

# How to Choose the Best Assessment Tool for Your College Class

A HANDBOOK FOR EDUCATORS  
*by* Top Hat Staff

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## Assessment and its Discontents

Nearly every faculty member, at one point or another, has had to confront the shipwreck-like disaster of an entire class that's performing below expectations. In exam after exam, in answer after answer, students just didn't grasp what was being taught. When a few students get bad grades, it's their problem. When they all get bad grades, it's the professor's.

The root of the problem is that professors themselves are often in the dark about how well their students understand the material they are teaching until the first midterm is complete. If many in the class aren't quite up to speed, instructors must rush to correct course, revisiting prior lessons and then cramming remaining material into fewer weeks.

And yet, whether poor student performance is mild or pronounced, the problem is typically not the professor but their chosen method of assessment.



Digital disruption has forever altered the way we live and work, yet we're still relying on the same assessment methods that were used 100 years ago

For decades, college classrooms have relied upon assignments, midterms and final exams, adding them all up into a final grade. But that was then—we now live in a real-time world. You can book a vacation in three clicks. You can track an Amazon package as it moves through customs. You can watch your Uber arrive on a smartphone. Digital disruption has forever altered the way we live and work, yet we're still relying on the same assessment methods that were used 100 years ago, long before technology enabled us to find a real-time way to assess student understanding.

Today, we have developed innovative ways to more accurately measure student progress and learning. With a few adjustments and some technological assistance, we can take the guesswork out of assessment for students and professors alike.



# 1

## Formative Versus Summative Assessment: Striking a Useful Balance

No two course syllabi are alike, but they all have a familiar structure. Every course is structured around its summative assessments: assignments, midterms, group projects and final exams. Students pay close attention to those dates, because those are the moments when their proficiency in the course material will be put to the test and tallied towards a final grade.

In between these key moments, most professors rely on formative assessment: tools and tests designed to gauge students' understanding of key concepts

and lessons not for grades, but as a means of making sure that students are following along—and that the teaching methods are getting through to them.

Formative assessment is often informal in nature, and can take the shape of something as simple as a three-question quiz, an end-of-chapter review, or even a discussion question tossed out from the podium in the midst of a lecture: get the students talking, in order to find out if they're intellectually engaged with the content of the course.

In recent years, many professors have begun to examine the relationship between summative and formative assessment in a more structured manner, and to find out whether one can help students succeed at the other. And it appears that they can: formative assessment gives students the chance to assess their own progress, which encourages them to better prepare for summative-assessment midterms or finals.

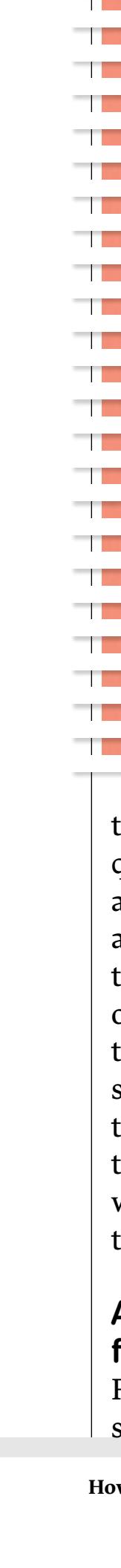
## Making optimal use of summative assessments

Summative assessments are an essential part of every single college course being offered today. Midterms and finals are how professors and institutions gauge students' competence and intelligence compared to others. They are a key extrinsic motivator for students: good grades translate into praise from faculty, friends and family, awards of distinction from their college and job offers from employers—not to mention personal confidence and self-esteem.

Despite its widespread use, however, an over-reliance upon summative assessment can turn benefits into drawbacks:

- 1 Every summative assessment is a high-pressure situation for students.
- 2 Poor performance on an early assessment only increases the pressure on subsequent assessments. If a student earned a C on the midterm, they'll feel the need to ace the final just to end up with a B.
- 3 Poor performance on an early assessment undermines students' confidence in their ability to perform better in the latter stages of the course. This creates an incentive to cheat: if they need to ace the final, they'll find a way.

The best way to design any summative assessment is to make it an integral part of course planning. When devising a course, faculty typically outline its content, detail how they'll



The challenge, for educators, is to strike **the right balance** between checking in on the **progress** of student learning and putting that **learning** to the test

teach the material, and then devise questions for midterm and final assessments. [Some researchers](#) argue that it makes more sense to think first about the learning outcomes that you want students to gain from a course, and second about how best to assess those outcomes. Once you know those, you can then think about what to teach and how best to teach it.

