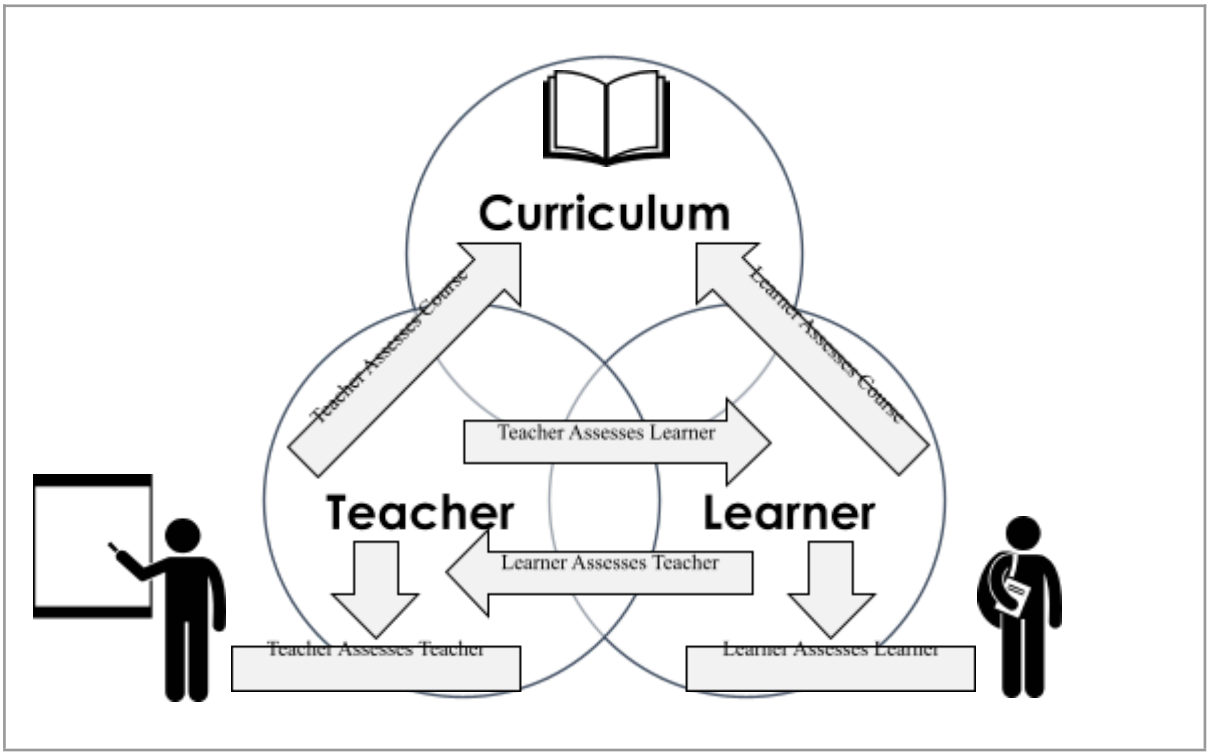
Reflecting on the Directions of Assessment

It can sometimes be helpful to think of assessment in terms of who assesses who or what during a class or course. Although we traditionally think of assessment in terms of how teachers assess learners, in every class, there are a number of different directions or ways that assessment should happen—teachers should not only constantly assess learners, but also their curriculum and themselves; as well, students should also be supported and encouraged to assess themselves, each other, the curriculum, and their teachers.

The three-day model for this workshop focuses on traditional teacher-based assessment—that is, how teachers can reliably assess learners, their curriculum, and themselves. During the three days, you'll look in detail at how you use summative and formative assessment tools to evaluate learners and improve your teaching approaches. The four-day model of this workshop also focuses on less-traditional learner-based assessment—that is, how learners can reliably assess themselves and each other. If you are participating in the four-day extended

workshop, you'll look at how you can design self- and peer-assessment tasks to support your learners' higher-level evaluation skills.

Figure 3: Directions of Teacher and Learner Assessment



During the workshop, you'll be encouraged to reflect on many questions related to these different types of assessment. The table that follows lists some examples of these questions that you can use to self-evaluate your approach to assessment.

Table 3: Directions and Example Self-evaluation Questions

Direction	Example Self-evaluation Questions
Teacher-based	
Teacher → Learner	• How can I reliably assess my learners' knowledge, skills, and values before, during, and after instruction? • How do I know my learners have achieved learning outcomes and competencies?
Teacher → Curriculum	• How can I reliably assess the effectiveness of my curriculum in helping learners achieve outcomes and competencies? • How do I know my curriculum is relevant to the specific needs of my learners?
Teacher → Teacher	• How can I reliably assess my effectiveness in helping learners achieve outcomes and competencies? • How do I know I am using the best instructional strategies and approaches based on the specific needs of my learners?
Learner-based	

Learner → Learner	● How can I help my learners reliably assess their own and each other's knowledge, skills, and values before, during, and after instruction? ● How do I help them learn to self- and peer-evaluate their achievement of learning outcomes and competencies?
Learner → Curriculum	● How can I help my learners provide reliable feedback on the effectiveness of my curriculum? ● How do I help my learners inform or change the curriculum based on its relevance to their specific needs?
Learner → Teacher	● How can I help my learners reliably assess my own effectiveness as a teacher? ● How do I help my learners inform me about the best instructional strategies and approaches to use based on their specific needs?

Reviewing Assessment Types and Terms

If you are new to teaching and assessment, you may not have encountered many of the terms that are commonly used when discussing educational assessment. This section lists and defines many of the ways the term "assessment" is used in the manual and throughout the workshop.

Table 4: Common Assessment Terms, Definitions, and Examples

Assessment Terms	Definitions and Examples
Assessment OF Learning	● A phrase referring to the different ways teachers and learners assess what and how much students have learned after a learning event (i.e. lesson, course, task, assignment, etc.) ● Allows teachers and learners to provide grades and feedback ● Also known as summative assessment or evaluation ● For example, a test or graded assignment is given after a series of lessons
Assessment FOR Learning	● A phrase referring to the different ways teachers and learners assess what and how much learners have learned before, during, and after a learning event ● Not used for grading, but allows teachers and learners to adjust their instructional strategies and curriculum to better meet the learning needs of students ● Also known as formative assessment ● For example, a classroom assessment technique (e.g. one-minute paper, muddiest point, etc.) or time for questions and answers is used during a lesson to gauge learner understanding
Assessment AS Learning	● A phrase referring to the different ways teachers help learners assess themselves and each other before, during, and after a learning event ● Can be used for grading, but allows learners to develop their evaluation skills based on the curriculum content ● For example, teacher guides learners in developing an assignment rubric, which learners use to evaluate their own work
Summative Assessment	● See Assessment OF Learning above

Formative Assessment	● See Assessment FOR Learning above
Diagnostic Assessment	● A phrase referring to the different ways teachers assess learners before a learning event ● Not used for grading, but used to determine each student's prior knowledge and skills, strengths, weaknesses, and special needs ● Allows teachers to design individualized or personalized instruction ● For example, a teacher can conference with students or give a performance task or test in the first class, or teachers can create a pre-class survey
Needs Assessment	● A phrase referring to the different ways learning designers and teachers assess learners before a learning event ● Used during the curriculum planning process to determine the gap between learner's current and desired knowledge/skills/values ● Informs decisions about what to teach, how to teach, how to design and organize curriculum, etc. ● For example, a learning designer can interview learners and curriculum experts before, during, and after designing a learning product (i.e. course, textbook, etc.)
Classroom Assessment	● Often used synonymously with formative assessment or assessment FOR learning. See Classroom Assessment Technique (CAT) examples in Appendix I.
Teacher-based Assessment	● Assessment where the teacher is the primary actor or assessor ● Can be summative, formative, diagnostic, needs, etc.
Learner-based Assessment	● Assessment where the learner is the primary actor or assessor ● Usually summative and/or formative, but most commonly used to develop student evaluation skills (i.e. Assessment AS Learning)
Pre-assessment	● Assessment that occurs prior to a learning event or intervention
Post Assessment	● Assessment that occurs after a learning event or intervention
Self-assessment	● Assessment of one's own achievement of lesson or course outcomes ● Learner self-assessment is usually guided and structured by the teacher through demonstration and the use of assessment tools like rubrics, checklists, guiding questions, etc.
Peer-assessment	● Assessment of a peer's achievement of lesson or course outcomes ● Learner peer-assessment is usually guided and structured by the teacher similar to self-assessment above
Traditional Assessment	● A phrase usually referring to historically used teacher-based assessment approaches that focus on knowledge transfer and retention (e.g. testing, quizzing, teacher graded assignments, etc.)
Alternative Assessment	● A phrase used in different ways but commonly referring to non-traditional assessment approaches (e.g. learner-based assessment, authentic assessment, assessment of doing rather than knowing, etc.)
Authentic Assessment	● A phrase referring to different ways teachers can assess learners doing real and practical tasks that are commonly done in the curriculum subject field ● Encourages and measures learners' application of their knowledge, skills, and values to create real and practical products or performances

Overcoming the Challenges of Assessment

When considering how you use assessment in your courses, you may often think of several challenges. These challenges might include:

- Time/Effort: Tests and assignments can sometimes take a lot of time to design and mark;
- Organization: Tests, assignments, and grades can sometimes be difficult to manage and organize;
- Deep Learning: Tests and assignments can sometimes promote rote learning and short-term memorization rather than long-term learning;
- Learner Motivation: Grades can sometimes encourage learners to remain externally motivated and care about their marks rather than real learning and understanding;
- Validity: It can sometimes be difficult to align tests and assignments with course outcomes and competencies;
- Reliability: It can sometimes be difficult to ensure that tests and assignments always accurately measure learners' achievement of outcomes and competencies;
- Fairness: It can be difficult to design tests and assignments that are equally fair to learners with varied learning styles, abilities, and backgrounds.

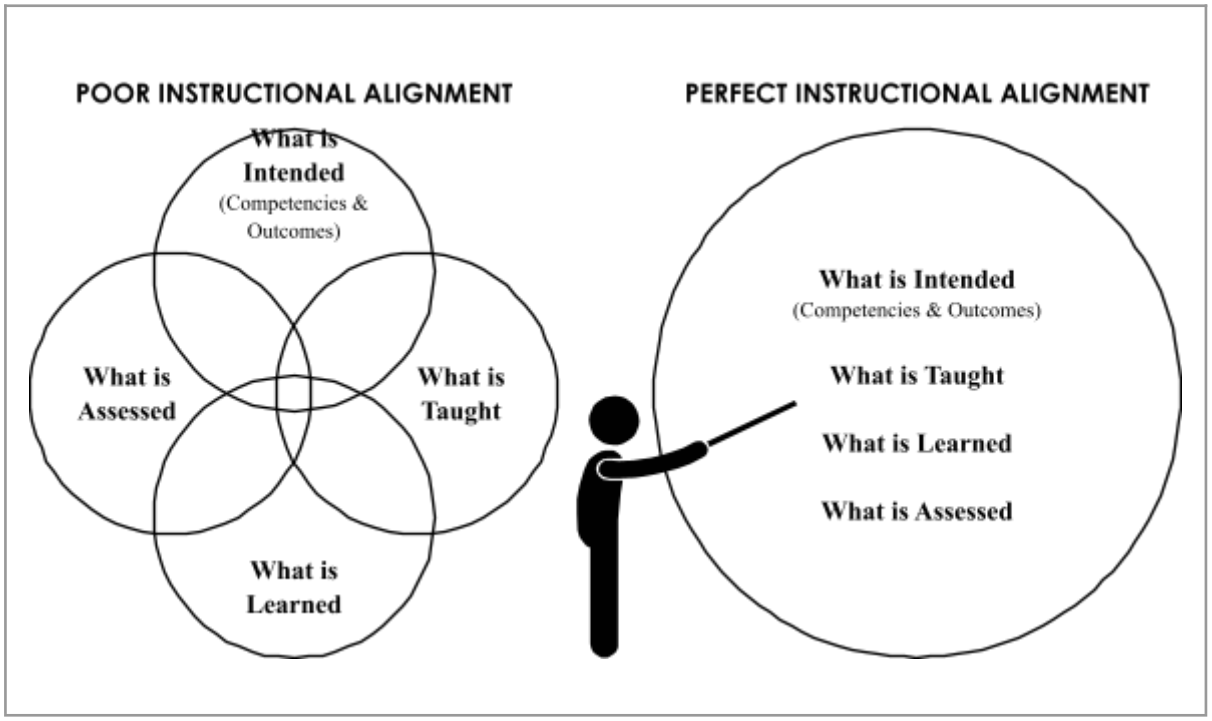
To ensure that their assessments are as effective as possible, good learning designers and instructors regularly use different strategies to lessen these types of challenges. But even for the best learning designers and instructors, these challenges will always exist. In other words, there is no perfect strategy or solution for all of these example challenges of teacher-based assessment. But there are processes and tools you can use to ensure your assessments are as valid, reliable, fair, and pedagogically sound as possible.

The following sections will help you learn how to build test blueprint, rubrics, and other assessment tools that support learner evaluation. These assessment tools can help you ensure that your assessments are aligned with learning outcomes (i.e. they are valid), that they more accurately measure learners (i.e. they are reliable), and that they encourage learner understanding of and participation in their evaluation (i.e. that they support deeper learning and internal motivation).

Reviewing Validity, Alignment, and Backwards Design

Validity is a term that refers to how much our assessments align with our learning outcomes, objectives, and/or competencies. If we aren't careful when designing tests and assignments, it is possible that they may not clearly target what we intended for our students to learn in our courses. So if our assessments do not measure our intended learning outcomes, then they are invalid measurements of our students' learning.

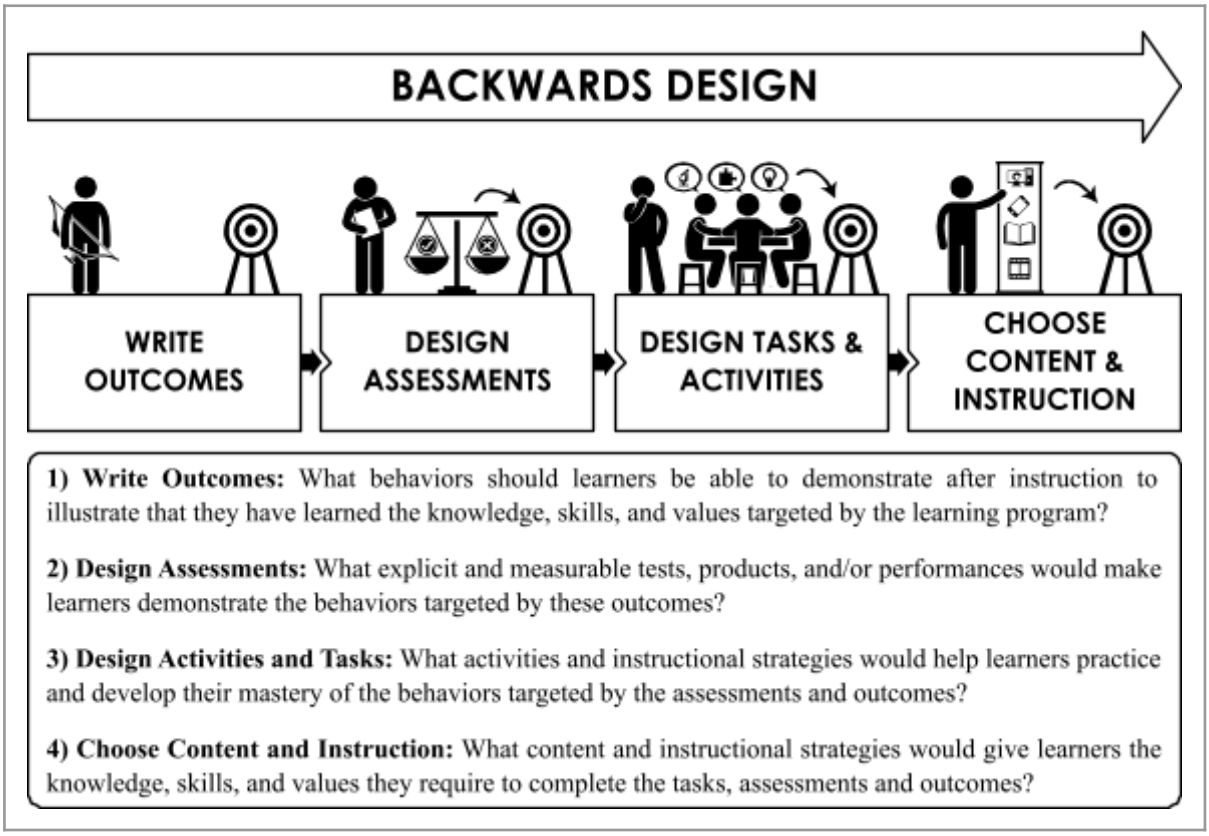
Figure 4: Poor and Perfect Instructional Alignment



Another important term that is related to validity is **instructional alignment**. Instructional alignment refers to how much our instruction, learning tasks, and assessments align with learning outcomes. As illustrated below, if we aren't careful in our learning design, what we intend to teach, what we teach, what students learn, and what we assess may not overlap very well, so we have poor instrucitonal alignment. If, however, we are careful to ensure they do overlap well, then we have good instructional alignment.

Both of these terms—validity and instructional alignment—remind us that learning outcomes must play a central role when we design our assessments. This means that before we design our assessments, we need to make sure we have clear and detailed course- and lesson-level outcomes. A useful learning design process that reminds us of this is **backwards design**.

