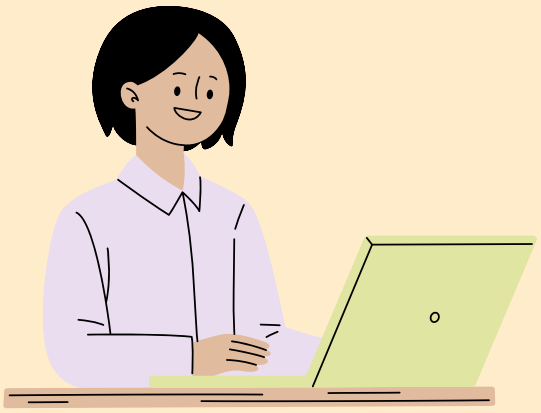
FORMATIVE & SUMMATIVE ASSESSMENT: THEORY

Even if you've never taught before, you probably already have some awareness of assessment and its impact on you for your days as a learner. For most students, this usually means a numeric grade. However, assessment is much more complex than just a simple number and it serves a variety of purposes, so as an instructor, it is important for you to have a deeper understanding of the role assessment can play in your course.



What does the literature have to say (briefly!) about assessments?

Assessment is an essential part of education that involves the **measurement** and **evaluation** of student learning. There are two main types of assessments used in education: **formative** and **summative** assessments. Formative assessment is used to **monitor** student learning and **provide feedback** to improve performance, while summative assessment is used to **evaluate student achievement** at the end of a learning period. Both types of assessments are critical for evaluating student learning and improving instructional practices.

According to Black and Wiliam (2018), formative assessment is an effective instructional tool that helps to i**dentify student misconceptions**, **adjust instruction**, and **provide timely feedback** to improve student learning. Additionally, Hattie and Timperley (2015) argue that formative assessment can have a **significant impact** on student achievement and is a critical component of effective teaching. In contrast, summative assessment is often used to determine **student grades** or **evaluate program effectiveness**, as noted by Brookhart (2018) and Popham (2019).

Both formative and summative assessments have their benefits and can be used together to improve student learning, as well as teaching. By using both types of assessments, educators can provide **ongoing feedback** to students, identify areas where students may be **struggling**, and make necessary **adjustments to instruction**. As the educational landscape continues to evolve, it is essential that educators remain knowledgeable about the latest research and best practices related to assessment.

FORMATIVE & SUMMATIVE ASSESSMENT: THEORY

What are some of the key concepts related to formative and summative assessment?

As an educator, it is good for you to have some basic grounding in several theoretical concepts related to formative and summative assessment in order to effectively implement these assessment methods in the classroom. (Note: we'll explore ideas around implementation in the other components of this FTT). Some important theoretical concepts include:

Feedback: Feedback is a critical component of formative assessment. It involves providing students with **information** about their progress and areas for improvement in a timely and specific manner. Often, but not always, that information takes the form of either some type of narrative writing and/or a rubric. According to Hattie and Timperley (2007), effective feedback should be **timely**, **specific**, and **actionable**, and should f**ocus on the task** rather than the student. In many ways, this structure and focus is similar to good practices for writing learning outcomes.

Assessment literacy: Assessment literacy refers to the **knowledge** and **skills** that educators need to design, implement, and evaluate assessments effectively. According to Stiggins (2010), assessment literacy includes knowledge of assessment **principles**, understanding of assessment **terminology**, and the ability to **use assessment data to improve teaching and learning**. Assessment literacy enables instructors to create assessments that accurately measure student learning and provide useful feedback to students, and to use assessment data to improve **their instruction** and more effectively **support student achievement**. Instructors can **develop** assessment literacy through professional development activities ranging from **workshops**, **conferences**, and **online courses**, but it can also be done through simple interactions such as **collaborating with your colleagues**. It could even involve incorporating the use of **research-based assessment practices** into your teaching – and Fast Track Tutorials are a good place to get started if you are looking to take this approach!

FORMATIVE & SUMMATIVE ASSESSMENT: THEORY

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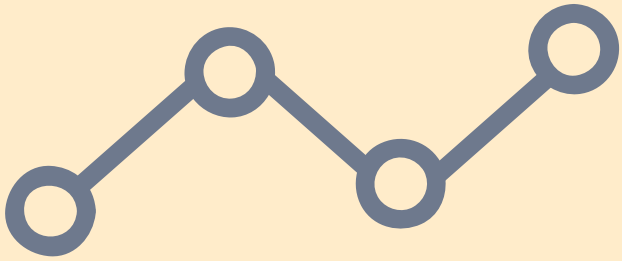
Validity and reliability: Validity and reliability are important concepts in both formative and summative assessment. Validity refers to the extent to which an **assessment measures** what it is **intended to measure**. Taking the time to first craft clear, measurable learning outcomes and then making sure they are aligned to your intended assessments goes a long way to ensuring you are assessing what it is intended to measure. (You may want to explore our Learning Outcomes and Alignment FTTs if these are new concepts for you.) Additionally, reliability refers to the **consistency** and **stability** of assessment results **over time**. In order for an assessment to be useful, it must be both valid and reliable.

