



CU-101.1

Introduction to Testing

Types of Testing

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Welcome to Certiverse University and welcome to this lesson "Types of Testing"!

My name is Lance Blackstone, one of the founders of Certiverse. I'll be taking you through this lesson.

This lesson has a couple of objectives.

- First, to learn a little bit about several of the many types of testing ... their characteristics, how they are used and why.
- Second, is to situate competency testing – often referred to as certification or licensure testing - amongst these different types of testing.

Obligatory disclaimer ... this course is intended to be general and neutral - it is not "Certiverse-specific".

However, some industry concepts and terms are variable or can be ambiguous depending on the context or organization. In those cases, we at Certiverse have often settled on a specific usage, and where that happens, we'll try to call it out.

With that, thanks for joining me. Now let's get started!

What you'll learn >>>

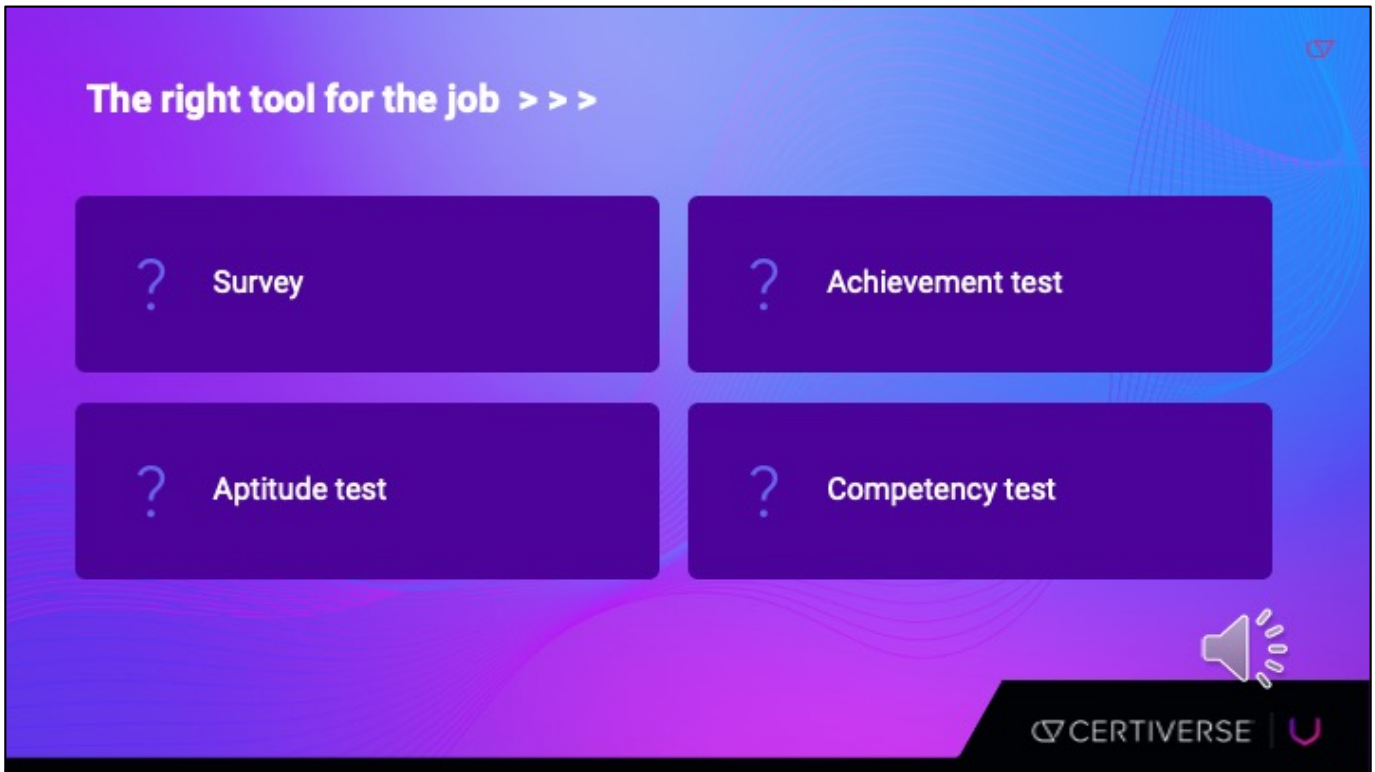
- General Overview of Testing
- Competency Testing
- Formative vs. Summative
- Relevant Terminology

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In this lesson I'll be covering the following ...