Figure 5: Using Backwards Design to Ensure Outcome-based Instruction



Without backwards design, teachers may fall into the common teaching practice of just choosing and presenting content and then assessing for comprehension of that content. Instead, by starting with outcomes, backwards design encourages a deeper and more precise learning process that helps us ensure validity and alignment. As demonstrated above, we can do this be reflecting on a series of stages and questions when designing our courses and lessons.

The sections that follow review Bloom's Taxonomy and writing learning outcomes to help you begin design valid assessments.

Using Bloom's Taxonomy to Write Outcomes

Many of the course and lesson design sections above emphasize the importance of writing well-structured and clear outcomes, and we can do this by following Bloom's Taxonomy. If you haven't taken Instructional Skills Workshop or taken many education courses, Bloom's Taxonomy may be new to you. This section briefly describes the purpose of Bloom's Taxonomy and how to write learning outcomes that follow the framework.

Bloom's Taxonomy is a framework that categorizes different types (i.e. domains) and levels of learning. These domains of learning are cognitive, psychomotor, and affective:

- The cognitive domain relates to learning concepts and ideas. When you want your learners to memorize, use, or evaluate information (e.g. concepts, theories, facts…), you're teaching in the cognitive domain.
- The psychomotor domain relates learning skills and processes. When you want your learners to learn and demonstrate a skill that can be broken down into a series of tasks or actions, you're teaching in the psychomotor domain.
- The affective domain relates learning values. When you want your learners to demonstrate commitment to a moral or ethical position, perspective, or idea, you're teaching in the affective domain.

Bloom's Taxonomy is a very useful tool because it breaks up each domain into different learning levels that list different verbs that can be used when writing your learning outcomes and planning your tasks and assessments. The verbs are used to help you describe the precise action or behavior you want your learners to practice in your learning tasks and demonstrate in your post-assessment.

When writing outcomes, Bloom's Taxonomy emphasizes careful choice of the verbs we use, because some verbs aren't specific enough to measure learner performance. For example, *learn*, *know* (or *gain knowledge*), *understand* (or *gain understanding*), are often used by beginning teachers and learning designers, but these verbs don't often specifically target the degree or level to which learners should learn, know, or understand the curriculum.

Many instructors often teach in the cognitive domain, although their emphasis on psychomotor and affective learning might vary depending on their discipline, program, and course. Although your course may emphasize the cognitive domain, when determining your learning outcomes, it's important to design holistically—that is, to look at your course competencies and outcomes and reflect on what your learners should demonstrate in all of the domains.

Table 5: The Three Domains of Bloom's Taxonomy

Cognitive Domain
(thinking, knowledge)



Knowing	Comprehending:	Applying	Analysing:	Evaluating:	Creating:
nembers previously learned material	*usps the meaning of material*	*es learning in new and concrete situations*	*derstands the content and structure of material*	*lges the value of the material for a given purpose*	*rmulates new structures from knowledge and skills*
ine	scribe	ply	alyze	sess	)combine
ntify	cuss	ry out	egorize	nclude	)construct
el	plain	monstrate	mpare	aluate	)design
t	cate	strate	ntrast	rpret	velop
me	aphrase	pare	fferentiate	tify	nthesize
all	e example	ve	criminate	ect	n
te	nslate	e	tline	port	pose

Psychomotor Domain
(doing, skills)



Perceiving:	Readying:	Copying:	Doing:	Honing:	Adapting:	Enhancing:
Senses cues that guide activity	*Mentally, emotionally and physically ready to act*	*Imitates and practices skills, often in steps*	*Performs acts with increasing efficiency*	*Performs automatically*	*Adapts skills to meet a problem situation*	*Creates new patters for specific action*
ar		py	nduct	ntrol	apt	)design
ten	nd	tate	monstrate	ect	cognize	ginate
serve	sition	ctice	ecute	ide	er	)combine
ceive		peat	ke	nage	vise	)compose
cognize	pare	low	duce	ganize	ange	)construct

Affective Domain
(feeling, attitudes)



Receiving:	Responding:	Valuing:	Organizing:	Internalizing:
ectively attends to stimuli	*ponds to stimuli*	*aches value or worth to something*	*nceptualizes the value and resolves conflict between it and other values*	*grates the value into a value system that controls behaviour*
cept	e for	opt	apt	vocate
knowledge	ey	pose	just	fend
ware	mply	mmit	ange	emplify
ten	low	sire	ance	uence
tice		press	ssify	tify
attention		fer	up	port
erate			ganize	

Using the verbs from Bloom's Taxonomy, it is very easy to write outcomes that target different domains and learning levels. It's a good idea to keep your outcomes well-structured, clear, and detailed. For structure, you can write your outcomes like the following:

By the end of the [lesson, unit, week…], you should be able to:

- *[Bloom verb] + [description of concept, task, or value from curriculum]*
- *[Another Bloom verb] + [description of another concept, task, or value from curriculum]…*

Here's an example:

By the end of this section, you should be able to:

- *List and describe the three domains of Bloom's Taxonomy*
- *Apply Bloom's Taxonomy by writing multiple outcomes that target different learning levels and domains*
- *Evaluate learning outcomes using SMART criteria*

Table 6: SMART Criteria for Evaluating Learning Outcomes

Criteria	Evaluation Questions
Specific	● Does the outcome target a specific learning domain and level? ● Does the outcome go into enough detail about the curriculum item?
Measurable	● Does the outcome describe a behavior, performance, or product that can be witnessed, documented and measured?
Achievable	● Does the outcome describe a behavior that can be achieved given constraints in the learning context (e.g. learner's prior knowledge, curriculum, time, learning environment, etc.)?
Relevant	● Does the outcome align with the course's outcomes and program's competencies? ● Does the outcome align with the learner's abilities and needs at the time of instruction?
Timely	● Does the outcome specify when the learner should be able to demonstrate the targeted behavior?

When evaluating your learning outcomes, you can use SMART criteria. If your outcomes meet the criteria and align with your course and program competencies, then you're ready to start planning the rest of your lessons and assessments.

Writing the Right Outcomes

Knowing how to use Bloom's Taxonomy and structure outcomes is a very important skill, but it doesn't matter how well you can write outcomes if you are targeting the wrong learning behaviors. As an instructor, you will be expected to write course-level outcomes that align with course competencies that are determined by program designers. You will also be expected to write lesson-level outcomes that build in complexity towards your course outcomes.

When designing your courses and lessons, after writing your course- and lesson-level outcomes you then need to design appropriate course- and lesson-level assessments, all of which must build towards and align with course competencies. The following figures shows how all of your outcomes and assessments must connect to and align with your course's competencies within your program.

Figure 6: Aligning Competencies, Outcomes and Assessments

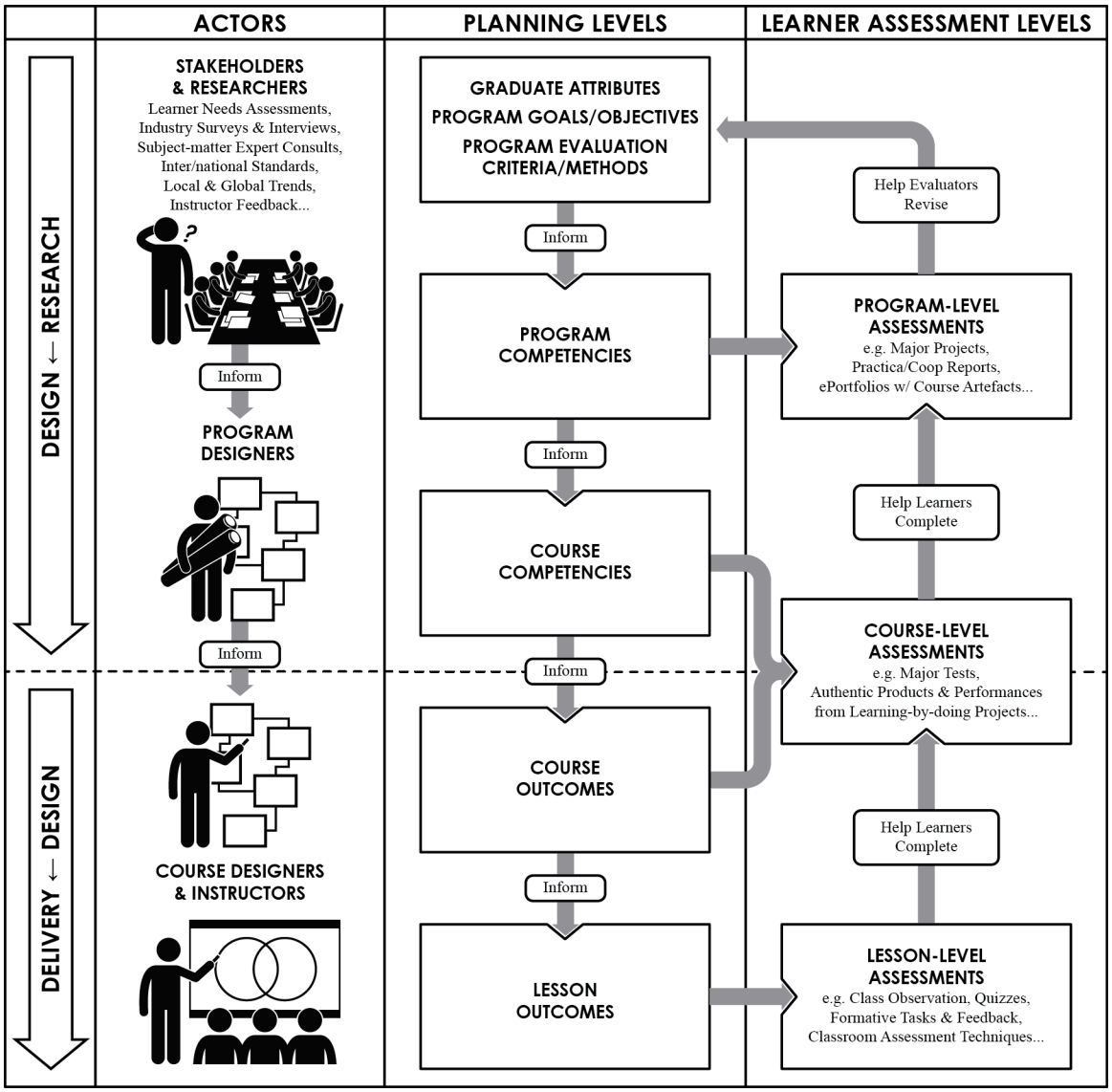
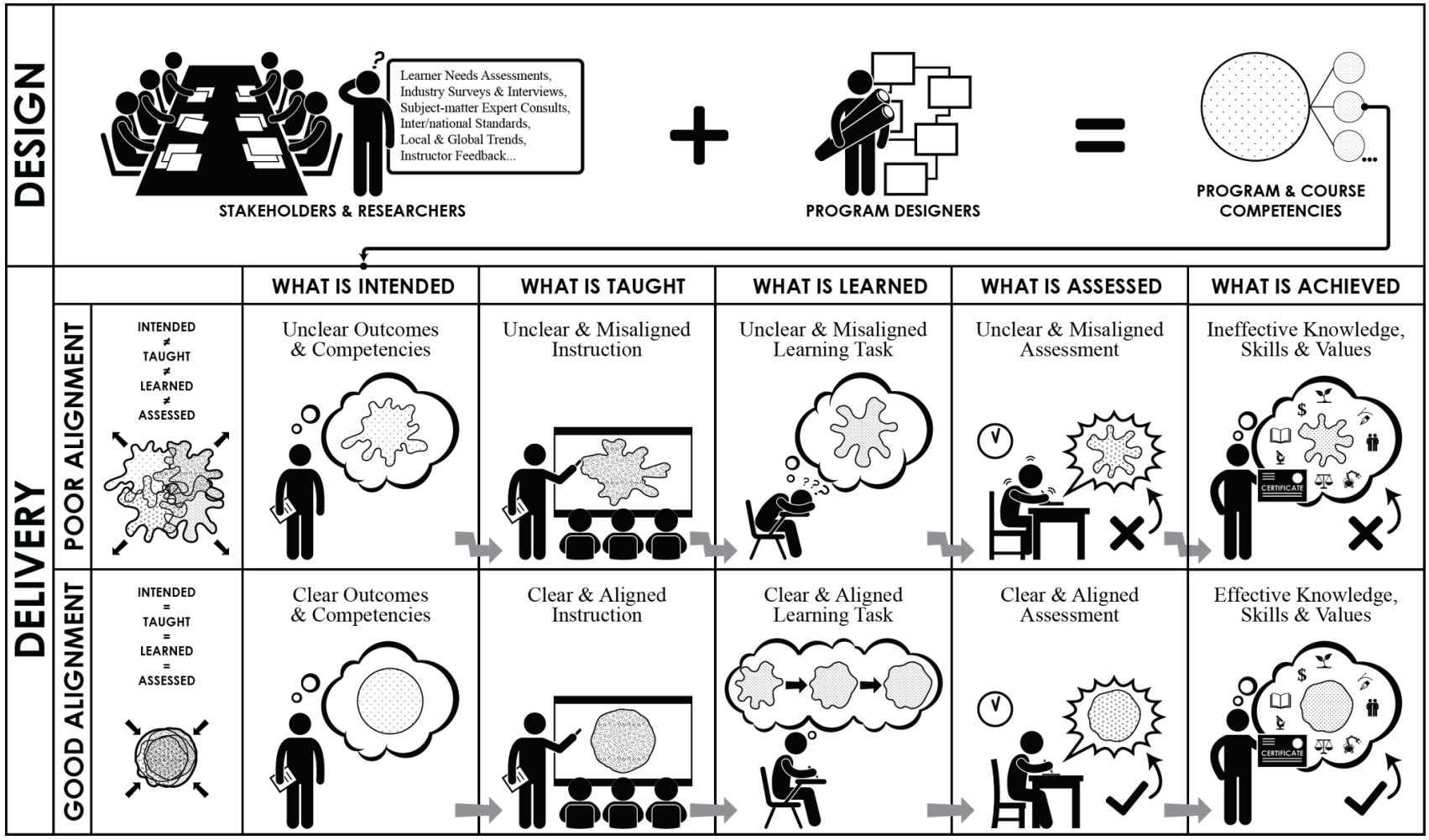


Figure 7: Delivering Instructionally Aligned Programs


DESIGN
Learner Needs Assessments,
Industry Surveys & Interviews,
Subject-matter Expert Consults,
Inter/national Standards,
Local & Global Trends,
Instructor Feedback...
STAKEHOLDERS & RESEARCHERS
PROGRAM DESIGNERS
PROGRAM & COURSE COMPETENCIES
DELIVERY
WHAT IS INTENDED
WHAT IS TAUGHT
WHAT IS LEARNED
WHAT IS ASSESSED
WHAT IS ACHIEVED
POOR ALIGNMENT
INTENDED ≠ TAUGHT ≠ LEARNED ≠ ASSESSED
Unclear Outcomes & Competencies
Unclear & Misaligned Instruction
Unclear & Misaligned Learning Task
Unclear & Misaligned Assessment
Ineffective Knowledge, Skills & Values
GOOD ALIGNMENT
INTENDED = TAUGHT = LEARNED = ASSESSED
Clear Outcomes & Competencies
Clear & Aligned Instruction
Clear & Aligned Learning Task
Clear & Aligned Assessment
Effective Knowledge, Skills & Values
CERTIFICATE

Module 1 Review

In this introductory module, we reviewed the many terms and concepts often used when discussing assessment in higher education. This includes many different types of assessment—for example, summative, formative, diagnostic, needs, classroom, authentic, etc.—as well as the different directions of assessment possible between the teacher, learners, and the curriculum.

We also began to think about how we can design assessments to ensure validity and alignment, two concepts we need to always keep in mind to help us link our assessments with the competencies and outcomes we are supposed to teach. To ensure validity and alignment, we use a process called backwards design, which tells us that when we set out to design instruction, we need to start with competencies and outcomes. We also use Bloom's Taxonomy to ensure we are methodically targeting specific learning domains and levels with our outcomes and assessments.

Now that we have a general foundation for assessment design, in the next section, we'll look more closely at how we can design valid and reliable questions and tests that align with our competencies and outcomes.