### A structured approach to formative assessment

Formative assessment—through such tools as quizzes, surveys,

one-minute essays, classroom polls, homework assignments and more—can be a helpful complement to summative assessment. And while formative assessment can take place informally through classroom discussion, it also benefits from a planned and structured approach to its use. If instructors know exactly what they want a course's learning outcomes to be, they can use formative assessment techniques to gather feedback on student comprehension and progress in advance of midterms and finals.

Formative assessment, when conducted thoughtfully throughout a course, can help professors monitor students' progress and track issues long before they become major problems:

- ① Formative assessments are administered throughout the course, ideally on a weekly basis.
- ② Formative assessments aren't always graded, and even if they are—quizzes, for instance, are obviously reviewed for right and wrong answers—those grades may not count towards a student's final mark.
- ③ Formative assessment gives students an opportunity to learn from failure and to identify their own misconceptions. It helps them develop the ability to self-assess.
- ④ Formative assessments also provide feedback for faculty, who can adjust their teaching methods and lesson plans to ensure outcomes are met by semester's end.

Choosing the right assessment system for a particular course isn't an either-or proposition. Formative assessment can't substitute for traditional summative assessment, since exams and assignments remain essential as the best way to definitively measure student proficiency and assign a grade.

The challenge, for educators, is to strike the right balance between checking in on the progress of student learning (formative assessment) and putting that learning to the test (summative assessment). Some faculty who have embraced formative assessment choose to make the final exam worth 100 percent of their students' grades, conducting formative evaluations throughout the semester to the point where, come exam day, they and their students are confident of success. This formula probably wouldn't work for every professor or every course, but it is a testament to the effectiveness of formative assessment, and to the value of making thoughtful use of both assessment types in every course you teach.