- First, if you're new to the world of testing and assessing, it may not be obvious that there are many types of testing. There are! We'll talk about a few of these, what they're used for, and why.
- Second, we'll narrow and focus down on what the rest of this course is about – assessing people for competency. Often this is referred to as certification or licensure testing. But whatever you call it, its purpose is to make serious decisions about a person's capacity to do something. From cutting hair to running a restaurant. To practicing medicine or law, or to operate machinery or software.

- Third, we'll briefly talk about the concepts of formative testing – that is testing designed to identify weaknesses and provide feedback to candidates - and summative testing – testing that “summarizes” a candidate's knowledge, skills, and abilities. We'll describe how these relate back to competency testing in general.
- Finally, there will be a bunch of relevant terminology you'll learn along the way. Note that all terms are defined in a glossary you can find on the Certiverse knowledge base.



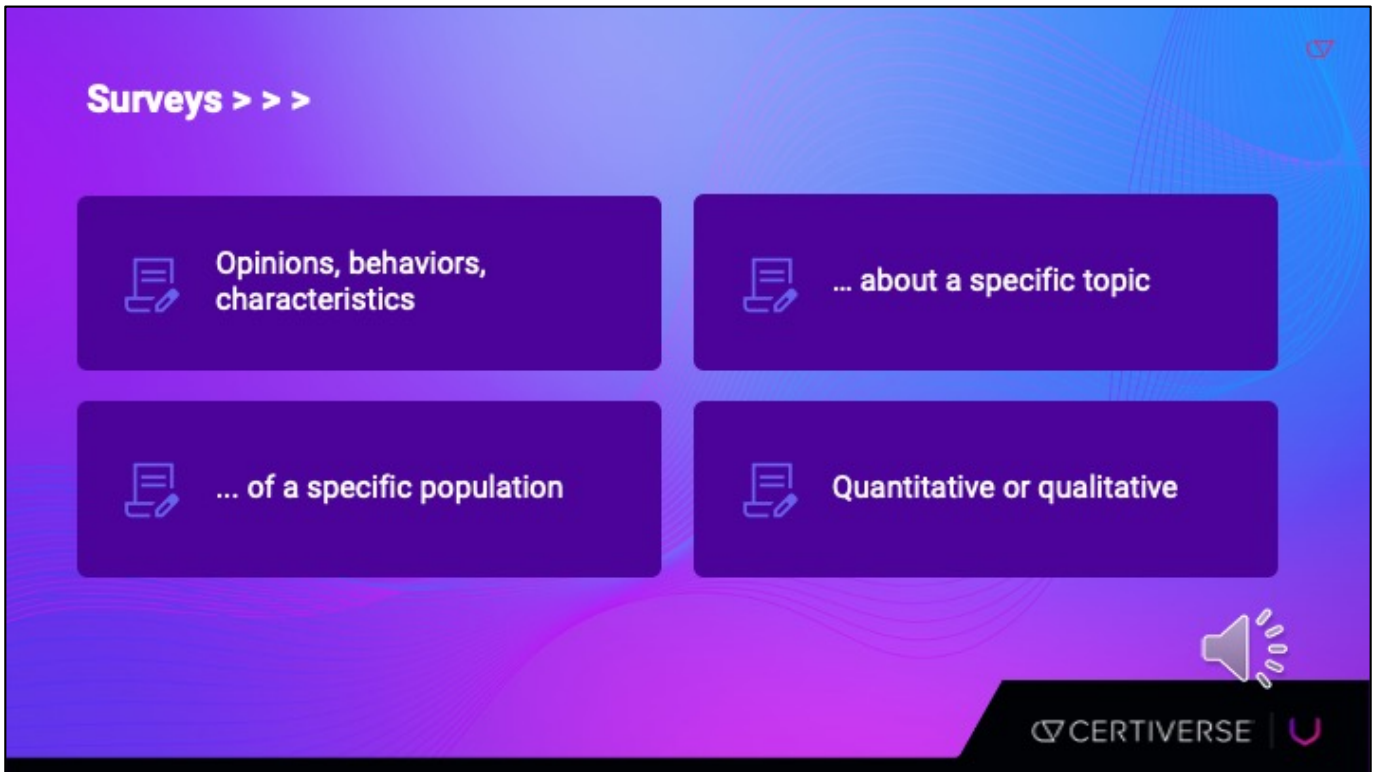
What we're trying to learn about a person – or group of people - will determine how we go about assessing them. Here are some of the kinds of questions we might want to answer ...