Module 2: Designing Tests



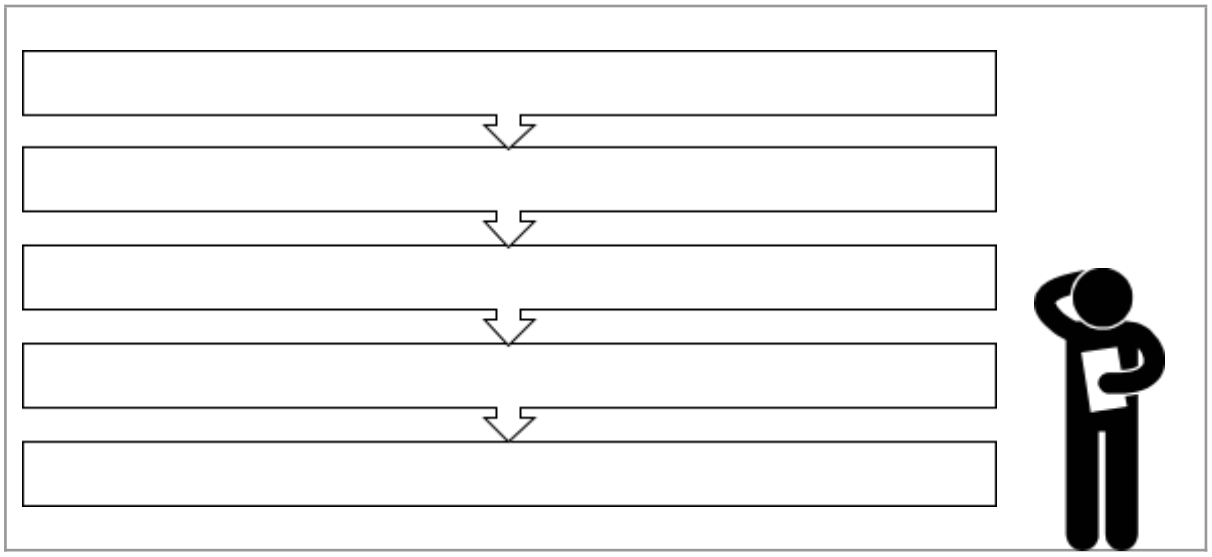
Module 2 Outcomes

By the end of this module, you should be able to:

- Design different types of convergent and divergent questions that align with outcomes by targeting specific learning domains and levels;
- Create a test blueprint to ensure a test's questions target appropriate topics and learning levels as defined by course competencies and objectives; and
- Evaluate a text for its validity, reliability, and fairness.

Now that you better understand the importance of outcomes and how to write them using Bloom's Taxonomy, this section should help you better understand how to begin designing valid and reliable tests. This section will review major elements that you need to consider before implementing a test so that you can adopt a test design process that ensures validity, reliability, and fairness. Such a process might look like the following:

Figure 8: Example Test Design Process



Aligning Questions with Outcomes

Bloom's Taxonomy is useful for not only writing outcomes that target different learning domains and levels, but also for designing questions that target the same domains and levels. By designing questions that match the domains and levels of your outcomes, you ensure assessment validity and alignment.

If you think about it, because outcome contain verb phrases using Bloom's Taxonomy, they are already directives that can be used on a test. For example, the first outcome from the previous section was for learners to "list and describe the three domains of Bloom's Taxonomy." This verb phrase can be used exactly as it is as a directive for a question: on a test or in the classroom, you can ask your learners to "list and describe the three domains of Bloom's Taxonomy."

You can also easily turn the outcome verb phrase into a question be adding "How would you…" or "Can you…" before the verb phrase in the outcome. For example:

Table 7: Example Outcomes and Matching Questions

Outcome Verb Phrase & Directive	Matching Question
List and describe the three domains of Bloom's Taxonomy	● How would you list and describe the three domains of Bloom's Taxonomy? ● Can you list and describe the three domains of Bloom's Taxonomy?
Define the various terms that are often used when discussing assessment;	● How would you define the various terms that are often used when discussing assessment? ● Can you define the various terms that are often used when discussing assessment?
Justify why clear and carefully written outcomes are important, using terms like validity, alignment, and backwards design	● How would you justify why clear and carefully written outcomes are important, using terms like validity, alignment, and backwards design? ● Can you justify why clear and carefully written outcomes are important, using terms like validity, alignment, and backwards design?

To add variation to your questions, you can also carefully change each outcome's wording to create questions that still target the same the same levels and domains. For example:

Table 8: Example Outcomes and Related Questions

Outcome Verb Phrase & Directive	Related Question
List and describe the three domains of Bloom's Taxonomy	(List) What are the three domains of Bloom's Taxonomy? (Describe) What are the main ideas about the three domains of Bloom's Taxonomy?
Define the various terms that are often used when discussing assessment;	What are the definitions of the various terms that are often used when discussing assessment?
Justify why clear and carefully written outcomes are important, using terms like validity, alignment, and backwards design	Why are clear and carefully written outcomes important (use terms like validity, alignment, and backwards design in your answer)?

You might want to practice making your own questions using Bloom's Taxonomy. Below is a table with example question stems for various verbs within Bloom's Taxonomy to help you.

Table 9: Bloom Taxonomy Verbs and Related Question Stems

Verbs or Directives	Related Question Stems or Directives
KNOWLEDGE	
Define	"How would you define…?" or "What is the definition of…?" or "What is the meaning of…?"
Label	"How would you label…?" or "What are the labels…?"
List, Identify, Name, Recall, State, write	"How would you list/identify/name/state/write…?" or "What are/is…?" or "Who are/is…?" or "When was/is…?"…
COMPREHENSION	
Describe, Discuss, Explain	"How would you describe/discuss…?" or "What are the main ideas/details/ideas…?"
Paraphrase, Translate, Restate	"How would you paraphrase in your own words…?" or "What is another way to describe/explain…?"
Give example	"What is an example of…?"
Predict	"How would you predict…?" or "What do you think will/would happen when…?"
APPLICATION	
Apply	"How would you apply…?" or "What would be a good application of…?" or "Show/describe how you would apply…"
Carry out, use, prepare	"How would you carry out/use/prepare…?" or "What would be a good way to carry out/use/prepare…?" or "Show/describe how you would carry out/use/prepare…"
Demonstrate, illustrate	"Show/demonstrate/illustrate how you would…"
Solve	"What is a good solution to…?" or "Can you see a possible solution to…?"
ANALYSIS	
Analyze	"How would you analyze…?" or "What would be a good analysis of…?" or "What are the different elements of…?" or "What was the underlying theme of…?" or "Why did…happen?"
Differentiate, Compare, Contrast, Discriminate	"How would you compare/contrast/differentiate…?" or "What are the similarities/differences between…?" or "What is the same or different between…?"
Outline, Categorize, Organize, Structure	"How would you outline/organize/structure/categorize…?" or "What is a good way to outline/organize/structure/categorize…?"
EVALUATION	
Evaluate, Assess, Judge, Debate	"How would you evaluate/assess/judge/debate together…?" or "Is there a better solution to…?" or "What is the value of…?" or "How effective are…?"
Conclude, Recommend	"What conclusions can you make about…?" or "What recommendations would you have for…and why?"
Interpret	"What are the reasons for/why…?" or "How would/do you feel about…and why?"
Justify	"What is the most important…and why?" or "How would you defend your position about…?"
Select	"Which…would you select/choose and why?"
Support	"How would you support or improve… and why?" or "What is the best way to improve…and why?"
SYNTHESIS	
Combine	"How would you combine/put together…?" or "What is a good way to combine…?"
Construct, Generate, Design, Develop, Plan, Propose	"How would you construct/generate/design/develop/plan/propose…?" or "What is a good way to construct/generate/design/develop/plan/propose …?" or "Can you create a plan/proposal which would…?"

In addition to ensuring validity and alignment, designing questions that carefully target learning levels and domains can also help you better assess how much, how well, and to what level your students understand your curriculum. This is useful for formative purposes—for example, you might question learners in the classroom to see if you need to teach to a higher

or lower level of Bloom's Taxonomy during a lesson. It can also be useful for summative purposes—for example, you might include questions in a test that target different learning levels so you can give higher grades to students who can answer higher-level questions.

Designing Test Blueprints

This section will show you how you can use questions that target different learning levels to design test blueprints. Test blueprints are tables which categorize questions in a test into different topics and learning levels. Using test blueprints can help you design better tests because they can help you easily see which topics and learning levels are emphasized or neglected so you can adjust your test questions to better meet course outcomes and program competencies.

Figure 9: Example Test Blueprint with Question Counts

TOPIC	Know	Comprehend	Apply	Analyze	Synthesize	Evaluate	# OF Qs	% OF TEST
Topic 1	1			1	1		**3**	**10%**
Topic 2	1				1		**2**	**7%**
Topic 3	2	1		1		1	**5**	**17%**
Topic 4				2		2	**4**	**13%**
Topic 5	3		1		1		**5**	**17%**
Topic 6		1		1			**2**	**7%**
Topic 7	1		1			1	**3**	**10%**
Topic 8	1		1		1		**3**	**10%**
Topic 9	2			1			**3**	**10%**
# OF Qs	**11**	**2**	**3**	**6**	**4**	**4**	**30**	
% OF TEST	**37%**	**7%**	**10%**	**20%**	**13%**	**14%**		**100%**

For example, the above test blueprint shows a test with 30 questions that cover nine topics. The number of questions in each topic are recorded in the second to last column, and each of these questions are then categorized by the cognitive learning level they target. The test blueprint illustrates that more than one third of the questions are at the knowledge level of Bloom's Taxonomy. If the test is intended to measure higher levels of learning, different questions will need to be written at higher levels.

Test blueprints can also count more than the number of questions for each topic and learning level. For instance, if some questions are worth more marks than others, you may also want to count the number of marks for each topic and learning level, which may show a different level of emphasis on each topic or level.

For example, the table below represents the same test as the one on the previous page after moving two knowledge-level questions to higher levels to account for the over emphasis on low-level questions. To increase the emphasis on higher-level learning, this table also makes application, analysis, and synthesis questions worth two marks, and evaluation questions worth three marks. Adding up the number of marks in each topic and level shows that the test now emphasizes higher-level learning—for instance, evaluation- and synthesis-level questions now represent 24% and 16% of the learner's grade respectively.

Figure 10: Example Test Blueprint with Question and Mark Counts (Marks in Brackets)

TOPIC	Know	Comprehend	Apply	Analyze	Synthesize	Evaluate	# OF Qs	# OF MARKS	% OF TEST
Topic 1	1 (1)			1 (2)	1 (2)		**3**	**(5)**	**Q-10% M-(10%)**
Topic 2	1 (1)	1(1)			1 (2)		**3**	**(4)**	**Q-7% M-(8%)**
Topic 3	2 (2)	1 (1)		1 (2)		1 (3)	**5**	**(8)**	**Q-17% M-(16%)**
Topic 4				2 (4)		2 (6)	**4**	**(10)**	**Q-13% M-(20%)**
Topic 5	1 (1)	1(1)	1 (2)		1 (2)		**4**	**(6)**	**Q-17% M-(12%)**
Topic 6		1 (1)		1 (2)			**2**	**(3)**	**Q-7% M-(6%)**
Topic 7	1 (1)		1 (2)			1 (3)	**3**	**(6)**	**Q-10% M-(12%)**
Topic 8	1 (1)		1 (2)		1 (2)		**3**	**(5)**	**Q-10% M-(10%)**
Topic 9	2 (2)			1 (2)			**3**	**(4)**	**Q-10% M-(8%)**
# OF Qs	**9**	**4**	**3**	**6**	**4**	**4**	**30**		
# OF MARKS	**(9)**	**(4)**	**(6)**	**(12)**	**(8)**	**(12)**		**51**	
% OF TEST	**Q-37% M-(18%)**	**Q-7% M-(8%)**	**Q-10% M-(12%)**	**Q-20% M-(24%)**	**Q-13% M-(16%)**	**Q-14% M-(24%)**			**100%**

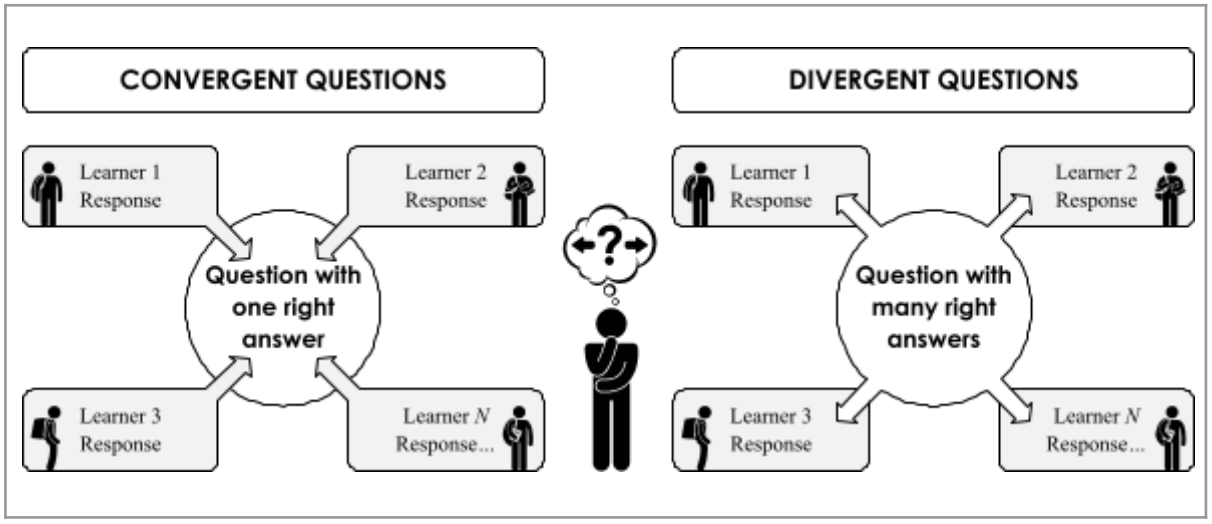
When you are designing or reviewing a test, you can count the number of questions and marks in each topic and level and make adjustments like this to ensure that your test is aligned with course outcomes and program competencies by correctly emphasizing topics and learning levels.

Designing Different Types of Questions

The last section illustrated how you can use test blueprints analyze and improve your tests to better represent the outcomes and competencies in your course. This section will look more deeply at the different types of questions you can use in your tests, including multiple choice, true or false, matching, short answer, and essay questions.

These different types of test questions can be divided into two groups: convergent test questions and divergent test question. Convergent test questions—including multiple choice, true or false, or matching questions—have one right choice and require learners to come to the same answer. Because there is one right answer, these types of questions are generally easier to mark but harder to design for higher-level learning. For instance, it can be easy to mark a true or false or multiple-choice question, but it can be challenging to design these types of questions to target synthesis- or evaluation-level knowledge.

Figure 11: Comparison of BOPPPS and CARD Models



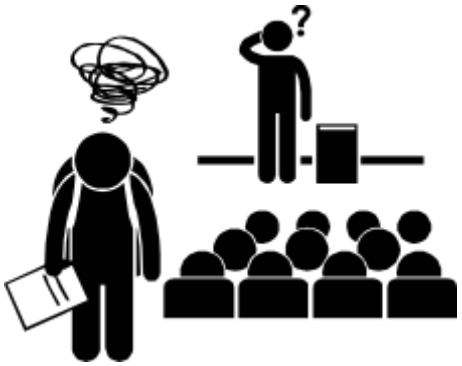
Divergent test questions—including short answer and essay questions—have many possible interpretations or answers. Because there isn't one right choice, these types of questions are generally harder to mark, but potentially easier to design for higher-level learning. For instance, the previous section on designing questions with Bloom's Taxonomy illustrated how to write higher-level questions, but marking the different answers from learners would take more time and consideration than convergent questions.

Choosing which type of question to use therefore depends on what level of learning you are targeting and how much time you have for test design and marking. The following sections will go into more detail about the challenges and strategies of designing each type of question.