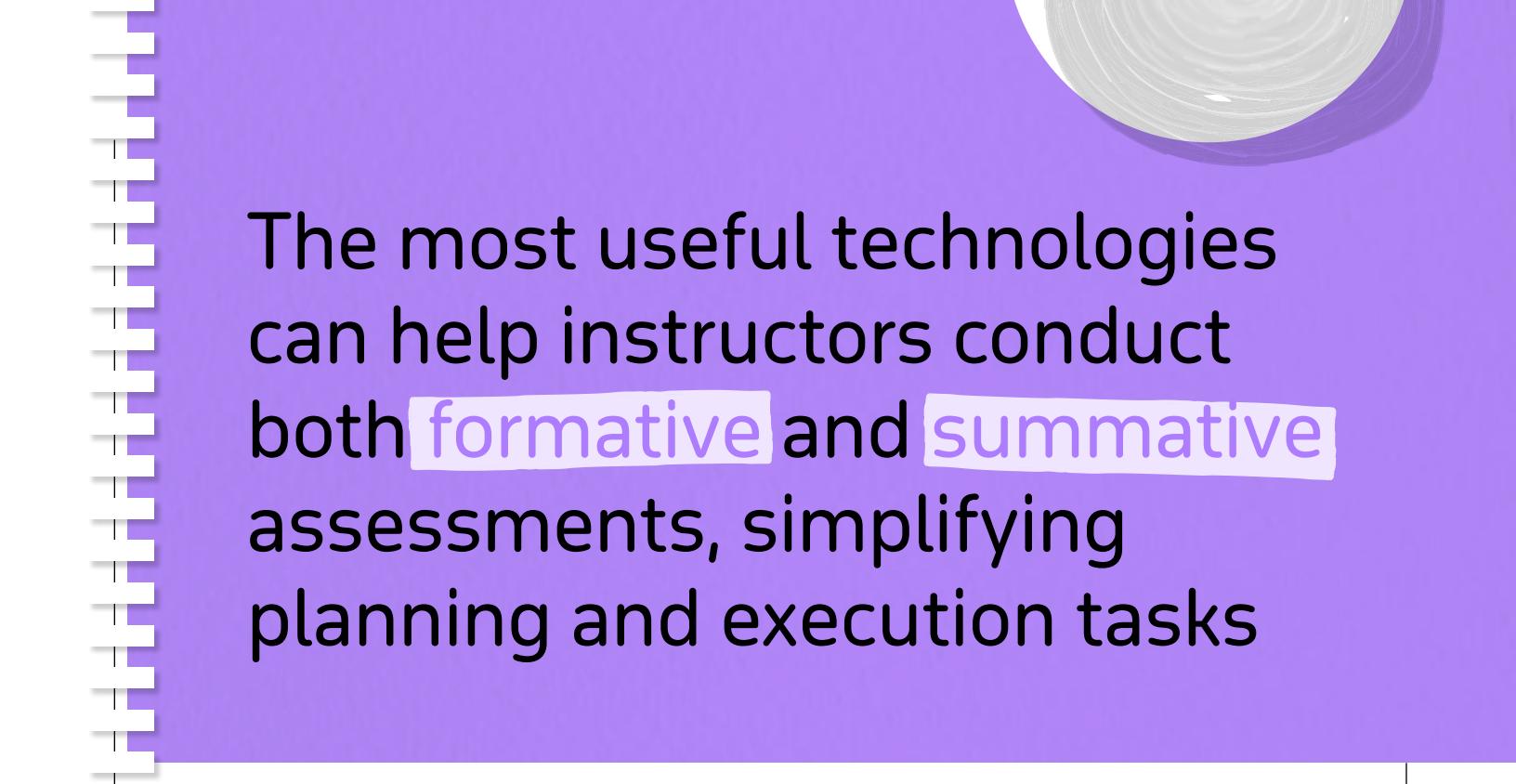
## 2

# I Don't Have Time for This: Assessment, Faculty Workload and Technology

Student assessment is, for most instructors, the most labor-intensive aspect of teaching any course, symbolized by the giant stacks of student essays or exam papers that take over a room in the professor's home. And that's just a small part of the summative-assessment job: there's the preparation of an assessment plan and rubric for each course, the writing of exam questions, the copying of exam papers. Once they are completed, gathered up and stacked on the dining room table, each one needs

a mark, personalized feedback and commentary, and suggestions for improvement.

Once you add formative assessment to this mix—preparing and administering weekly exercises, gathering and analyzing answers, and adjusting the course's lesson plan and syllabus in response—the task of assessment can start to feel overwhelming for any professor. It's no wonder that many faculty fall back on an accumulation of summative assessments for their courses: everyone knows the drill.



# The most useful technologies can help instructors conduct both formative and summative assessments, simplifying planning and execution tasks

This is where classroom technology can—or at least should—help. Classroom clickers were the first technology to facilitate formative assessment, because they allowed professors to ask students multiple-choice questions during class and assess their comprehension of a particular lecture topic. Today, multiple-choice questions can be issued in-class via students' smartphones and tablets, with immediate tabulation of results. Students' personal digital devices can also be used to issue essay questions, surveys and homework assignments. Thanks to recent advancements in anti-cheating algorithms and web blockers, students' digital devices can even

be used to administer proctored final examinations.

The most useful technologies can help instructors conduct both formative and summative assessments. Over time, they can build up a bank of exam questions, discussion topics and other brief assignments, greatly simplifying the task of assessment planning and execution. They can also turn the gathered information into a useful database of student progress for subsequent iterations of a course. And if the same digital platform is being used for both classroom learning and assessment, then technology should also make it easier for professors to adjust subsequent class time and teaching tactics.

# 3

## Assessing Digital Assessment: How to Choose the Right Technology

The marketplace for digital assessment technology has become an active and dynamic one in recent years. A wide variety of firms, from traditional textbook publishers to LMS providers to tech startups, now offer some combination of formative and/or summative assessment tools. Each one has its pros and cons. The choice of which one to use depends upon the kind of assessment plan you want to implement, and on how you intend to use results to adjust teaching methods over the duration of the course. In the following pages we look at some of the most popular options.

**Blackboard**

 **ExamSoft**



**Pearson**

 **CourseKey**

 **Respondus**

# Blackboard

## TYPE:

Learning management system (LMS)



### PROS

- Students and faculty are already familiar with their college's existing LMS system.
- Both Blackboard and Canvas (another LMS) incorporate formative assessment tools such as surveys and quizzes into their functionality.
- Instructors can choose from a wide variety of question types, including multiple-choice, true/false, formula, matching and more. Some question types can include images, audio and video.
- Results are kept in the Blackboard gradebook and can be analyzed automatically.

### CONS

- No built-in capability to curtail cheating or monitor student behavior during testing.
- Not suitable for summative assessment.
- Many faculty already prefer other platforms to Blackboard's for classroom engagement and management functions, so the advantages of consolidating with Blackboard are limited.

## VERDICT

**Helpful for formative evaluations but impractical for summative testing or other functions such as content delivery.**

**TYPE:**  
Interactive engagement tool



**PROS**

- Useful for group learning, pairing or grouping students automatically.
- Integrates seamlessly into Pearson's other products.
- Can administer quizzes for formative assessment, using questions from a pre-populated question bank.



**CONS**

- The quizzes are not particularly adaptable. Question types are limited to multiple choice, text and image.
- There is limited opportunity to customize quiz questions beyond the question bank, so instructors may have difficulty tailoring formative assessment to their course.
- No built-in capability to curtail cheating or monitor student behavior during testing.
- Not suitable for summative assessment.