- Do we want to understand a group's politics? Do we want to understand how a population thinks or feels about a topic? Here we want to elicit opinions, behaviors, or characteristics of a group. Surveying is the right tool here.
- Do we want to know how learners are doing in a math course? Have they learned the material? This question is asking about achievement.
- What if we want to measure the *potential* of a person ... make a prediction about how likely that person is to be successful at something. Here we are trying to predict

aptitude.

- As a final example, what if want to know if a person has a specific capability. For example, should a person be allowed to drive a bus. Should they be licensed? Here we're asking questions about the candidate's current knowledge, skills, and abilities related to competently performing a job or role.

We can use assessments to answer any of these questions. However, these are different types of questions we're trying to answer, to a greater or lesser degree. Getting to a good answer for each question will require different approaches. Lets's drill down.



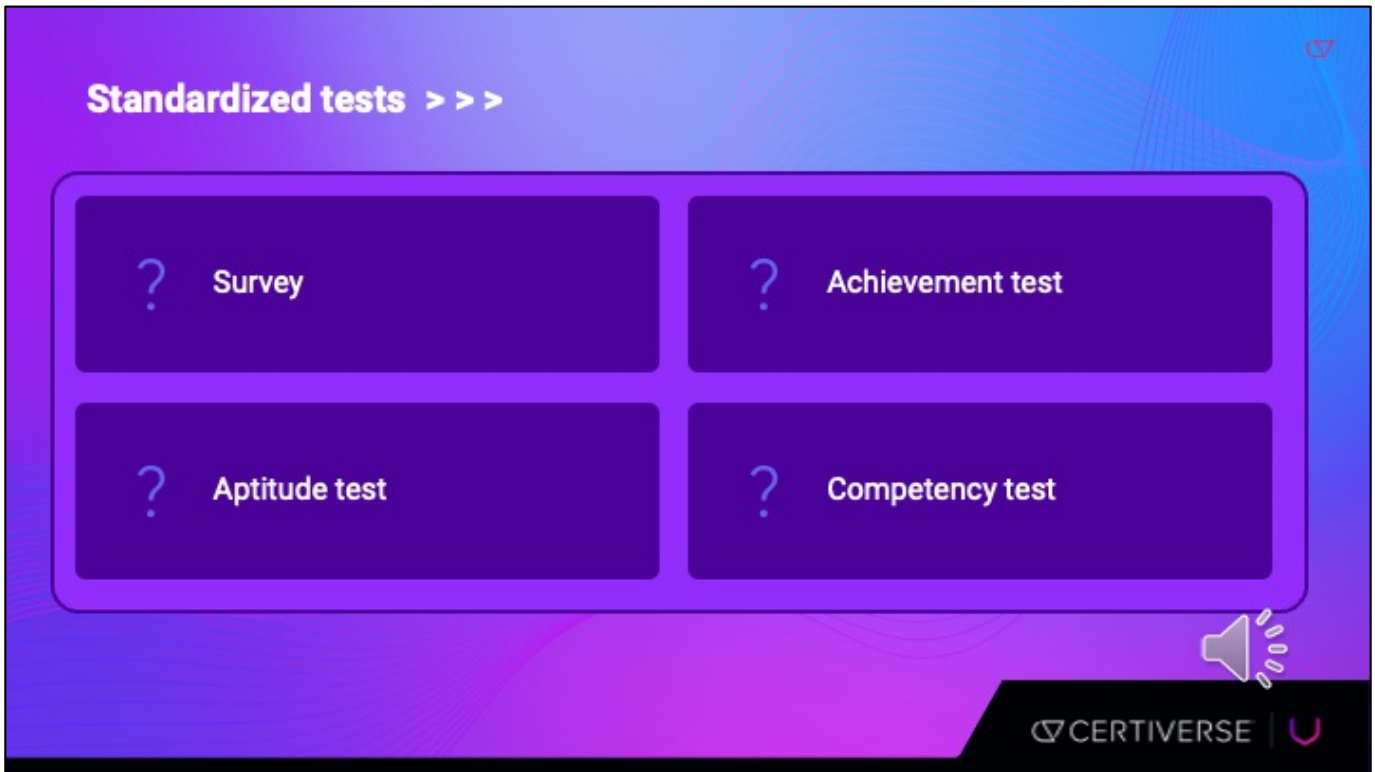
To get at political opinions, or more generally, feelings or positions on a topic, we'd use a **Survey**.