Multiple Choice Questions

Figure 12: Considerations When Choosing Multiple Choice Questions

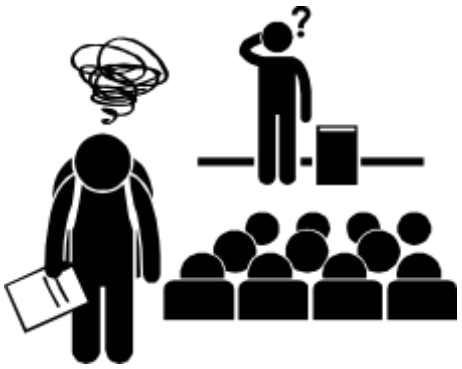
Strengths	● It is a convergent question type, which means it is easy to mark. This is especially the case if you are using a Learning Management System, which can mark this type of question automatically. ● It can vary in complexity and target lower and higher learning levels.
Weaknesses	● It can easily introduce random error if distractors are not carefully written and hint correct answers. ● It can take time to design if the question is more complex and targets higher learning levels.
Possible Elements	● Directions: include basic directions needed to complete the questions. ● Text: include the information required for students to choose a correct answer. ● Graphic: if required to support correct answer (or distract from it), include an illustration or graphic. ● Stem: include a question or the beginning of a statement. ● Distractors: include incorrect options to answer the stem's question or statement. ● Correct answer: include a correct option to the stem.
Strategies	● To ensure you don't hint the correct answer, make your distractors similar to the correct answer; for example, they should be grammatically parallel, similar in length, and contain similar vocabulary from your curriculum. ● You should not try to trick your students, but you can include distracting information in your text and/or graphic (i.e. "red herrings"). ● Review the type of thinking required to solve the problem or question described in your text to ensure the question accurately targets the right learning level. ● Don't organize your answers based on a pattern (e.g. ABCDEABCDE…).
Example Question with Elements	

View the graphic and read the passage to answer the question.	Directions
A teacher designed a new question for a test but was surprised that the majority of her class answered it incorrectly. She was surprised because in an activity the day before the test, nearly all her class answered two very similar questions correctly.	Text
	Graphic
What is the most likely reason for the class answering the new question incorrectly?	Stem
A. The new question was invalid due to not aligning with the teacher's instruction B. The new question was unreliable due to a random error, but not a systematic error C. The new question was invalid due to not aligning with the teacher's outcomes D. The new question was unfair due to biasing against a sub-group of her students E. The new question was unreliable due to a systematic error, but not a random error F. The new question was unreliable due to a systematic error and/or a random error	Distractors Correct Response

True or False Questions

Figure 13: Considerations When Choosing True or False Questions

Strengths	● It is a convergent question type, so like the previous question type, it's easy to mark. ● It is an easy question to design if you're targeting low learning levels. ● Answering questions is one of the fastest of all question types, so you can cover more content. ● There is often less reading and writing, so it can be fairer to students who struggle with language.
Weaknesses	● It can easily introduce systemic error since guesses have a 50% chance of being right. ● It can take time to design if the question is more complex and targets higher learning levels. ● Students can choose the right answer without knowing the curriculum because they might just recognize the false statement. ● All text in the question must be absolutely true or the answer is false.
Possible Elements	● Directions: include basic directions needed to complete the question. ● Text: include the information required for students to choose a correct answer. ● Graphic: if required to support correct answer (or distract from it), include an illustration or graphic. ● Statement: include a statement that is true or false. ● Options: include true or false as the options
Strategies	● Keep true and false statement close in length. ● Avoid absolutist terms like never or always. ● Always make your statement positive. ● Make sure you don't include hints or cues (e.g., the, a, an; plural, singular; gendered pronouns or words…). ● Have your students circle T or F rather than writing the letter, which students might debate.
Example Question with Elements	

View the graphic and read the passage to answer the question.	Directions
A teacher designed a new question for a test but was surprised that the majority of her class answered it incorrectly. She was surprised because in an activity the day before the test, nearly all her class answered two very similar questions correctly.	Text
	Graphic
The most likely reason for the class answering the new question incorrectly is that the question was invalid due to not aligning with the teacher's outcomes	Statement
True | False	Options

Matching Questions

Figure 14: Considerations When Choosing Matching Questions

Strengths	● It is a convergent question type, so like the previous question type, it's easy to mark. ● It is an easy question to design if you're targeting low learning levels. ● It is good for measuring how learners understand the association between groups of facts or ideas.
Weaknesses	● It can take time to design if the question is more complex and targets higher learning levels. ● It can be hard to design because your need a common set of ideas or options. ● All text in the question must be absolutely true or the answer is false.
Possible Elements	● Directions: include basic directions needed to complete the question. ● Stems: include multiple stems ● Options: include true or false as the options
Strategies	● You should use longer phrases as stems and shorter phrases as options. ● You can give more possible options than stems. ● Keep stems similar in length, grammatically parallel, asking for the same type of option (e.g. dates, people, places, verbs, adjectives…). ● Make sure you don't include hints or cues (e.g., the, a, an; plural, singular; gendered pronouns or words…). ● Number each stem and use alphabetical letters for the options. ● Write in your directions if stems can be used more than once.

Example Question with Elements	
Match each definition (numbers) with its associated term (letters) by writing a letter next to each number.	Directions
1. Different ways learning designers and teachers assess learners before a learning event to determine what all learners need 2. Different ways teachers and learners assess what and how much learners have learned before, during, and after a learning event to support learning rather than grading 3. Different ways teachers and learners assess what and how much learners have learned after a learning event to support grading rather than learning 4. Different ways teachers assess learners before a learning event to determine if individual learners have special needs that require accommodations 5. Different ways teachers can assess learners doing real and practical tasks that are commonly done in the curriculum subject or field	Stems
A. Authentic assessment B. Needs assessment C. Formative assessment D. Diagnostic assessment E. Summative assessment	Options
1 ___ 2 ___ 3 ___ 4 ___ 5 ___	

Short Answer Questions

Figure 15: Considerations When Choosing Short Answer Questions

Strengths	● It is a convergent question type, so like the previous question type, it's easy to mark. ● Minimizes correctly guessed answers compared to previous question types. ● Like true or false questions, students can answer it quickly allowing you to cover more content.
Weaknesses	● Difficult to measure higher learning levels beyond knowledge/recall. ● Difficult to phrase questions or stems so only one answer is correct. ● Misspelling is a problem if you are using a Learning Management System to mark automatically. ● Multiple answers may need to be considered if student provide more than one correct response, increasing marking time.
Possible Elements	● Directions: include basic directions needed to complete the question. ● Question/Stems: include a question or statement with a blank, underlined space
Strategies	● Try to ensure questions or stems require a single word answer or a very brief phrase, and avoid questions or stems that can be answered by several terms or phrases. ● Give the desired units if the question requires a number. ● Make sure you don't include hints or cues (e.g., the, a, an; plural, singular; gendered pronouns or words…).

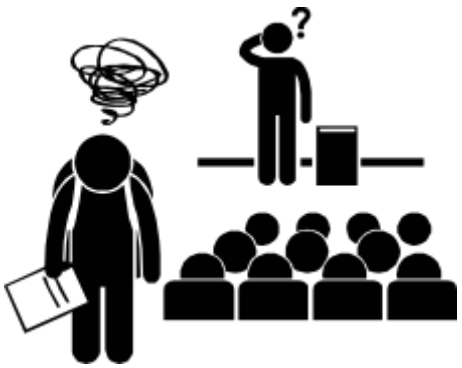
Example Question with Elements	
Complete the statement or answer the question by writing in the missing word.	Directions
_____ assessment refers to the different ways teachers can assess learners doing real and practical tasks that are commonly done in the curriculum subject or field.	Stem
What is the term used to refer to the different ways teachers and learners assess what and how much learners have learned after a learning event to support grading rather than learning? _____ assessment	Question



Essay Questions

Figure 16: Considerations When Choosing Essay Questions

Strengths	● It is a divergent question type, so it allows students to express their personal and individual thinking and beliefs. ● It can target all levels of learning if Bloom's Taxonomy is used to align questions with outcomes (see earlier section). ● It is easier and less time consuming to design than other question types.
Weaknesses	● It is the most time consuming to mark or score. ● Students may complain about subjectivity in their marks. ● Due to evaluator subjectivity, it can have low evaluator reliability. ● Students may use writing strategies that hide what they don't know or overemphasize the few things they do know.
Possible Elements	● Directions: include basic directions needed to complete the question. ● Text: include the information required for students to answer the question. ● Graphic: if required to support correct answer, include an illustration or graphic. ● Question: include a question that aligns with the targeted level of Bloom's Taxonomy.
Strategies	● Write an ideal answer for your question, including the main ideas you're looking for, and develop your scoring criteria from this answer. ● You can use assessment tools to score the answer (see sections later in the manual on rubrics, scoring sheets, etc.). ● Give the desired length of your answers (e.g. words or pages). ● Give students the scoring criteria prior to the test, and or show them the assessment tool. ● Read and qualitatively evaluate each student's answer before scoring it. ● Have and communicate a policy for dealing with incorrect, irrelevant, or illegible answers. ● Provide feedback and comments (see section later in the manual on providing feedback).
Example Question with Elements	

View the graphic and read the passage to answer the question using approximately 10 minutes and writing no more than 250 words. (5 marks: 2 points for reason(s), 3 points for explanation(s))	Directions
A teacher designed a new question for a test but was surprised that the majority of her class answered it incorrectly. She was surprised because in an activity the day before the test, nearly all her class answered two very similar questions correctly.	Text
	Graphic
What do you think is or are the most likely reason(s) for the class answering the new question incorrectly? Explain your reasoning.	Question

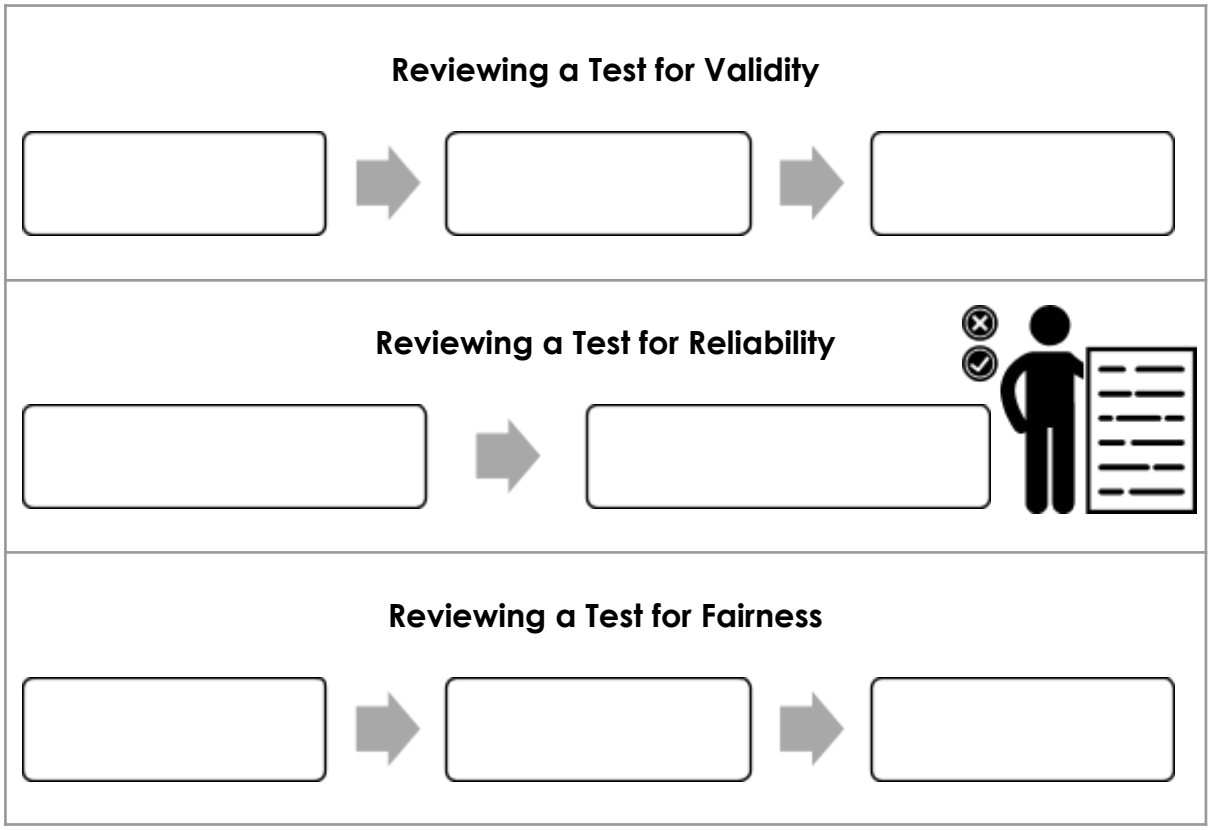
Evaluating your Test

If you recall, in the above sections we reviewed several major tasks you need to consider when you are designing a test, including:

- Using targeted outcomes as a basis for your test design,
- Drafting a test blueprint to map how your test will cover different topics and learning levels, and
- Designing different types of questions that align with your test blueprint and outcomes.

In this section we'll review the final thing you need to consider before you can deliver your test to your students—reviewing your test for validity, reliability, and fairness.

Figure 17: Reviewing a Test for Validity, Reliability, and Fairness



Reviewing for Validity

If you remember, the first criteria for effective assessments is validity, which refers to an assessment's alignment with targeted outcomes. In other words, if your test does not align with your outcomes, then it doesn't target or measure what your students were supposed to have learned, and so we say that your test is invalid.

When reviewing your test for validity, you need to ensure that your questions align with your outcomes using Bloom's Taxonomy, that your blueprint accurately categorizes your questions, and that your blueprint represents your course goals and outcomes.

Hopefully, if you designed your questions and blueprint carefully enough, then you'll find that your test will be valid. But if you find that questions poorly align with outcomes, that your blueprint is incorrect, or that your blueprint emphasizes the wrong topics or learning levels, then you'll need to rewrite your questions and/or adjust your blueprint.

Reviewing for Reliability

The second criteria for effective assessment which we reviewed earlier in the manual is reliability, which refers to an assessment's accuracy in measuring targeted outcomes. In other words, if your test uses questions that are unclear or poorly worded, then your students may get them wrong or right regardless of how well they know the targeted curriculum, and so we say that your test is unreliable.

When reviewing your test for reliability, you need to look for two types of errors: random errors and systemic errors. Random errors might occur in any question throughout the test and are usually due to poor wording or poor clarity, which may result in two situations: students who can't normally answer the question are able to guess the answer correctly, or students who can normally answer the question misinterpret the question and answer it incorrectly. In either case, the question is unreliable, so its wording and clarity need to be improved.

The second type of reliability problems come from systemic errors. Systemic errors might occur if your test or testing process has design bias—that is, if it requires skills, knowledge, or abilities that limit some or all of your learners from demonstrating their learning accurately. For example, maybe you're testing the listening and speaking skills of ESL students, but your test requires students to independently read directions to answer questions correctly. Some students might listen and speak excellently and would therefore normally meet or exceed your outcomes, but they may not be able to participate or succeed due to poor reading skills. This example testing process systematically biases against these students, and therefore the test results do not reliably measure their listening and speaking skills.

After you've reviewed your questions for both types of errors, you should hopefully have fixed all the mistakes in your test and testing process. Sometimes, however, you may find that after your test is delivered, many of your learners do not perform as you expected. For example, you may occasionally find that most of your class got an easier question wrong, got a difficult question right, or got exceptionally high or low grades in the test as a whole. In these instances, it is worth reviewing individual questions or the testing process to determine if these results were due to random or systemic error. You may need to correct the grades, retest the students, and/or change the test if you plan to use it again.

Reviewing for Fairness

The third criteria for effective assessment which we reviewed earlier in the manual is fairness, which refers to an assessment's preference or bias towards some students over others. In other words, if your test requires skills, knowledge, or abilities that limit some of

your learners from demonstrating their learning accurately more than others, than we say that your test is unfair. This is the same as systemic error in that the assessment biases for or against some students and is therefore not only unfair but also unreliable.

When reviewing your test for fairness, you need to complete three major tasks, including reviewing the diversities and variations in your learners, reviewing and fixing your test's and testing environment's biases, and creating or planning adaptations.

Reviewing Learner Variations

There are many different types of learner variation and diversity that you should look for when evaluating the fairness of a test or assessment. For example, you may find that your students have different types of variations that are biased against or preferenced in your test as listed below.

Table 10: Types of Learner Variations and Diversities

Variations	Evaluation Questions
...in ability	• Physical abilities, i.e. your assessment may bias against/for mobilities, injuries, body sizes, postures… • Sensory abilities, i.e. your assessment may bias against/for blind or visually impaired, deaf or hard of hearing… • Learning abilities, i.e. your assessment may bias against/for impaired motor skills, attention, language processing… • Psycho-emotional abilities, i.e. your assessment may bias against/for depression, anxiety, substance abuse…
...in learning and communication styles	• Communication methods, i.e. your assessment may bias against/for writing, speaking, drawing, demonstrating… • Social orientations, i.e. your assessment may bias against/for introverted or shy students, extroverted or outgoing students…
...in culture	• Language abilities, i.e. your assessment may bias against/for understanding jargon, idioms, fast speech… • Cultural knowledge, i.e. your assessment may bias against/for recognition of movies, famous people, places… • Value systems, i.e. your assessment may bias against/for orientations towards religion, politics, sex…
...in demographics	• Class differences, i.e. your assessment may bias against/for poor students, rich students… • Gender differences, i.e. your assessment may bias against/for male, female, or other genders… • Ethnic differences, i.e. your assessment may bias against/for different cultures or sub-cultures of students… • Sexual orientations, i.e. your assessment may bias against/for straight or LGBT students…

Reviewing Test, Testing Process, and Environment for Bias

After you are more aware of the diversities in your class, you should be able to identify if there are individual or sub-groups of students who might need more support or attention.

Your next task is to review your test, testing process, and testing environment for any biases that preference or limit individuals or sub-groups of students.

Universal Design refers to a theoretical model that focuses on how to make environments and products as accessible as possible to the broadest variation in users, and it is often used in education to evaluate the accessibility and inclusivity of curriculum and learning environments. There are different principles or criteria for Universal Design that can help you evaluate your tests and assessments. For example, Universal Design criteria encourage you to ask the following questions:

Table 11: Reviewing Tests Using Universal Design Principles

Criteria	Evaluation Questions
Equitable use	● Can all students use the test regardless of their limitations or learning preferences? ● Is the test barrier-free for all students (i.e. nothing stops some students from participating)?
Flexibility in use	● Is the test able to accommodate a wide range of student preferences and abilities and not just a select group?
Simple and intuitive use	● Are the test questions, directions, media, and interfaces (i.e. paper or computer screen) easy to use and understand?
Perceptible information	● Is the information in the test easily seen and/or heard regardless of ambient conditions, environments and the sensory abilities of participants?
Tolerance for error	● Is the test accepting of errors not related to the test's targeted outcomes? ● Does the test minimize negative consequences for misinterpretations?
Low physical effort	● If the test requires physical activity, does it maximize efficiency and comfort and minimize the potential for fatigue?
Size and space for use	● Can participants with different mobilities, postures, and body sizes easily move in the testing environments and participate in the test?

After you are aware of your students' diversities and you have reviewed your test using the questions above, you may find that there are sub-groups of students who may not be able to fairly or fully participate in your test, testing process, or testing environment. If this is the case, you may need to:

- Change your test questions to be more simple/intuitive, perceptible, tolerant of different acceptable answers, etc.;
- Change your testing environment to require less physical effort, more size and space for movement, more lighting, etc.; and/or
- Make your testing process more flexible by planning accommodations for individual or groups of students.