Assessment for Learning (AfL): Assessment for Learning (AfL) is a form of **formative assessment** that is designed to **improve student learning** by providing feedback to students and adjusting instruction accordingly. Black and Wiliam (2009) describe AfL as a process that involves the **use of assessment data** to identify student misconceptions and adjust instruction to meet the needs of **individual students**.

By having a solid understanding of these and other theoretical concepts related to formative and summative assessment, you can develop effective assessment practices that promote student-centered learning and improve your instructional practices.



FORMATIVE & SUMMATIVE ASSESSMENT: THEORY

What are the educational benefits associated with formative and summative assessment?

Both formative and summative assessments have distinct benefits that can support student learning and improve instructional practices.

Formative assessments are used **during the learning process** to provide **ongoing feedback** to both students and educators. Some benefits of formative assessment include:

Identifying student misconceptions: Formative assessments can help teachers identify areas where students are struggling and address misconceptions before they become more deeply ingrained.

Adapting instruction: Formative assessments can be used to adjust instruction to meet the needs of individual students or groups of students. This can improve student engagement and motivation, as well as overall learning outcomes.

Encouraging student ownership of learning: Formative assessments can be designed to involve students in the assessment process, encouraging them to take ownership of their learning and develop metacognitive skills.

Summative assessments are typically used at the **end** of a **learning unit or course** to evaluate **student learning outcomes**. Some benefits of summative assessment include:

Measuring student progress: Summative assessments provide a way to measure student progress and evaluate learning outcomes. This information can be used to make decisions about student placement or to determine whether students have met specific learning goals.

Providing accountability: Summative assessments can provide a way to hold students, educators, and educational institutions accountable for meeting learning standards and achieving specific learning outcomes.

Informing instruction: The results of summative assessments can be used to inform instructional practices and identify areas where additional support may be needed to improve student learning outcomes.

Overall, the use of both formative and summative assessments can support student learning and improve instructional practices by providing ongoing feedback, promoting student engagement, and ensuring that learning outcomes are met.

References
Black, P., & Wiliam, D. (2018). Classroom assessment and pedagogy. Assessment in Education: Principles, Policy & Practice, 25(6), 551–575.
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Hattie, J., & Timperley, H. (2007). The power of feedback. Review of Educational Research, 77(1), 81–112.
Popham, W. J. (2019). Classroom assessment: What teachers need to know (9th ed.). Routledge.
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FORMATIVE & SUMMATIVE ASSESSMENT: ACTION

Okay, so you have a better idea of what is meant by summative and formative assessment and why they are integral to the learning process. So, where do you start? This section of the FTT will help you begin to bridge how you can put some theory into your assessment practices.

Can summative assessments be used for formative purposes?

Yes, summative assessments can have a formative component. While summative assessments are typically used to evaluate student learning outcomes at the end of a learning unit or course, they can also provide information that can be used to improve instruction and support student learning.

For example, if a teacher administers a summative assessment and finds that many students did not perform well on a particular section of the assessment, the teacher can use this information to identify areas where students need additional support and adjust instruction accordingly. This can involve providing additional instruction or resources to students who struggled with the material, or revisiting the material in a different way to ensure that all students have a better understanding of the content.

Additionally, the results of summative assessments can be used to evaluate the effectiveness of instructional practices and make adjustments as needed. This can involve revisiting lesson plans or instructional methods to improve student learning outcomes in future learning units or courses.

FORMATIVE & SUMMATIVE ASSESSMENT: ACTION

Can formative assessments be used for summative purposes?

While formative assessments are typically used during the learning process to provide ongoing feedback to both students and teachers, they can also be used for summative purposes. In some cases, the results of formative assessments can be used to evaluate student learning outcomes and make decisions about student placement or progression, within their program or area of specialization.

For example, a program uses a formative assessment system to monitor student progress throughout the year, the results of the assessments can be used to determine whether students have met learning standards and are ready to move on to the next grade level. In this way, the formative assessments serve a summative purpose.

Another example is when a teacher uses a culminating formative assessment at the end of a unit to evaluate overall student learning outcomes. This can involve a comprehensive project or performance task that integrates the learning objectives of the entire unit. The results of this assessment can be used to evaluate student learning outcomes and make decisions about future instructional decisions or student placement.