- A survey is a tool used to gather information from a smaller group of people in order to understand, by inference, the opinions, behaviors, or characteristics of a larger group.
- Surveys target their questions to a specific topic but will also often include unrelated questions such as demographic questions or other questions that provide context to survey responses. These are useful for stratifying data in the case of the former and qualifying data in the case of the latter.
- Surveys should be administered to a representative sample ... people that are statistically likely to represent the larger population. This is what allows us to make inferences about the larger group from the responses of

the smaller. If your sample is bad, your inferences will be bad.

- Surveys may range from quantitative to qualitative in their methods. Quantitative surveys use closed-ended questions allowing for relatively straightforward statistical analysis. On the other hand, qualitative surveys use open-ended questions which allow for detailed, but unstructured responses. Qualitative surveys generally require additional work by the researchers to review and then classify responses before statistical analysis although this type of work is more and more within the reach of modern computing.

By analyzing the data collected through surveys, researchers can gain valuable insights and make informed decisions.



Lets go back to our four example types of testing. Now that we've got a handle on surveys, we're left with three. Handily, these three types fall into a category called standardized testing.

Standardized tests are exactly what the name suggests: tests that are administered and scored in a consistent or "standard" manner. This means they follow specific guidelines to ensure fairness and allow for comparisons across different test-takers and times.

Achievement testing >>>

- Measures learning
- Often large scale
- Informs instruction
- Used for placement

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Achievement testing is a way to measure how much knowledge or skill someone has learned in a particular subject. It's like a checkup on your learning! These tests are most commonly used in schools to see how well students are understanding the material being taught.

Here are some key points about achievement testing:

- Measures learned skills and knowledge: Unlike aptitude tests, which look at your potential to learn, achievement tests focus on what you already know.
- Standardized tests are common: Often, these tests are designed to be given to many students in the same way, which allows for comparisons between students and schools.
- Used to inform instruction: Teachers and educators can

use the results of achievement tests to see how well their teaching is going and to identify areas where students might need more help.

- Used for placement decisions: Test scores can also be used to decide what level class a student is ready for, or if they need extra help.

Aptitude testing >>>

- Identify strengths & weaknesses
- Career, Placement, Employment
- Measure "natural abilities"
- Verbal reasoning, Math skills, Spatial awareness

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Aptitude testing is a way to assess someone's "natural potential" for success in a particular area. It's different in that it doesn't measure what you've learned, but rather your inherent skills and abilities. Hold on to that idea of "natural potential" for a second.

Here's a breakdown of the key points about aptitude testing:

- Purpose: Identify a person's strengths and weaknesses to predict how well they'll do in a specific field.
- Applications: Used in career guidance, school placement, and even by some employers to assess potential hires.
- It can be thought of as measuring "natural abilities", not knowledge. Maybe more accurately, an aptitude test measures what **you can do** with the knowledge, skills, and abilities you already have. It assesses higher order skills

like synthesizing and analyzing information as opposed to simple recall. This makes it very hard to study for an aptitude test.

- Types of tests: There are different tests for various aptitudes, like verbal reasoning, numerical skills, or spatial awareness.

So, essentially, aptitude testing is a tool to help people understand their natural talents and steer them towards areas where they're more likely to flourish.

Competency testing >>>

- Certification, license, badge
- Determines minimum competency
- Info Tech, Medical, Finance, Law, etc.
- Many formats

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Competency testing is used to assess that a person has the knowledge, skills, and abilities to perform a specific job or task or to practice in a profession.