Creating and Planning for Accommodations

If you have made your test as inclusive and equitable as you can and you're still concerned that your test may bias against individuals or sub-groups of students, then you will need to

make accommodations for those students—in other words, you need to change the testing process for those students to allow them to participate fully and equitably.

There are different types or strategies for making accommodations. For example, you might be flexible with time by giving more time for tests or extending deadlines. You might be flexible with support by giving more one-on-one support or providing different resources. You might also be flexible with the environment by changing desks and lighting or allowing students to take the test in a different space or room. You might also be flexible with the test itself by creating alternative versions or accepting different communication methods from students (e.g. oral, written, illustrated graphics, etc.).

Some examples of making accommodations might include the following:

- You have a visually impaired student, so you make their test with larger fonts, make sure they sit in a desk with lots of lighting, and give them more time to finish.
- You have a student with an anxiety disorder triggered by testing, so you let them take the test in another room in case they need to emote, you give them more time, and you check in with them to give them more support and encouragement.
- You have lots of ESL students, so you explain cultural references before the test, use a test version with alternative vocabulary for terms, allow them to use diagrams or graphic organizers rather than extensive paragraphs, and give them more time to finish.
- You teach a blended class with online testing but have several poor students who don't have computers, so you invite students to come to a computer lab for the test where you can supervise and give support.

Module 2 Review

In this module, we looked in great detail at how to design effective tests that align with course competencies and outcomes. We learned that Bloom's Taxonomy is not only useful for writing outcomes, but it is also useful for writing questions and organizing them within a test blueprint to ensure the right topics and learning levels are targeted as defined by our course competencies. We also learned that when designing a test, we can choose between different types of convergent and divergent question types, each of which have different strengths and weaknesses. Lastly, we learned major terms and criteria for evaluating tests, including validity, reliability, and fairness, important concepts which are just as relevant to tests as they are for other types of assignments and assessments that we'll learn about next.

Where well-designed tests can be effective at measuring our students' knowledge of the curriculum, in the next section, we'll look in more detail at how we can design practical and authentic assignments that allow our students to learn and demonstrate their skills.

Module 3: Designing Assignments



Module 3 Outcomes

By the end of this module, you should be able to:

- Identify appropriate types of authentic products and performances learners can create in your courses to demonstrate their skills related to course competencies;
- Find, adapt, and/or create appropriate assessment tools that can support learners' understanding of assignment criteria, make marking more efficient, and ensure clarity during evaluation; and
- Use different assessment strategies that improve the efficiency of marking and richness of feedback.

The previous section introduced several ideas and strategies which are useful for creating tests, including using Bloom's Taxonomy to create outcomes and questions that align with the same learning domains and levels. But there are many different ways to assess if learners meet your outcomes in addition to testing. This section focuses on assignments you can design that align with your learning outcomes, beginning with a review of different types of learning tasks that result in student products or performances that you can assess.

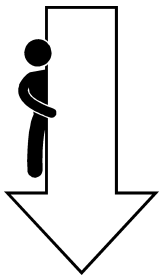
Designing for Learning-by-doing

Hopefully, you've already heard the term learning-by-doing. Learning-by-doing refers to a type of learning that focuses less on content transfer and memorization and more on designing learning tasks that allow students to practice and apply the curriculum in meaningful and practical ways. In other words, learning-by-doing stresses the need to teach higher-level learning outcomes that allow students to apply, analyze, evaluate, and synthesize the curriculum.

Of course, not all learners will be able to complete higher-level learning tasks right away. This means that you need to sequence your learning tasks so that your students can develop increasing levels of confidence and mastery. Below is a table that differentiates learning tasks by the different ways that learners can interact with the curriculum. For example, different learning tasks can make learners interact with the curriculum through reading, seeing, hearing, watching, doing, or teaching. These modes of interaction and tasks build in complexity and help learners to demonstrate increasing levels of mastery.

The table below illustrates that when you design in-class learning tasks that encourage mastery of the curriculum, you should ultimately be designing tasks that encourage learners to *do* things with the content (i.e. hands-on, learning-by-doing tasks) and/or *teach* the content to each other.

Figure 18: Levels of Learner Interaction with the Curriculum



Reading	Text, Document, Web page, Article
Seeing	Graphic, Image, Graph, Illustration
Hearing	Lecture, Discussion, Audio, Webinar
Watching	Demonstration, Instruction, Video, Animation
Doing	Simulation, Lab, Scenario, Case, Problem, Inquiry
Teaching	Peer Mentoring, Peer Instruction, Peer Assessment

(adapted from Bersin, 2004)

It's important to differentiate these levels of learner interaction because many tasks may not result in products or performances you can easily assess. For example, when students read, see, hear, or watch content, they are treated as receivers or consumers of content and so are less able to create products or performances that you can assess. When students are able to demonstrate their learning at the levels of doing and teaching, however, they are able to create products and performances that you can assess. Below are some example learning-by-doing tasks with various types of assessable products or performances that students might create.

Table 12: Example Learning-by-doing Products and Performances

Task	Description	Products or Performances
Case Study	• Teacher provides a real professional case that might have varying responses or answers • Students decide how they would respond to the case and justify their thinking	Report, written reflection, and/or presentation
Problem	• Teacher gives a problem that requires a solution • Students discuss the problem and decide how best to solve it	Report, written reflection, and/or presentation
Experiment/Inquiry	• Students and/or teacher design an experiment that might answer an unknown question • Students conduct the experiment and present results	Report, written reflection, and/or presentation
Conceive, Design, Implement, Operate	• Students design, implement, and evaluate a physical model or product • Students can share their product with the class and/or create written documentation demonstrating and evaluating its use and functionality	Designed product, plan, report, written reflection, and/or presentation
Role Play	• Teacher provides a scenario or story and the students role play the different people or characters	Written reflection and/or presentation

Simulation	• Teacher provides a real-world experience • Students illustrate how they would act or respond	Written reflection and/or presentation
Debate	• Provide two opposing views for students to choose from and defend	Written reflection and/or presentation
Presentation or Lesson	• Students research different topics and present their results or conclusions in the form of a presentation or lesson	Written reflection and/or presentation
Demonstration	• Students practice a task and demonstrate it to the teacher and/or class	Written reflection and/or presentation
Interview	• Students interview each other or a guest on a provided topic • Can then hand in their work or share with class	Report, reflection, and/or presentation
Peer Coaching	• One student tries a skill while the other questions and provides advice • Then the partners switch	Written reflection and/or presentation
Gallery Walk	• Students show ideas or work at different areas of a room • Groups rotate to discuss and leave feedback	Product, report, and/or presentation
Mind Map, Fish Bone, Concept Map, etc.	• Students draw one to show their understanding of a topic by listing and connecting its components • Students can hand it in, share it with peers, or present it to the class	Graphic organizer, written reflection and/or presentation
Student Questions	• Students are given time to write the best questions they can after a topic is complete • Teacher includes the questions on a class test or quiz	Questions and/or written reflection
Value Line	• Student choose how much they agree with a statement from 1-100 and stand in an imaginary line that represents 1-100 • Teacher questions students on their position • Students can change their position based on responses	Written reflection

Choosing a Product or Performance to Assess

When choosing a learning task to assess, as illustrated above, there are many different types of products or performances you can ask your students to create and/or demonstrate. Regardless of what task you choose, you want your students to construct an observable and measurable artifact that reveals their understanding of targeted course outcomes and competencies. The artifact may be a physical text or product they create after completing your task, or it may be a performance you can observe and/or record.

When students create a learning artifact by participating in a learning-by-doing task, they can represent their learning using various modalities. For example, some tasks like reports and reflections encourage learners to create written documentation of their learning, while other tasks like debates, presentations, and demonstrations encourage learners to communicate their learning through speaking or a performance.

Table 13: Modalities of Learner Products or Performances

Assessment Modality	Text	Verbal	Physical	Image
Learner Action	Write	Speak	Perform/Make	Design/Draw
Teacher Action	Read	Listen	Watch/View	View
Example Products or Performances	Worksheets, Research or lab reports, Essays, Briefs, Annotated bibliographies, Literary or film analysis, Article or book reviews, Cases, Journals, Plans, etc.	Discussions, Debates, Speeches, Presentations, Interviews, Stories, Role plays, Lessons, etc.	Demonstrations, Models, Inventions, Fixed or improved products, etc.	Designs, Mock ups, Illustrations, Graphic organizers, Photographs, Maps, Digital videos

Thinking about modalities is important because you should vary your tasks and assessments so that learners can represent their learning in different ways. If you think about it, it may not be reliable or fair if you always ask your students to perform writing tasks. For example, some of your learners may understand the curriculum well, but may have poor writing skills so they are unable to accurately represent what they know. At the same time, other students may not understand the curriculum well, but may have very good writing skills so they can hide or obscure what they don't know. And as a second example, it may not be reliable or fair if you always ask your students to make presentations or show demonstrations, as some students may understand the curriculum well but may be very shy.

Using Assessment Tools

In the previous section, we reviewed and looked at examples of assessment products and performances, but we haven't yet considered how you can measure and document your assessment of these learning artifacts.

There are several common tools that can be used to support assessment. This section reviews five different assessment tools, including the rubric, scoring sheet, rating scale, checklist, and question table. In general, these assessment tools are used:

- To make assignments clearer and more explicit to the learner and teacher,
- To align assessments with outcomes to ensure validity, and
- To support learner self-evaluation skills (i.e. assessment AS learning).

The Rubric

The rubric is a table or matrix that lists assignment criteria in the first column, and then descriptions of different levels of performance in the rest of the columns. Rubrics can be very basic with short descriptions and few criteria and levels, or they can be more complex with longer descriptions and more criteria and levels. Criteria can also be ranked or assigned marks according to their importance to signify how each criterion will affect the overall assignment grade. You can find example rubrics in the Appendix D.

When designing your rubric, you want to make sure that your criteria reflect the outcomes that your assignment is intended for. For example, if you are asking your learners to write an essay analyzing and evaluating a case-study, then your rubric's criteria should break down what analysis means (e.g. defines/describes/orders strengths, weaknesses...) and what evaluation means (e.g. explains underlying problems/issues, selects and justifies actions/solutions...). After choosing your criteria, you then want to write descriptive statements for each level of performance (e.g. poor, satisfactory, good, excellent). Using our last example, you would need to describe what poor, satisfactory, good, and excellent analysis of strengths look like, and so on.

When marking with a rubric, you simply highlight or circle the level achieved by the learner's product or performance for each criterion, providing more feedback and tips where necessary. You can also use a rubric to support more constructivist learning in several ways:

- Highly constructivist: Have your learners create the rubric for their assignments. This requires time, teacher support, and learners' base knowledge of the task's purpose and outcomes.
- Moderately constructivist: Let your learners mark their own assignments using the rubric and example products (i.e. exemplars).
- A bit constructivist: Give your rubric to learners ahead of the assignment to make your assignment's goals clearer and promote learner self-evaluation.

The Scoring Sheet

A scoring sheet is a tool that is less complicated than a rubric because it includes fewer description of criteria. Similar to a rubric, a scoring sheet is a table that includes criteria, but instead of describing different levels of achievement, the scoring sheet only describes the best or optimum achievement for each criterion.

The primary purpose of the scoring sheet is to breakdown and quantify a student's score as clearly as possible. Teachers can break down the marks for an assignment by giving a score for each criterion based on the criteria's importance or value to the assignment. They can also include comments for each criterion so learners can receive qualitative feedback. For an example of a scoring sheet, see Appendix E.

The Rating Scale

A rating scale is another tool that is less complicated than a rubric because it includes criteria but doesn't include descriptions of the different levels of achievement. Like the rubric, the left column of the rating scale lists criteria, items, or qualities that the learner's product or performance should have or demonstrate. Unlike the rubric, however, the other columns list a series of numbers or levels that can be circled to measure the degree to which the learner achieved each criterion. Rating scales can also include columns for comments and feedback as well as scores to help quantify grades. For an example of a scale, please see Appendix E.

The Checklist

A checklist is an even less complicated assessment tool that simply lists the items or qualities that the learner's product or performance should have or demonstrate. A checklist can be used to help learners self-evaluate their work before or after they submit it, and it can also be used

to help the teacher quantify grades and give feedback. For example, a teacher can check off all the items/qualities that the learner's assignment demonstrates and use unchecked items to determine grades and to focus feedback. There is an example checklist in Appendix F.

The Question Table

The last tool we'll review that you can use to support assessment is a list of evaluation questions that can focus the learner's and teacher's evaluation of student artifacts. Very similar to a checklist, this tool lists a series of questions that students can ask themselves while reviewing their assignments to ensure it meets desired criteria. Teachers can also use the questions to focus their feedback.

Questions can be closed or open, for example:

- Closed: Does the essay use consistent citations? Does the essay organize ideas using a thesis statement in the introduction that connect with topic sentences within the essay's body?...
- Open: How does the essay persuade the reader to believe the thesis statement? How does the essay engage the reader to continue reading?...

When questions are closed, the question table is essentially the same thing as a checklist and can be used to see if learning artifacts have or have not included targeted items or qualities. When questions are open, however, they can encourage learners to think about and evaluate their work more deeply. There is an example checklist in Appendix G.

Giving Rich Feedback

The previous section reviewed different tools we can use to help teachers and learners share clear expectations for different assessments. Although these tools are useful in making evaluation more clear and efficient, they do not guarantee that learners receive rich and individualized feedback that will help them improve. This section lists criteria for giving rich feedback, as well as a few strategies to improve the quality and efficiency of feedback.

Feedback is a common theme in Instructional Skills Workshop (ISW), which is the workshop model that ADW is based on. ISW encourages teachers to think about what good feedback means by sharing the following criteria. According to the ISW manual, good feedback should be:

- Specific rather than general, because specific information helps the receiver reflect on immediate behavior, while general feedback may confuse the receiver and can lack impact.
- Descriptive as opposed to evaluative, because we want to avoid using judgmental terms such as "good" or "bad" and instead describe how and why behavior should improve.
- Behavioral rather than inferential, because we want to refer to what the person does, rather than suggesting reasons for their actions. For example, we might say "Bob, you continually rattled the change in your pants pocket" (i.e. the behavior), and not "Bob, you seemed very nervous when presenting" (i.e. inferring the reason for the behavior).

- Balanced, because we want to provide positive feedback to help learners keep and affirm good behavior, while giving suggestions for development to help learners change unwanted behavior.
- Manageable, because we want to ensure our feedback easy to receive and understand instead of overloading the learner with information.
- Changeable, because we want our feedback to target behavior that the receiver can change rather than behavior they can't control.
- Solicited, because feedback is often most useful when the receiver wants the feedback rather than when it is imposed on them.
- Timely, because feedback is most useful when it is given quickly after the learner completes their assignment.
- Checked for understanding, because we want to ensure our feedback is reviewed and understood.

Marking Efficiently

Especially when we are teaching large classes and/or teaching classes with lots of assignments, giving rich feedback to each of our students can be a daunting and time-consuming task. Grading and feedback will always be one of the major duties of teaching, but there are many strategies we can use to make these duties more efficient.

- Use assessment tools: As we discussed above, although it takes time to create assessment tools like rubrics and checklists, they make marking more efficient and hopefully help students to make fewer mistakes.
- Use feedback templates or comment banks: When you write feedback to one student, chances are it's just as relevant to several others in the class. Save all your comments in a table or spreadsheet, and when you see a student make a relevant mistake, copy-paste the comment and individualize it to fit the student's context.
- Use codes: If you provide a sheet of feedback codes with different common issues or comments to your students (e.g. in a course website or in a handout in the beginning of the class), you can use the codes to quickly give feedback rather than copy-pasting as described in the previous point.
- Use a Learning Management System (LMS): LMSs like Moodle can make it much easier to receive, rename, manage, and grade assignments. If your school has an eLearning platform like Moodle, make sure you request a course website and learn to use it.
- Mark digitally: If you are using an LMS (ideal) or accepting and returning your assignments via email (not ideal), you can provide feedback and append assessment tools more quickly (e.g. copy-pasting, highlighting, adding document comments, tracking changes, skimming documents, etc.). It also saves paper.
- Front-loading your feedback: If you give lots of tips and share the most common mistakes with your students before they complete their assignments, it proactively reduces the number of mistakes you need to identify and give feedback for. It also helps your learners succeed more.
- Make students fix repeated mistakes: If a student makes the same mistake many times, instead of finding and highlighting every instance, point out one or two and have the student fix the rest.

- Focus on what's most changeable: If a student has many different mistakes, mention the different patterns of mistake briefly, but focus more deeply on the mistakes that are the most changeable and/or have the biggest impact on the students overall learning.
- Move from global to local: Provide global feedback first (e.g. assignment content, structure, etc.), as many smaller or more local problems (e.g. wording, spelling, etc.) may not be relevant when global problems are fixed.
- Use self- and peer-assessment: If you help students give reliable and rich feedback to themselves and each other, you don't have to do it. As we'll discuss in the next section, it also helps them learn valuable evaluation skills.

Module 3 Review

In this module, we reviewed how you can integrate different types of authentic products and performances into your courses so learners can demonstrate their skills while learning-by-doing. We learned that depending on your courses' competencies, the needs of your learners, and the types of tasks regularly expected in your field, some products and performances might be more authentic and meaningful than others. When designing an assignment, we therefore need to carefully choose an appropriate product or performance task so that:

- Our learners can create something they think is valuable and worth doing,
- Our learners have meaningful contact time interacting with the curricula and each other; and
- We can gather reliable data and evidence of their knowledge and skills relevant to course competencies.