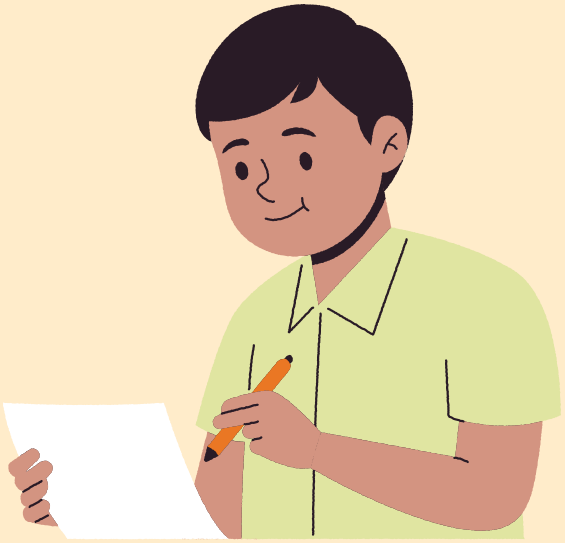
Can you use formative and summative assessment at the same time?

In short, yes! Using both types of assessment in combination can provide a more comprehensive picture of student learning and progress, as well as inform instructional decisions. The trick is to use them within a well-integrated plan that aligns to your outcomes and course content. Doing so provides a more comprehensive and nuanced understanding of student learning and progress. Formative assessments can inform instructional decisions in real-time, while summative assessments can be used to evaluate learning outcomes, make decisions about student placement, or future instructional decisions.

FORMATIVE & SUMMATIVE ASSESSMENT: ACTION

What are some considerations an instructor needs to think about when planning for formative assessment?

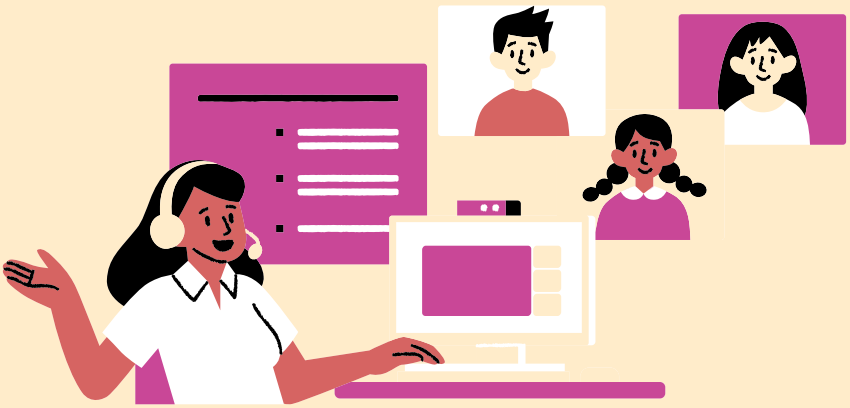
Learning objectives should be aligned with specific learning objectives. Instructors should consider what they want students to learn and be able to do, and then design assessments that provide evidence of student progress toward those objectives.



Feedback should provide timely and specific insights to students that helps progress toward the learning objectives. Instructors should consider how they will provide feedback to students, whether it be through written comments or other means.

Assessment design should be varied and appropriate for the learning goals and content being assessed. Instructors should consider using a range of assessment methods, such as quizzes, classroom discussions, writing assignments, and peer evaluations.

Instructors should involve students in the formative assessment process where possible. This might include setting goals, providing input on the design of assessments, and reflecting on their learning progress. This can help students take ownership of their learning and improves their engagement with the assessment process.



Data collected through formative assessment can be used to adjust instruction as needed. This may involve analyzing student performance data, identifying areas where students are struggling, and designing interventions or additional instruction to support student learning.

FORMATIVE & SUMMATIVE ASSESSMENT: ACTION

What are some considerations an instructor needs to think about when planning for summative assessment?

As with formative assessments, learning objectives should be aligned with specific learning outcomes. Instructors should consider what they want students to learn and be able to do, and then design assessments that provide opportunities for students to generate evidence of their achievement.

The design of summative assessments should be appropriate for the learning goals and content. Instructors should consider using a range of assessment methods, such as tests, papers, projects, presentations, or other "real-life," applied demonstrations of learning related to the profession or discipline to provide varied opportunities for students to demonstrate their knowledge, skills and abilities.

Instructors should ensure that test administration is standardized and consistent. This can involve setting time limits, providing clear instructions, and monitoring the testing environment to prevent cheating.

The timing of summative assessment is critical. Instructors should ensure that the assessment occurs after students have had sufficient opportunity to learn the material. However, the assessment should not be delayed too long after the completion of the instruction.

Clear, descriptive grading criteria should be established and communicated to students before the assessment. This ensures that students understand what is expected of them and reduces confusion or misunderstandings.

Instructors should analyze the results of the assessment to determine student achievement and identify areas where students may need additional support. This can help inform future instruction and provide insight into the effectiveness of teaching practices.