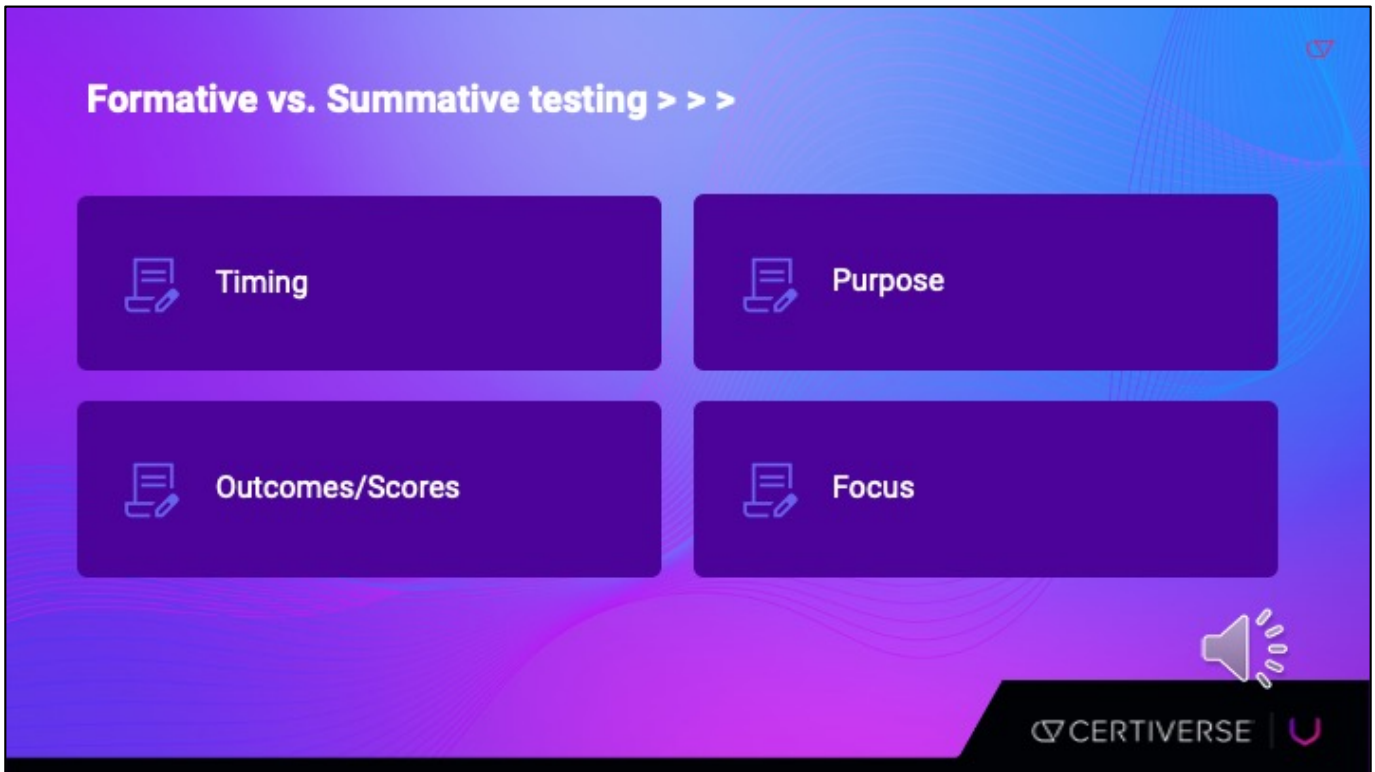
- Often these assessments lead to a certification, license, or badge. Certifications and badges generally are used to show potential employers that you're qualified for a position and can help you advance in your career.

They may be required but often are not. On the other hand, passing a licensure exam is mandatory to practice in a regulated occupation. The main purpose of licensure testing is to protect public health, safety, and welfare by ensuring that professionals meet a minimum standard of competency.

- In all cases, the goal of the exam is to determine minimum competency ... is the individual qualified to enter the profession or do the job or role. We'll talk more about minimal competency and

the concept of the Minimally Qualified Candidate in later lessons.

- These types of exams are common in fields like information technology, medical fields, finance, legal fields, food preparation, and machinery operation just to name a few.
- These exams can take many forms from multiple choice tests to computer simulations to in-person, practical assessments such as “Objective Structured Clinical Examinations”



There are two related concepts you should also be aware of - formative and summative.

These are terms we use to talk about the intended application of assessments. These terms apply to multiple types of testing including competency testing. It's useful to think about formative and summative testing along these four dimensions

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- In terms of Timing ...
 - Formative assessments are administered and taken throughout the learning processes. Think quizzes.
 - On the other hand, summative assessments are administered at the end of a unit or course. Think final exam.