To support our planning and make our assignment expectations, directions, and evaluation criteria as clear as possible, we also learned how to create and use different types of assessment tools, including rubrics, scoring sheets, rating scales, checklists, and question tables. We learned that both teachers and learners can use these tools to provide qualitative feedback and/or quantify grades when evaluating assignments.

Lastly, we reviewed different strategies we can use to make marking less onerous and more efficient while improving the quality of the feedback we provide. Designing, supporting, and marking authentic assignments can be challenging, but by using different tools and techniques, we can reduce the time and effort they require.

In the next section, we'll shift our focus away from teacher-based assessment and towards learner-based assessment by looking at different strategies we can use to teach evaluation skills using self- and peer-assessment.

Module 4: Teaching Evaluation Skills



Module 4 Outcomes

By the end of this module, you should be able to:

- Describe different levels, purposes and strategies for including learners in evaluation using self- and peer-assessment activities;
- Create questions that target criteria for learners' critical thinking, including clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness;
- Create questions that support learners' reflection about their learning (meta-learning) and thinking (metacognition); and
- Integrate learner portfolios into assessment design to support course integration, learner self-evaluation, and holistic skill development.

If you think about the primary services that we as teachers provide for our learners, you might realize that assessment and evaluation are central to everything we do as teachers and everything we want our learners to eventually do for themselves. For example:

- We assess the relevance and value of information and skills that our students need to learn. Ideally, our students should eventually learn the critical thinking skills needed to reliably assess the relevance and value of different information and skills on their own.
- We assess the approaches and activities our students should use to most effectively and efficiently learn. Ideally, our students should eventually learn the meta-learning skills needed to reliably assess the effectiveness and efficiency of their own learning processes.
- We assess how well our student have learned what we want them to learn. Ideally, our students should eventually learn the self-awareness and metacognition skills needed to reliably assess what they know and what they still need to learn.

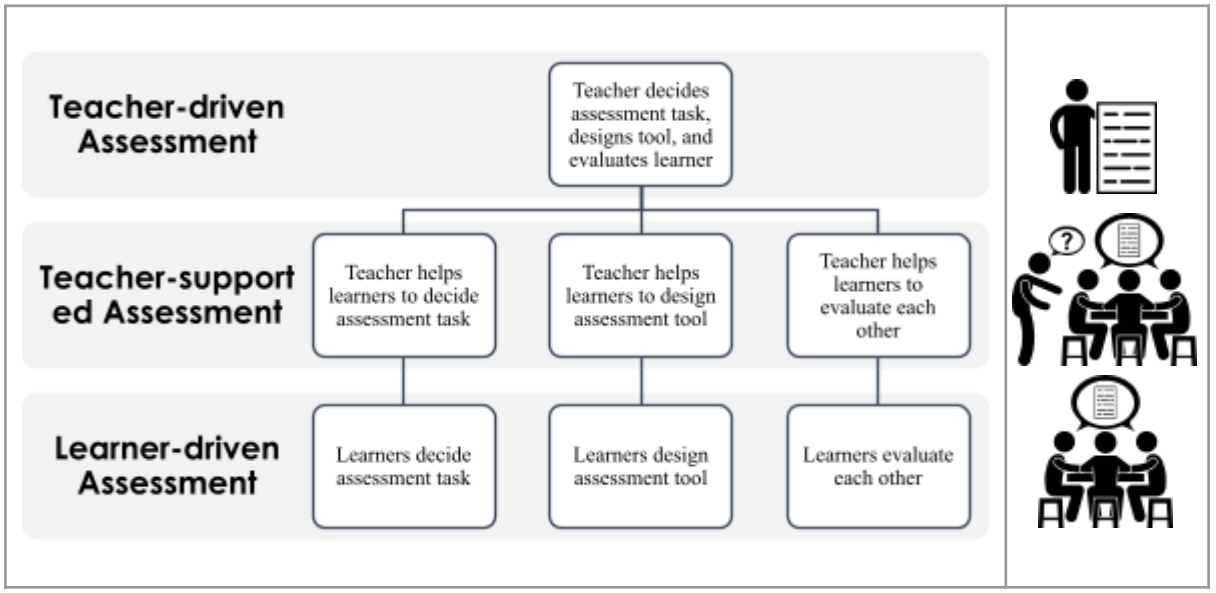
Once students develop sufficient critical thinking, meta-learning, and metacognition skills to reliably assess the information available to them, their own learning processes, and their own thinking, they become self-sufficient learners who no longer need us as their teachers. Such self-sufficiency is the goal of incorporating learners in the assessment process.

Designing for Assessment AS Learning

Early in the manual and workshop, we reviewed three primary purposes of assessment: assessment FOR learning, assessment OF learning, and assessment AS learning. Hopefully you recall that assessment FOR learning refers to assessments that are used for formative purposes to improve teaching and learning processes, while assessment OF learning refers to assessments that are used for summative purposes to evaluate and grade students after

learning interventions have taken place. Assessment AS learning, however, refers to assessments that are used for educative purposes to support students' self-sufficiency in their own learning. We do this by incorporating learners in the assessment process.

Figure 19: Levels of Incorporating Learners in Assessment



When we use assessment for educative purposes, we ideally want learners to participate as much as possible in the assessment process. As illustrated in the diagram above, we can incorporate learners in assessment in three different ways:

- We can incorporate learners by helping or letting them decide which assessments tasks should be used to measure their learning. For example, we might help our learners decide what product or performance they want to create or which types of tests they think are most useful to demonstrate their achievement of learning outcomes.
- We can incorporate learners by helping or letting them design the assessment tools we use. For example, we might help our learners create test questions, rubrics, or checklists that will be used to assess their learning.
- Or we can incorporate learners by helping or letting them evaluate their own or their peers' learning. For example, you might have students mark each other's tests, or review each other's or their own products or performances using an assessment tool.

By using one or more of these strategies, you can give your learners different levels of control of the assessment process. Initially, if learners are not used to participating in assessment, you may need to control most of the process. For example, you might choose the assessment task and design the assessment tool but give your students opportunity to evaluate their own or each other's work using the tool you designed.

Over time, however, you might give increasing control to your learners with less and less guidance. For example, you might eventually be able to let students choose their assessment product from a list, help them design their assessment tool, and then help them use the tool,

for instance, by evaluating and giving feedback on their self-or peer-evaluation. In this way—by gradually relinquishing control of assessment while ensuring it is valid and reliable—we encourage our students' self-sufficiency in their own learning processes.

Reviewing the Purposes of Self- and Peer-Assessment

The previous section reviewed different levels you can use to incorporate students in self- and/or peer-assessment. Before that, we also reviewed the overall goals of teaching evaluation skills to our students, which are to help students develop critical thinking, meta-learning, and metacognition skills. Keeping these goals in mind, when we decide to use self- and peer-assessment, we therefore need to design and evaluate our assessment tools and processes to ensure they teach critical thinking, meta-learning, and metacognition skills. For example, we might as the following questions when evaluating our self- and peer-assessments.

Table 14: Goals and Evaluation Questions for Self- and Peer-Assessments

Goal	Purpose and Evaluation Questions
Critical thinking	• **Purpose:** to help learners to self- or peer-evaluate the information they use and include in their products or performances. • How does the assessment help learners meaningfully reflect on the curriculum more deeply, broadly, accurately, logically, precisely, fairly…?
Meta-learning	• **Purpose:** to help learners to self- or peer-evaluate the learning processes they use in creating their products or performances. • How does the assessment help learners meaningfully reflect on different learning strategies available to them as well as their own strengths and weaknesses as a learner?
Metacognition	• **Purpose:** to help learners to self- or peer-evaluate their current thinking, knowledge, and knowledge gaps related to the topic of their products or performances. • How does the assessment help learners meaningfully reflect on how they think, what they know, and what they need to know?

The following sections further elaborate how you can help your learners develop critical thinking, meta-learning, and metacognition skills with your self- and peer-assessments

Supporting Critical Thinking

When your students self- or peer-assess their products or performances, you can use assessment tools that include criteria, questions, or prompts that help learners evaluate the information they include in their assignments. For instance, you can provide your students with a question table, rubric, scoring sheet, or rating table that includes some of the following criteria and questions that target various aspects of their critical thinking.

Table 15: Critical Thinking Evaluation Questions for Self- and Peer-Assessments

Focus	Self- and Peer-Evaluation Questions
Clarity	• What needs to be elaborated further? • What requires more examples? • What needs to be illustrated more to explain what you mean?
Accuracy	• What information needs to be checked? • How do you know information is true? • How can you verify or test your claims?
Precision	• What needs to be more specific? • What needs to be have more details? • What needs to be more exact?
Relevance	• How do your details relate to the problem/thesis? • How do your details help explain the main issue? • How do your details relate to and inform on the main problem/thesis??
Depth	• What factors make your assignment a difficult problem, concept, or theory? • What are some of the complexities of your questions? • What are some of the difficulties you need to deal with?
Breadth	• Do you need to look at this from another perspective? • How would another point of view add to your ideas and thesis? • What do other people say about the issue?
Logic	• Does all your information make sense together? • Does what you say follow from the evidence? • Does your inference make sense given what we know?
Significance	• Did you include or consider the most important problems or arguments? • Did you focus on the central ideas? • Did you make clear which facts are most important?
Fairness	• What vested interest do you have in this issue? • How can you more sympathetically represent different viewpoints? • What claims or beliefs unfairly impact other people?

Supporting Meta-learning

In addition to supporting your students' critical thinking, you can also use self- and peer-assessment to support their meta-learning—in other words, you can help them reflect on how they learn most effectively and efficiently. For instance, as illustrated in the table below, you can use self- or peer-assessment tools that include questions or prompts that focus on the learning conditions, processes, and mind-sets your students used when completing their assignment.

Table 16: Meta-learning Evaluation Questions for Self- and Peer-Assessments

Focus	Purpose and Evaluation Questions

Learning conditions and environment	● **Purpose:** to help learners reflect on the ideal conditions that help them work the most effectively and efficiently when learning and completing assignments. ● What were the conditions like when you completed your assignment, and how did they help or hinder your ability to create quality work (e.g. times, places, study rituals, partners, groups, distractions, surroundings…)? ● How would you improve these conditions for the next assignment?
Learning processes and activities	● **Purpose:** to help learners break down and reflect on the activities they use when learning and completing assignments. ● What activities did you use when you completed your assignment, and how did they help or hinder your ability to create quality work (e.g. planning, questioning, researching, organizing, writing, editing, practicing, communicating, collaborating…)? ● How would you improve these activities for the next assignment?
Learning disposition and mind-set	● **Purpose:** to help learners break down and reflect on their disposition and mind-set when learning and completing assignments. ● What mind-set and feelings did you have when you completed your assignment, and how did they help or hinder your ability to create quality work (e.g. motivation, persistence, perseverance, concentration, focus, humility, courage, commitment, openness, anxiety, impulsiveness, anger…)? ● How would you improve your mind-set for the next assignment?

Supporting Metacognition

Metacognition—a term sometimes used synonymously with meta-learning—is the third major purpose of teaching your students self-evaluation skills, but rather than focusing on learning processes, metacognition focuses on thinking processes. To help your students develop metacognitive skills, as illustrated in the following table, you can incorporate questions and prompts in your self- and peer-assessment tools that encourage students to evaluate their thinking, knowledge, and knowledge gaps.

Table 17: Metacognition Evaluation Questions for Self- and Peer-Assessments

Focus	Purpose and Evaluation Questions
Past thinking and knowledge	● **Purpose:** to help learners reflect on what they knew or believed about the topic before the assignment. ● What did you used to think or believe about the topic before the assignment? ● In what ways were your past thinking and beliefs inaccurate, unclear, or unfinished?
Current thinking and knowledge	● **Purpose:** to help learners break down and reflect on what they now know, believe, and don't know about the topic. ● How did this assignment change the way you think or believe about the assignment topic? ● In what ways are your current thinking and beliefs inaccurate, unclear, or unfinished?
Future goals	● **Purpose:** to help learners reflect on what they want to know or believe about the topic. ● What do you still want to know or be able to do related to the topic to achieve your career or life goals?

	• How will you continue to learn about this topic to reach these goals?

Making Self- and Peer-Assessment More Effective

The previous sections elaborated how you can use self- and peer-assessments to support critical thinking, meta-learning, and metacognition. This section explains some final tips and strategies you need to consider before designing a self- or peer-assessment with your class.

- **Explain rules and expectations:** When you first use self- and peer-assessment, it's possible that many of your students may not have participated in such activities and/or may not have good evaluation skills. You need to clearly explain the rules and expectations of the assessment activities and provide clear directions.
- **Teach effective evaluation and feedback processes:** Besides explaining rules and expectations, you also need to teach and demonstrate evaluation and feedback processes. This includes:
    - Assessment criteria like validity, reliability and fairness,
    - Ethics like sensitivity towards others and honesty, and
    - Feedback criteria like being specific, descriptive, balances, timely, and so on.
- **Provide assessment tools:** As discussed in previous sections, assessment tools are necessary to not only improve validity and reliability but also give your students structure, focus, and support. When providing your students with assessment tools, you also want to clearly explain why and how they are used.
- **Practice with formative assessments before summative:** Giving your students several opportunities to use assessment tools and review their work in class can help them better prepare for graded assignments that require self- or peer-assessment.
- **Monitor the activities and processes:** When students are completing self- and peer-assessments, you need to monitor things like effective use of assessment tools, depth and quality of feedback, time on task, honesty, and so on.
- **Give feedback on the assessment processes and products:** In addition to monitoring activities, you should also give feedback on the assessment processes students use and the completed assessment tools. This means you should also be giving meta-feedback, i.e. giving feedback on your students' feedback.
- **Sequence self- and peer-assessment activities towards learner-driven assessment:** As discussed in early sections, if you design multiple opportunities for self- and peer-assessment, you can sequence the activities so your students take increasing control of the assessment process. You do this be giving them increasing control of choosing the products and performance to assess, designing the assessment tools, and completing the final evaluation.

Integrating Learner Portfolios in Assessment

In addition to using self- and peer-assessment, using portfolios is another strategy you can use to support student self-evaluation skills. Student portfolios—or ePortfolios when they are online or digital—are organized compilations or collections of academic works that students collect and consolidate in one or more courses. If you, your program, or your school

encourages students to create them, portfolios can be a powerful way for learners to integrate their learning from different courses, reflect on their progress and goals while at school, and use their academic assignments to support their career or life goals.

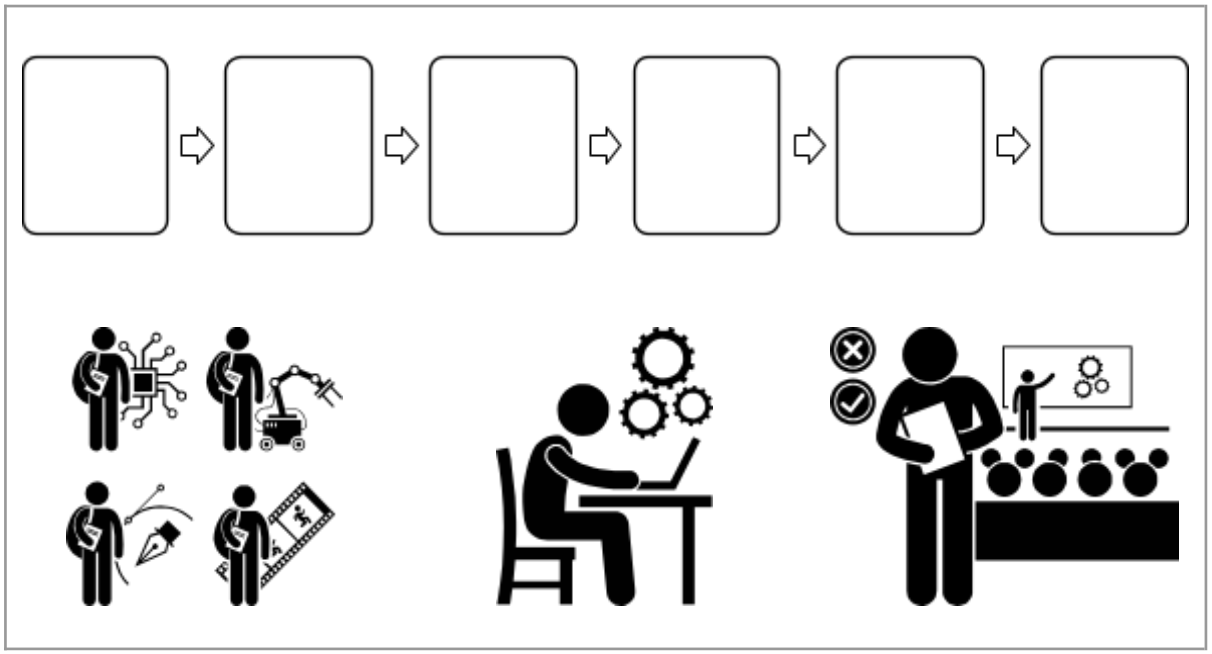
There are many ways that students can design and organize their portfolios, but all student portfolios should contain similar types of content. First, portfolios should contain documented evidence that students have met school, program and/or course competencies. To provide documented evidence of their learning, students collect portfolio artifacts from their courses—i.e. the products and recorded performances from assignments—and integrate and organize these artifacts within their portfolios.