FORMATIVE & SUMMATIVE ASSESSMENT: EXAMPLES

This section of the Fast-Track Tutorial will provide you with some practical examples of what assessments may (or may not) work when looking to incorporate them into your assessment strategies.

How can I start with formative assessment?

So far, we've looked at formative assessment broadly. When it comes to implementing formative assessments strategies in your course design work, you'll want to think about formative strategies in at least two different ways: formative assessments strategies and formative learning activities.

Formative assessment and formative learning activities are related concepts, but they have different purposes and functions. Formative assessment is an ongoing process of gathering evidence about your students' learning to inform instruction and provide feedback to your students. The goal of formative assessment is to monitor students' learning and help students improve their understanding and performance over time. Whereas formative learning activities are designed to promote learning and support students' understanding of key concepts, these activities are typically designed to be interactive, engaging, and aligned with course goals and learning objectives. Think of them as low-stakes opportunities to practice working with key concepts.

Let's take a look at some examples. Note: It is important to keep in mind that these examples are for illustrative purposes – their effectiveness is directly tied to how well the purpose and structure of the example might align to one or more course or unit level learning outcomes.

FORMATIVE & SUMMATIVE ASSESSMENT: EXAMPLES

Formative assessment examples:

Concept maps: Ask learners to create a concept map to demonstrate their understanding of a particular topic or unit.

Quizzes: Create short quizzes that cover key concepts or ideas from the course material and use these quizzes to identify any areas where students need additional support.

Peer reviews: Have students review each other's work and provide feedback on areas for improvement.

Group projects: Assign group projects that require students to collaborate and apply their knowledge to real-world scenarios.

Classroom or online discussions: Facilitate discussions that encourage learners to share their thoughts and ideas about course material.

These assessments are designed to provide immediate feedback to learners to help them identify areas for improvement and to allow the instructor to adjust their instruction accordingly. The key to remember here is that these assessments are not an end in themselves. Their purpose is to generate data that both the student and instructor can act upon to guide improvement.

Formative learning activities examples:

Think-Pair-Share: This activity involves learners working in pairs or small groups to answer a question or solve a problem. They then share their ideas with the larger group.
Exit Slips: At the end of class, ask learners to write down one thing they learned during the class and one question they still have.
One-Minute Papers: Ask learners to write a short response to a prompt or question in one minute or less to help you assess learners' understanding of key concepts and identify areas where learners are struggling.
Concept Attainment: This activity involves presenting learners with examples and non-examples of a particular concept, and asking them to identify the key characteristics that distinguish them.
Guiding Questions and Feedback: provide pre- or post-reading/viewing questions for key content that prompt students to think more deeply about the materials in light of course and unit learning outcomes. Where possible, provide learners with a perspective on the pre- or post-reading questions to give them something to compare and contrast their ideas with.

These examples provide opportunities for learners to actively engage in the learning process and receive immediate feedback. Such feedback can be from the instructor or, in online environments, automated. It is always aimed at improvement. Such activities are specifically designed to help learners improve their skills and deepen their understanding of the material in a low-stakes environment that requires them to directly engage with course concepts and materials, rather than receive them passively.

FORMATIVE & SUMMATIVE ASSESSMENT: EXAMPLES

How can I start with summative assessment?

The most traditional form of summative assessment is the often-dreaded final exam. Let's look beyond this well-used approach to some other ideas. Many of the ideas below could easily stand in place of a more traditional final exam consisting of multiple choice and/or short and long answer questions or stand as individual components within a larger course assessment strategy.

Written assignments: Research papers require learners to synthesize information, analyze data, and communicate their findings effectively. Essays can take many forms (e.g. argumentative essays, persuasive essays, or literary analysis) and can be used to evaluate learners' knowledge of course material, critical thinking skills, and ability to communicate their ideas. Case studies can be used to evaluate learners' ability to apply their learning to real-world situations and demonstrate critical thinking and problem-solving skills. Reflection papers require learners to reflect on their learning experiences to evaluate their growth and development. Creative or technical writing can evaluate learners' ability to communicate in a creative and engaging way, or their ability to communicate complex information in a clear and concise manner.

Presentations: students may be required to give presentations, where they demonstrate their understanding of the course learning outcomes and materials, as well as their ability to communicate it effectively to others.

Portfolios: Learners may be required to compile a portfolio of their work during a course, throughout a semester, or during an academic year. The portfolio is evaluated based on the learner's ability to demonstrate their understanding of the material and growth over time.

Capstone projects: Students complete a capstone project at the end of their program, where they apply their knowledge and skills to a real-world problem or project. The project is evaluated based on the student's ability to integrate and apply their learning to the project, as well as their ability to communicate and present their work effectively.

These examples assess learners' overall understanding and application of the course concepts and materials, rather than a learners' ongoing progress. These assessments can provide valuable information about learners' attainment of the course material and their readiness to move on to the next level of their academic or professional journey.