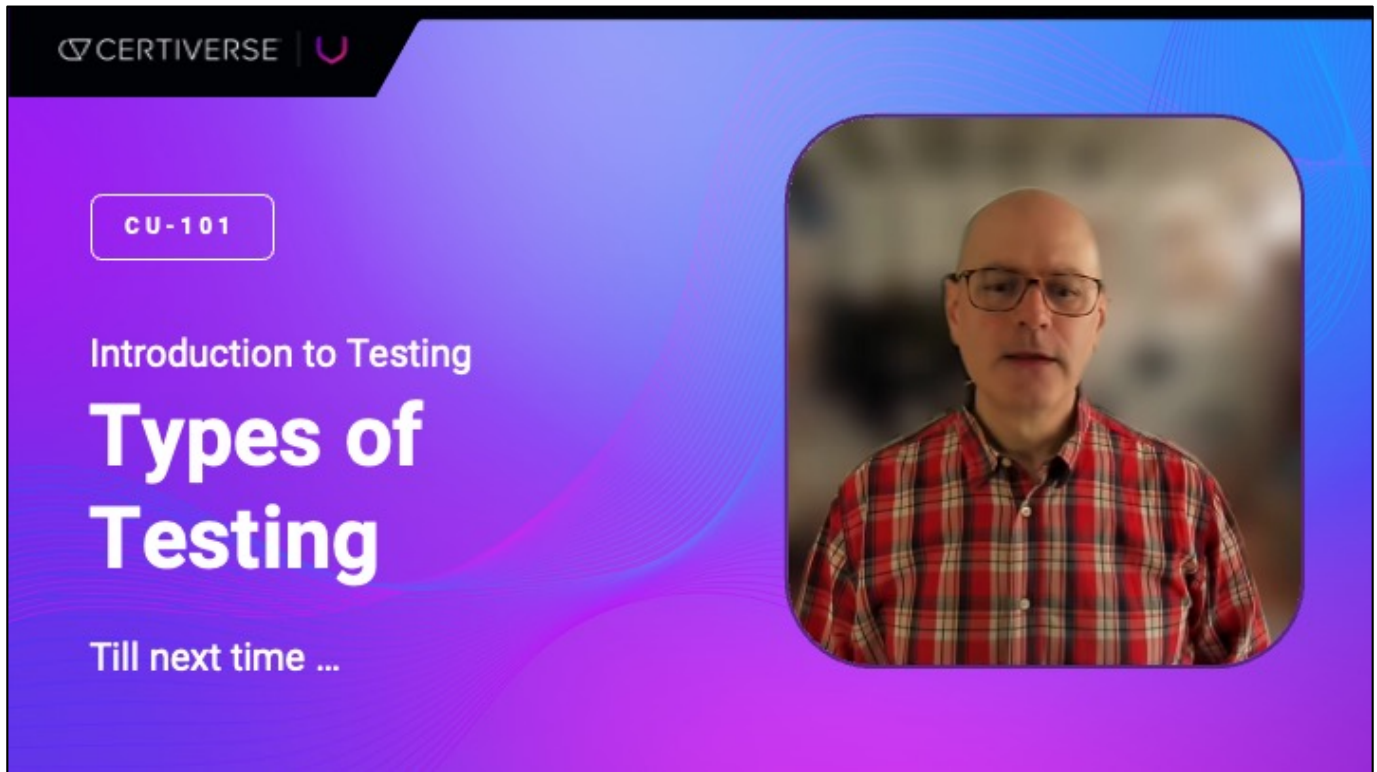
- What is the purpose of these two?

- Formative tests are used to diagnose learning gaps. Feedback is provided to the learner and/or the instructor to identify weaknesses and to allow remediation.
- By comparison, summative tests measure overall achievement of learning objectives. They generally provide much less in terms of feedback ... sometimes none other than pass/fail status.

- How Outcomes or Scores are handled also varies ...
 - In the case of formative tests, outcomes are reported - often at a very granular level. This allows learners and teachers to understand weaknesses, and to seek remediation.

 - On the other hand, summative assessments are high-stakes and are used to gate learners or candidates. That is, if you don't pass the exam, you don't get the credential. In the case of a license, that means you may not be able to practice the profession!

- To summarize, the focus is different:
 - Formative tells us how learning is going
 - Summative tells us how much has been learned and evaluates competency.



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Till next time ...

This has been a very brief overview of a few types of testing.

A key takeaway is that there are numerous types of testing and that, while they share many similarities on their face, there are real differences in how we use the various models depending on our goals

Moving on, in our next lesson we'll be narrowing our focus to competency testing ... testing that leads to a certification, license, or badge. For this, we'll discuss the elements of this type of project and how they fit together.

That's it for this video! Thanks for watching ... we'll see you in the next!