Second, portfolios should contain meaningful reflections from students about each artifact. Such reflections might include the context and purpose of the artifact, how the artifact demonstrates one or more competencies, what the student learned from the assignment, and so on. Similar to the discussion of self- and peer-assessment above, the reflections should help learners develop and demonstrate their critical thinking, meta-learning, and metacognition skills.

Third, portfolios should contain some type of organizational/navigational system that helps the student meaningfully organize the content in the portfolio and helps portfolio evaluators navigate and review it. Schools can support the use of portfolios by developing online platforms for students to create and organize their ePortfolios. In these cases, the student creates different webpages and navigational menus that organize their artifacts, reflections, competencies, resume, contact information, and so on.

Ultimately, the portfolio design and evaluation process might look like the following:

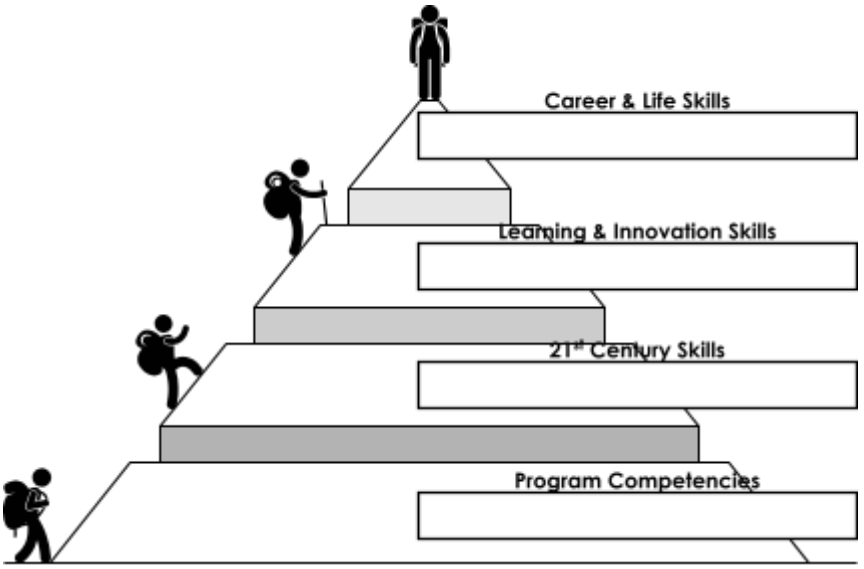
Figure 20: Example Student Portfolio Process



There are several things you should consider when supporting and evaluating student portfolios:

- **Design authentic assessments:** Your assignments should help your students create products and performances that are authentic to the needs and demands of their future professional careers and/or lives. When designing an assessment, ask yourself if the product or performance:
    - Reflects the types of duties or tasks that students will use in their future careers,
    - Has some value to your students if they showed it to potential employers when looking for a job, and/or
    - Demonstrates life skills that meaningful add to the student's richness or quality of life.
- **Be explicit about what outcomes your assignments target:** As stated before, to ensure assessment validity and instructional alignment, your assignments should be designed to explicitly align with program outcomes. Telling your students what their program's outcomes are and how their assignments align with them helps your students integrate their learning, write their reflections, and organize their portfolios.
- **Include reflection activities:** If you include and assess reflection activities in your assignments, students can complete their portfolios more quickly and easily. For example, as discussed in the previous section, you can use a self-assessment tool that includes questions and prompts which encourage critical thinking, meta-learning, and metacognition.
- **Include portfolio integration in the assignment:** You might also require students to integrate their product or performance into their portfolios as part your assignment. In this case, you might want to create or include an evaluation tool like a rubric that you and your students can use to assess their portfolio integration.
- **Include portfolio presentations in the assignment:** If you do include portfolio integration in your assignment, you may go one step further and require learners to present their current portfolio to the class, including how they integrated their work from your course. This also gives students an opportunity to learn from each other's portfolio design and provide peer-assessment.
- **Target more than just program competencies:** Illustrated in the figure below, there are many different skills that students should demonstrate upon graduation.

Figure 21: Example Elements of a Holistic Portfolio for 21st Century Learners



Teaching Difficulty

"Soft" Career & Life Skills	● "Soft" skills and habits required to keep meaningful employment, meet life needs, and maintain a worthwhile quality of life ● E.g. self-motivation, persistence, adaptability, leadership, curiosity, ethics, accountability, honesty…
Learning & Innovation Skills	● Skills and habits required to become an autodidactic, lifelong learner, productive innovator, and creative problem solver ● E.g. critical thinking, meta-learning, metacognition, creativity, collaboration, communication…
21st Century Skills	● Knowledge, skills, and values required to remain effective during rapidly changing trends in information management, globalization, technology, and the environment ● E.g. media literacy, information and communications technology literacy, intercultural competence, global awareness, scientific literacy, ecological awareness…
Program Competencies	● Knowledge, skills, and values explicitly targeted by the learner's overall program, which are translated into and aligned with course-level objectives, course assessments, lesson outcomes, and active learning tasks

Module 4 Review

In this final module, we final looked in more detail at how we can include our learners in assessment to improve their evaluation skills. We learned that to improve our learners' self-evaluation skills, we can incorporate different questions in their self- and peer-assessments that target their critical thinking, meta-learning, and metacognition.

Lastly, we reviewed portfolio assessment as a strategy to help learners reflect on, organize, and track their learning products over time, thereby integrating their learning between courses and preparing for their career and life after graduation. If supported by a program or school,

student portfolio can also be a powerful tool to help track and evaluate learners' achievement of program competencies as well as skills and habits relevant to the 21st century, to creativity and innovation, and to career growth and success.

Summary

In this manual and workshop, we looked at many different terms, purposes, criteria, strategies, and tools for assessment. At first, we looked specifically at teacher-based assessment, focusing on how you can:

- Design questions that align with your outcomes;
- Create test blueprints that help you organize your test questions and achieve validity;
- Review your tests for validity, reliability, and fairness;
- Design different assessment tools like rubrics, scoring sheets, rating scales, checklists, and question tables;
- Provide rich feedback to support student improvement; and
- Evaluate and grade more efficiently.

If you attended the four-day version of the workshop, we also looked specifically at learner-based assessment, focusing on how you can:

- Incorporate students in the assessment process to varying degrees and levels;
- Encourage your students to develop their critical thinking, meta-learning, and metacognition skills using self- and peer-assessment; and
- Integrate portfolio assessment by designing authentic assignments that students can use in their portfolios.

Besides developing a deeper understanding of assessment, a secondary goal of this workshop is for you to have a deeper appreciation for the importance and complexity of designing assessments that not only evaluate and grade students but also meaningfully support their learning. Hopefully, this manual and workshop has given you that sense of the importance and complexity of assessment. But having a deeper sense of assessment is only the beginning: it is now your task to apply what you've learned to your teaching practice and continue to develop your own assessment skills through authentic practice, reflection, and self-evaluation.

If you wish to learn more about assessment or any other topic related to instruction and your professional development, please ask your facilitator or school what resources and support are available to you.

Thanks for your participation!



Appendices

Appendix A: BOPPPS and CARDS Model Review

If you recall, ADW is an extension of the Instructional Skills Workshop (ISW), which is a similar multi-day workshop that focuses on lesson planning and delivery. ISW teaches a lesson planning model that incorporates six different stages or elements that follow the acronym BOPPPS:

Table 18: The BOPPPS Lesson Planning Model

Lesson Element	Purpose(s)
Bridge	● Connects lesson topics to previous experience or lessons ● Outlines purpose and importance of current lesson ● Engages the learner attention and motivation about the lesson topic
Outcomes	● Lists and describes the desired behaviors the learner should demonstrate after participating in the lesson tasks and assessments ● Uses Bloom's Taxonomy to target desired learning levels and domains (i.e. the concepts, skills, and values) ● Helps the learner know what they are responsible for learning and what the instructor is responsible for teaching and assessing
Pre-assessment	● Activates relevant prior knowledge about the lesson topic ● Gauges learners' prior understanding about the topic so the teacher can adjust their instructional approach
Participation	● Transfers curricula (e.g. concepts, skills, and values) in a structure that is carefully chunked, sequenced, and scaffolded ● Provides opportunities for guided and independent practice using learning tasks and activities designed to increase the learner's confidence in applying the new concepts, skills, and values and achieving lesson outcomes
Post-assessment	● Tests learners' abilities to achieve stated outcomes ● Provides feedback to learners to improve their performance
Summary	● Revisits major outcomes and points ● Connects lesson to future lessons, assignments, or practice ● Encourages continued application and learning of new concepts, skills and values.

Although BOPPPS was originally developed to support face-to-face lesson design, with the exception of pre-assessment, its elements are just as relevant to designing outcomes-based lessons in the online environment. Because online learning is most often asynchronous (i.e. teachers post lessons in an LMS for learners to use at a later time), it is harder for teachers to pre-assess learners to adapt their instructional approach or lesson design in the online environment for each individual lesson.

Besides using BOPPPS for lesson planning, you may also choose to use the CARD model, which is a second model taught in the Instructional Skills Workshop. CARD differs from

BOPPPS in several ways, and it is used for different instructional purposes. Where BOPPPS is used for convergent learning (i.e. when you want all your learners to demonstrate the same learning behavior as described be your learning outcome), CARD is used for divergent learning. Divergent learning means that your learners will likely react to a learning event in different ways because the event is meant to illicit personal thinking, personal beliefs, personal values, and/or personal creativity. Learning events in CARD help learners reflect, express, and create their own ideas and learning products inductively—that is, they express their learning differently based on their individual experience of life and reality.

Figure 22: Comparison of BOPPPS and CARDS Models

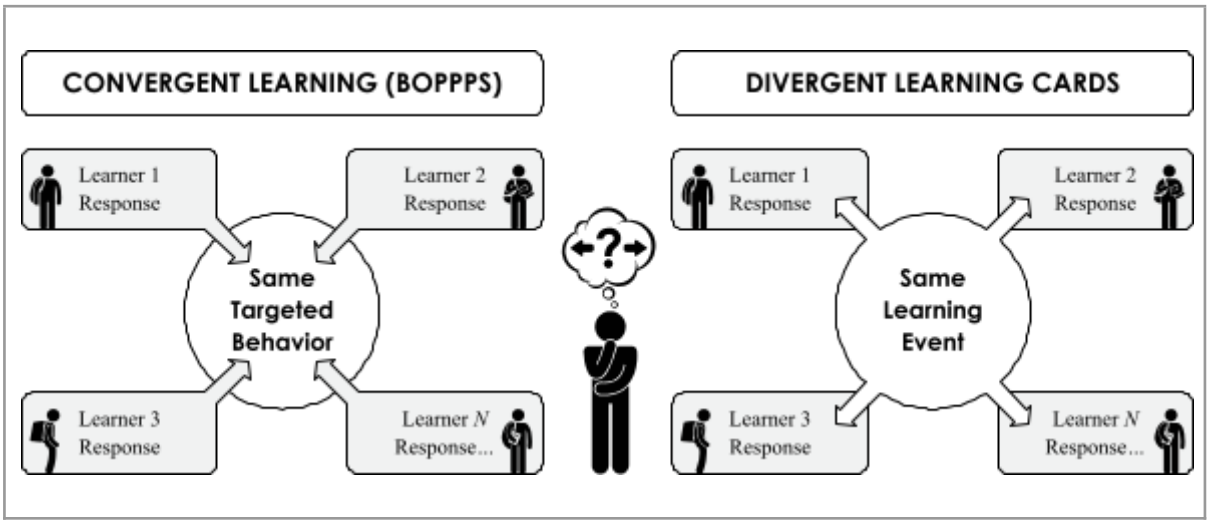


Table 19: The CARDS Lesson Planning Model

Lesson Element	Purpose
Context	● Outlines purpose, importance, and expectations of the activity ● Engages the learner's attention about the activity ● Provides information needed for learner to fully participate in the activity
Activity	● Provides a learning event that incites or encourages personal thinking, expression, and creativity ● For example, share a news article, describe a case, give a problem, give an inquiry question, demonstrate a scenario or role play, etc.
Reflection	● Provides learners opportunity to think about an individualized response to the activity
Discussion and/or Documentation	● Provides learners opportunity to discuss and/or document their thinking individually, in groups, and/or with class ● Can include a product or performance task that documents learners' thinking, choices, creativity, etc. ● For example, a journal reflection, a case analysis, a problem solution, results of an inquiry process, etc.
Summary	● Highlights important contributions, ideas, and products from learner discussion and documentation stage

	● Connects lesson to future lessons, assignments, or practice ● Encourages continued application and learning of new concepts, skills and values

Appendix B: Assessment Tool Templates and Examples

Exercise 4:Blank Test Blueprint (Template)

TOPIC	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation	# OF QUESTIONS	% OF TEST
# OF QUESTIONS								
% OF TEST								

Table 20: Example Basic Rubric (eLecture Design)

Criteria	Needs Improvement	Satisfactory	Well Done
Engagement: Are students engaged or motivated at the beginning of the eLecture?	No strategy is used near the beginning of the eLecture to engage or motivate learners	A strategy is used near the beginning of the eLecture to engage or motivate learners (e.g. story, metaphor, media, humor, etc.)	A strategy (e.g. story, metaphor, media, humor, etc.) is used which is clearly relevant to the topic and encourages thinking and inquiry
Engagement: Are students encouraged to connect lesson topics with their prior knowledge?	No reference is made to past lessons or prior life knowledge related to the eLecture There are no clear purpose statements in the eLecture	Reference is made to past lessons or prior life knowledge related to the eLecture	Past lessons or prior life knowledge is clearly linked to the eLecture's topic
Outcomes: Are the outcomes for the eLecture clear?	Outcomes are not included in the eLecture, or outcomes are vague and/or unclear	Outcomes are included in the eLecture	Outcomes are included in the eLecture and revisited more than once (e.g. summary)
Outcomes: Do the outcomes clearly identify a learning domain and level (e.g. Bloom)?	Outcomes do not follow Bloom's Taxonomy or clearly use Bloom verbs	All outcomes clearly follow Bloom's Taxonomy and use Bloom verbs	Outcomes are varied and sequenced to support higher levels of learning
Content: Is content "chunked" into manageable units?	The lecture's pacing and timing sometimes makes content too simple or too complex	The lecture's pacing and timing varies for simple and complex content to support learning	The lecture's organization, pacing and timing clearly "chunks" content into manageable and connected learning units
Content: Is content sequenced to build in complexity and/or high levels of Bloom's Taxonomy?	Outcomes, skills and/or concepts are not sequenced towards increasing mastery or complexity	Outcomes, skills and concepts are sequenced towards increasing mastery and complexity	Sequencing of all content clearly follows Bloom's levels and domains to builds towards increasing mastery and complexity
Content: Are the most appropriate media or delivery methods used for the content?	Media and lecture methods do not vary for different domains, levels and/or topics	Media (images, video, etc.) and lecture methods (screen and/or lecture capture) vary for different domains, levels and/or topics	Media, modalities, lecture methods and activities are carefully selected for different domains, levels and/or topics
Activities: Are activities integrated?	No activities are included or discussed in the eLecture	Activities are included and discussed in the eLecture	Clearly relevant activities are included with clear directions
Assessment: Are assessments integrated?	No assessments are included or discussed in the eLecture	Assessments are included and discussed in the eLecture	Clearly relevant assessments are included with clear directions
Summary: Does the eLecture revisit key concepts and motivate learners to practice?	The end of the eLecture does not revisit key concepts or outcomes	The end of the eLecture revisits key concepts and outcomes	The end of the eLecture revisits key concepts and outcomes and motivates learners to use and practice them
Narration: Do the narration skills and style promote learning?	Narration is too fast or slow, is monotone (boring) and/or contains many "ums" and "ahs"	Narration is well-paced, intonation is variable, diction is clear and there are few "ums" and "ahs"	Narration is engaging, well-paced, and tonally varied with clear diction and almost no "ums" and "ahs"
Audio: Is audio of the instructor easy to hear?	Ambient noise, volume levels and/or microphone quality limits audibility	Ambient noise, volume levels and/or microphone quality supports audibility	The eLectures audio is always clear and audible with few to no audio issues or distractions
Video: Is the lecture video easy to view and connect with?	Lighting, framing, and/or background are distracting	Lighting, framing, and background aren't distracting	Lighting, framing, background, lecturer eye contact and movement support viewing and engagement

Exercise 5:Blank Basic Rubric Form (Template)

Criteria	Needs Improvement	Satisfactory	Well Done

Exercise 6:Blank Rubric Form with Comments & Scoring (Template)

Criteria	Needs Improvement	Satisfactory	Well Done	Comments	Score

Table 21: Example Scoring Sheet (eLecture Design)

Criteria	Optimum Achievement	Score	Comments
Engagement	A strategy (e.g. story, metaphor, media, humor, etc.) is used which is clearly relevant to the topic and encourages thinking and inquiry. Past lessons or prior life knowledge is clearly linked to the eLecture's topic.	/10	
Outcomes	Outcomes are included in the eLecture and revisited more than once (e.g. summary). Outcomes are varied and sequenced to support higher levels of learning.	/15	
Content	Sequencing of all content clearly follows Bloom's levels and domains to builds towards increasing mastery and complexity. Media, modalities, lecture methods and activities are carefully selected for different domains, levels and/or topics	/15	
Activities	Clearly relevant activities are included with clear directions.	/10	
Assessment	Clearly relevant assessments are included with clear directions.	/10	
Summary	The end of the eLecture revisits key concepts and outcomes and motivates learners to use and practice them.	/10	
Narration	Narration is engaging, well-paced, and tonally varied with clear diction and almost no "ums" and "ahs".	/10	
Audio	The eLectures audio is always clear and audible with few to no audio issues or distractions.	/10	
Video	Lighting, framing, background, lecturer eye contact and movement support viewing and engagement.	/10	
	TOTAL	/100	

Exercise 7: Blank Scoring Sheet (Template)

Criteria	Optimum Achievement	Score	Comments

Table 22: Example Rating Scale (eLecture Design)

Criteria	☹ 1	2	3	4	☺ 5	Score	Comments
Engagement: Are students engaged or motivated at the beginning of the eLecture?						/5	
Engagement: Are students encouraged to connect lesson topics with their prior knowledge?						/5	
Outcomes: Are the outcomes for the eLecture clear?						/7	
Outcomes: Do the outcomes clearly identify a learning domain and level (e.g. Bloom)?						/8	
Content: Is content "chunked" into manageable units?						/7	
Content: Is content sequenced to build in complexity and/or high levels of Bloom's Taxonomy?						/8	
Content: Are the most appropriate media or delivery methods used for the content?						/10	
Activities: Are activities integrated?						/10	
Assessment: Are assessments integrated?						/10	
Summary: Does the eLecture revisit key concepts and motivate learners to practice?						/10	
Narration: Do the narration skills and style promote learning?						/10	
Audio: Is audio of the instructor easy to hear?						/10	
Video: Is the lecture video easy to view and connect with?						/10	

Exercise 8: Blank Rating Scale (Template)

Criteria	☹ 1	2	3	4	☺ 5	Score	Comments

Table 23: Example Checklist (eLecture Pedagogy and Design)

Engagement	
● A strategy (e.g. story, metaphor, media, humor, etc.) is used which is clearly relevant to the topic and encourages thinking and inquiry.	□
● Past lessons or prior life knowledge is clearly linked to the eLecture's topic.	□
Outcomes	
● Outcomes are included in the eLecture and revisited more than once (e.g. summary).	□
● Outcomes are varied and sequenced to support higher levels of learning.	□
Content	
● Sequencing of all content clearly follows Bloom's levels and domains to builds towards increasing mastery and complexity.	□
● Media, modalities, lecture methods and activities are carefully selected for different domains, levels and/or topics	□
Activities	
● Clearly relevant activities are included with clear directions.	□
Assessment	
● Clearly relevant assessments are included with clear directions.	□
Summary	
● The end of the eLecture revisits key concepts and outcomes and motivates learners to use and practice them.	□
Narration	
● Narration is engaging, well-paced, and tonally varied with clear diction and almost no "ums" and "ahs".	□
Audio	
● The eLectures audio is always clear and audible with few to no audio issues or distractions.	□
Video	
● Lighting, framing, background, lecturer eye contact and movement support viewing and engagement.	□

Table 24: Example Question Table (eLecture Pedagogy and Design)

Engagement
What engagement strategies are used which are clearly relevant to the topic and encourage thinking and inquiry? How are they effective?
Outcomes
What domains and levels are targeted by the outcomes, and how are the outcomes sequenced to support higher levels of learning?
Content
In what ways did you ensure that content selected, chunked, and sequenced to target Bloom's levels and domains and build towards increasing mastery and complexity.
Activities
In what ways did you ensure that relevant activities aligned with outcomes, integrated into the eLecture, and explained?
Assessment
In what ways did you ensure that relevant assessments aligned with outcomes, integrated into the eLecture, and explained?
Summary
In what ways did you ensure that the end of the eLecture revisit key concepts and outcomes and motivate learners to use and practice them?
Narration
In what ways did you ensure that the narration is engaging, well-paced, and tonally varied with clear diction and almost no "ums" and "ahs"?
Audio
In what ways did you ensure that the eLectures audio is always clear and audible with few to no audio issues or distractions?
Video
In what ways did you ensure that lighting, framing, background, lecturer eye contact and movement support viewing and engagement.

Appendix C: Classroom Assessment (CAT) Examples

When using CATs, you can hand out pre-printed sheets of paper, or write the question prompt(s) on the board and ask students to use blank paper from their notebooks.

Table 25: Example Classroom Assessment Techniques (CATs)

One-Minute Paper Write the most important thing you learned today and what you understood the least. Name & Date:	**Muddiest Point** Describe something from this lesson that you didn't understand and suggest what might help. Name & Date:
Test Question Write one good test question that could assess the class' understanding of today's lesson. Name & Date:	**Ticket Out the Door** Write your answer(s) to the question(s) on the classroom board and leave it in the box before leaving class. Name & Date:
Journal Note What is one significant thought or feeling you had related to today's lesson that you wish to reflect more on in your class journal? Name & Date:	**Know, Want, Learn (KWL)** What did you know about this topic, what more do you want to know and what did you learn? Know: Want: Learn: Name & Date:
Paraphrasing Define the concept(s) or term(s) on the classroom board using easy to understand language. Name & Date:	**Mind or Concept Map** Draw a mind or concept map connecting all the terms or concepts from today's lesson. Name & Date:
One-Sentence Summary Write a one-sentence summary of the person, place or thing written on the classroom board. Name & Date:	**Application Card** Write at least one real-world application for what you just learned in today's lesson. Name & Date:
Group Feedback In groups, agree on the most important things you all learned today and what you all understood the least. Name & Date:	**Analogy** Complete the following analogy using the term on the classroom board: (Term) is like _____ because _____. Name & Date:
Professional Portfolio Describe an item you could create for your portfolio that demonstrates the skills/knowledge/values from today. Name & Date:	**Problem Solving** How would you apply what you learned today to the problem written on the classroom board? Name & Date:
Self-Confidence Survey How much confidence do you have in your ability to understand and apply what you learned to today? ☹ | 1 2 3 4 5 | ☺ Why? Name & Date:	**Goal Ranking** Rank three to 5 goals you have related to the course and/or lesson topics. Name & Date:

Appendix D: Related Training and Competencies

This workshop was designed to align with and compliment a larger set workshops and competencies, so if you enjoyed this workshop, you may also enjoy other workshops that may be available at your school or organization. This appendix describes the other workshops in the series as well as the competency framework that was used to support their design. For more information about the availability of these workshops or competencies, please ask your facilitator about them.

Table 26: Related Multi-day Workshops

	Core ISW Workshops (used by all ISW network)
ISW	**(ISW) Instructional Skills Workshop** In this workshop, participants practice lesson planning and instruction, focusing on writing outcomes that follow Bloom's Taxonomy, using engagement strategies, using classroom assessment strategies, and using active learning strategies. Participants must plan and deliver three micro-lessons and receive feedback from their peers. ● Workshop design: 4 days (concurrent or non-concurrent) ● Prerequisites: None
FDW	**(FDW) Facilitator Development Workshop** In this workshop, participants develop their instruction and facilitation skills by learning how to facilitate Instructional Skills Workshops and similar participatory workshops like those in this list. FDW focuses on skills like leading, paraphrasing and documenting group discussions, asking probing questions, soliciting peer feedback, developing lectures and activities on various educational topics, and so on. Similar to ISW, participants must design and deliver three micro-lessons, but they must also facilitate group feedback for other teachers and deliver themed sessions on teaching and learning topics. ● Workshop design: 4 days, weekly over four weeks or daily over four days; first day for core curriculum; second, third and fourth days for feedback and secondary curriculum ● Prerequisites: ISW (mandatory)
	ISW Workshops Extensions (used by participating institutions)
ADW	**(ADW) Assessment Design Workshop** In this workshop, participants learn to design test blueprints, test questions, rubrics, and assignments that align with course competencies and outcomes, focusing on such topics as learning outcomes and competencies, assessment validity and reliability, instructional alignment, question types, test blueprints, rubric design, self- and peer-assessment, marking efficiency, feedback, and so on. Participants must design and present a test blueprint with example questions and an assignment rubric so they can receive feedback from their peers. ● Workshop design: 3 or 4 non-concurrent days ● Prerequisites: ISW (advised)
CDW	**(CDW) Course Design Workshop** In this workshop, participants learn to develop course outcomes, course maps, and course syllabi, focusing on such themes as sequencing lessons, incorporating learning-by-doing strategies and assessments, designing for varying learner abilities and styles, and so on. Participants must design a comprehensive course syllabus and course map and revise them after receiving feedback from their peers. ● Workshop design: 3 or 4 non-concurrent days ● Prerequisites: ISW (advised)

	**(LBD) Learning By Doing Workshop** In this workshop series, participants learn how to plan lessons and larger projects that promote learning by doing. Each workshop in this series focuses on one of several sub-themes, which may include case-based learning, problem-based learning, project-based learning, and inquiry-based learning. Participants must design a comprehensive assignment using one of these strategies and revise the assignment after receiving feedback from their peers. ● Workshop design: 3 or 4 non-concurrent days ● Prerequisites: None
	**(NSW) Narrative Skills Workshop** In this workshop, participants learn how to tell stories that engage learners and highlight core concepts and values within courses. NSW focuses on storytelling techniques, narrative structure, and how and when to use story in the classroom. Participant must plan and deliver three short educational stories and receive feedback from their peers. ● Workshop design: 3 or 4 concurrent or non-concurrent days ● Prerequisites: None
	**(OnCDW) Online Course Design Workshop** In this workshop, participants learn how to structure online lessons and course websites to maximize learner usability and success when teaching through online or blended delivery. The three-day workshop focuses on online design, including topics as course website structure, course and lesson outcomes, online learning activities, online assessment, supporting online learners, using learning management systems, and so on. The four-day workshop focuses on blended design, including additional topics like planning learning by doing assignments, in-class participation, in-class learning activities, and so on. Participants must design an online course with example online lessons that include outcomes, tasks and assessments, and revise their course and lessons after receiving feedback from their peers. ● Workshop design: 3 or 4 non-concurrent days ● Prerequisites: None
	**(OnISW) Online Instructional Skills Workshop** In this workshop, participants learn how to design and deliver video lectures for the online environment. Online ISW focuses on lesson planning, designing quality visual aids, video capture and production, using learning management systems, and supporting online learners. Participants must design comprehensive online lessons and revise them after receiving feedback from their peers. ● Workshop design: 3 or 4 non-concurrent days ● Prerequisites: None
	**(PDW) Program Design Workshop** Intended for program leaders and/or teams of teachers in the same department, in this workshop, participants learn to develop and/or redesign programs following frameworks supported by standards organizations like AUN-QA and CDIO, specifically focusing on integrating and sequencing courses, planning for active, practical, and deep learning, and designing program competencies that meet the needs of the learner, industry and society. Using provided templates, participants must work in groups to (re)design program competencies and a program matrix, and then work individually to (re)design course competencies, descriptions, and matrices. ● Workshop design: 3 or 4 concurrent or non-concurrent days ● Prerequisites: ISW (advised), CDW (advised), ADW (advised)
	**(PPW) Professional Portfolio Workshop** In this workshop, participants learn how to create and maintain a professional teaching portfolio, focusing on such themes as structuring and designing ePortfolios, writing teaching philosophies, collecting and reflecting on teaching artifacts, self-evaluating professional competencies, and so on. Participants must design and present a teaching portfolio and teaching philosophy and receive feedback from their peers. ● Workshop design: 3 or 4 non-concurrent days ● Prerequisites: None

	(PSW) Presentation Skills Workshop In this workshop, participants learn to design and deliver effective presentations, focusing on assessing audiences, engagement strategies, presentation structure, facilitating questions and discussions, physical and visual communication, and so on. Participants must plan and deliver short presentations and receive feedback from their peers. • Workshop design: 3 or 4 concurrent or non-concurrent days • Prerequisites: None

The above workshops were designed to help instructors develop their skills and abilities so they can better meet a series of competencies that are relevant to teaching and training. The following competency framework shows how each of the above workshops align with various competencies. Not all of these competencies may be relevant to you or your institution.

Table 27: Example Competency Framework for Instructors

Competencies	Related Training
General Professional Skills	
Growth & Development: Lecturer demonstrates commitment to continuous professional growth	PPW
Self-evaluation: Lecturer demonstrates willingness and ability to self-evaluate skills and competencies	PPW
Educational Theory: Lecturer demonstrates knowledge of up-to-date educational theory and applies this theory to their planning and instruction	ISW, FDW, CDW, PDW, ADW LBD, PPW
Subject Knowledge & Field Experience: Lecturer demonstrates up-to-date theoretical knowledge and practical field experience within subject area and incorporates this knowledge and experience in their design of curriculum	PPW
Ethics: Lecturer demonstrates adherence to professional and legal standards of ethics	PPW
Learning Design Skills	
Outcomes & Competencies: Lecturer demonstrates use of carefully worded outcomes during lesson and course design that align with program and professional competencies	ISW, CDW, PDW, ADW
Needs Assessment: Lecturer demonstrates willingness and ability to evaluate learner needs, abilities and motivations when designing lessons and courses and make modifications to curriculum or delivery methods when necessary	ISW, CDW, PDW, ADW
Lesson Design: Lecturer demonstrates knowledge and application of lesson planning models that maximize learning and instructional alignment using varied instructional techniques, learning activities, and assessment tasks	ISW, FDW, CDW, OnCDW, OnISW
Course Design: Lecturer demonstrates ability to design engaging and challenging courses with carefully sequenced lessons that build towards higher-order course outcomes	CDW, PDW, ADW
Online & Blended Design: Lecturer demonstrates willingness and ability to plan courses that utilize online technologies to reduce in-class direct instruction and increase learners' in-class authentic practice	OnCDW, OnISW
Syllabus Design: Lecturer demonstrates ability to write comprehensive and accessible course syllabi that guide student expectations, behavior, and learning during the course	CDW, PDW
Universal & Personalized Design: Lecturer demonstrates willingness and ability to make courses as accessible and engaging as possible to the widest variation in learner abilities, backgrounds and styles	ISW, FDW, CDW, ADW

Design for Learning By Doing: Lecturer demonstrates willingness and ability to design larger authentic tasks and assignments that require learners to reflect on, practice, and apply higher level skills and thinking	LBD, CDW, PDW, ADW
Integrated Design: Lecturer demonstrates knowledge of other courses and competencies in their learners' programs and integrates these with their courses and lessons	CDW, PDW
Design for Student Portfolio: Lecturer demonstrates willingness and ability to design for product or performance assessments that learners can include in their portfolios for integration of learning and future employment	PPW, CDW, PDW, ADW
Instructional Methods & Skills	
Motivation & Engagement: Lecturer demonstrates willingness and ability to stimulate and sustain learner motivation and engagement during lessons and throughout courses	ISW, FDW, NSW, PSW, CDW
Learner-Teacher Relationships: Lecturer demonstrates willingness and ability to develop respectful, productive, fair, and empowering relationships with learners that build on shared understanding of teacher and learner roles and responsibilities	ISW, FDW, CDW
Learning Environment: Lecturer demonstrates effective use of strategies that create productive, cooperative, and supportive learning environments which help learners feel relaxed and safe	ISW, FDW
Active Learning: Lecturer demonstrates effective use of various active learning strategies and tasks during class time	ISW, FDW, LBD, OnCDW, OnISW
Meta Learning & Learning Skills: Lecturer demonstrates willingness and ability to teach learning skills and strategies in addition to curricular content during instructional time to help learners understand, appreciate, and improve their own learning processes	ISW, FDW, LBD, CDW, ADW
Presentation Skills: Lecturer demonstrates effective verbal, written, visual and physical communication skills when presenting curriculum to their learners	PSW, ISW, FDW, NSW
Facilitation Skills: Lecturer demonstrates effective facilitation strategies when guiding classroom activities, collaborative tasks, and discussions	FDW
Questioning Skills: Lecturer demonstrates effective use of questioning techniques to probe for critical thinking and target different learning levels and domains	ADW, ISW, FDW
Classroom Management: Lecturer demonstrates effective use of varying classroom management techniques that respect learners and maintain a productive learning environment	ISW, FDW
Assessment Skills	
Formative Assessment: Lecturer demonstrates effective use of varying classroom assessment techniques to gauge learner understanding	ADW, ISW, FDW
Feedback: Lecturer demonstrates willingness and ability to provide rich, personalized feedback to learners	ADW, ISW, FDW
Test Design: Lecturer demonstrates ability to create effective test questions that align with learning outcomes, target desired domains and levels of learning, and use appropriate question types	ADW
Rubric Design: Lecturer demonstrates ability to create effective rubrics that support teacher's and learner's evaluation of assignments and activities	ADW
Peer- & Self-assessment: Lecturer demonstrates effective use of peer- and self-assessment strategies during activities and/or assessments when appropriate	ADW
Technological Skills	
Information and Communication Technology (ICT): Lecturer demonstrates effective use of appropriate technologies to manage administrative information, learning resources, and student data	ISW, FDW, PSW, OnCDW, OnISW, PPW
Visual Aids: Lecturer demonstrates ability to create and modify effective visuals for use as instructional aids, including PowerPoint presentations, photographs, illustrations, diagrams and charts	ISW, FDW, PSW
Online & Learning Management Systems: Lecturer demonstrates willingness and ability to use Learning Management Systems, ePortfolio systems, blogging systems and other online tools to enhance instruction and professional development	OnCDW, OnISW, PPW

Video Production: Lecturer demonstrates willingness and ability to use of video recording and production tools to create effective online lectures	OnISW

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