**VERDICT**

**Limited overall adaptability means limited help in formative assessments.**



**TYPE:**  
Classroom engagement platform



### PROS

- Includes formative assessment tools which allow faculty to create their own questions and administer quizzes in class to students.
- System can generate immediate results from student submissions.
- CourseKey can also take attendance using geofencing technology.



### CONS

- Question types limited to multiple-choice, true-or-false, or short-answer.
- No built-in capability to curtail cheating or monitor student behavior during testing.
- Designed for in-class use. Formative assessments cannot be administered or completed remotely or as homework.
- Not suitable for summative assessment.

### VERDICT

**A unique classroom tool that's unfortunately only usable within the classroom.**

# Respondus®

**TYPE:**  
LMS-compatible summative assessment tool



## PROS

- Designed to be used within an institution's existing LMS.
- Exam design tools allow for many question types.
- Test banks available for a variety of major textbooks.
- When combined with its sister program, LockDown Browser, and its companion webcam application, Respondus Monitor, it effectively locks down the classroom and LMS learning environment to keep students from cheating.



## CONS

- Students must download Respondus software to their own computers, which can create technical glitches.
- Not a BYOD solution: does not support Android or Apple smartphones.
- Summative-assessment tool only: not suitable for formative assessment or classroom engagement.

## VERDICT

**Has one job; does it fairly well.**



**TYPE:**  
Cloud-based assessment tool



### PROS

- Allows faculty to create and administer both formative and summative assessments.
- Fully cloud-based, allowing it to be used in class and remotely.
- Can randomize questions to students, to prevent cheating.
- User-friendly interface.  
Professors can categorize questions based on learning objectives to better analyze results and understand student progress.



### CONS

- Not a BYOD solution: does not support smartphones.
- For summative assessment, relies upon pairing with LockDown Browser to ensure a secure testing environment.
- Very small test bank of questions developed by collaborators.
- Student reviews suggest the application is slow, which heightens anxiety during testing.

### VERDICT

A handy digital assessment toolbox.

# TOP HAT

## TYPE:

All-in-one teaching platform with engagement and testing capabilities



### PROS

- Classroom engagement system includes a broad range of formative assessment questions and tools.
- Faculty can create their own questions using Top Hat's word processing tool.
- Results generated in real-time and shared with students as part of ongoing learning.
- For summative assessment, [Top Hat Test](#) uses algorithms to identify student behaviors that indicate cheating and locks them out of the exam.
- Professors retain the ability to permit locked-out students to re-enter the exam.



### CONS

- [Top Hat Test](#) is new and relatively untested to date.
- Teachers have to use their own discretion to determine whether or not a student has been cheating.

## VERDICT

**The most complete digital assessment tool available, fully supported with digital course content and classroom engagement.**



# 4

## Strategies for Making Formative Assessment Effective

CASE STUDIES

## A BIOLOGY LECTURER AT CSU CHANNEL ISLANDS USES INTERACTIVE QUIZZES TO CONNECT WITH FIRST-YEAR STUDENTS



**"In a pop-quiz scenario you get a good sense of whether what you've just been talking about has resonated with the class. Sometimes I'll see one-quarter of the class will pick each of four answer choices—then I know I have a problem."**

—LORNA PROFANT,  
Biology, California State  
University

Channel Islands, the newest outpost in the California State University System, has everything you might expect from an idyllic west coast campus: proximity to the beach, California Mission-style architecture and an active student body. Biology lecturer Lorna Profant teaches an introduction to human anatomy and physiology class—a prerequisite to Channel Islands' highly competitive nursing program—to a lecture hall of about 100 students.

A few years ago, as Profant was on the path to creating a more responsive class environment, she started using [Top Hat Classroom](#) for attendance and for quizzing students throughout her lecture. She counts the scores toward extra credit as an incentive to get students to come to class and, more importantly, the quizzes show in real time whether the students are comprehending the material. “I use it as an indicator of whether I need to reframe a lesson before moving on or building on it,” says Profant. “In a pop-quiz scenario you get a good sense of whether what you’ve just been talking about has resonated with the class. Sometimes I’ll see one-quarter of the class will pick each of four answer choices—then I know I have a problem.” Profant designs at least half of the questions to be difficult, challenging or problematic, and allows students to talk to each other before submitting their answers. “We look at the results together,” she says, “and discuss

# The quizzes mirror the format of the evaluative exams—multiple choice questions, no TAs to help—which sets students up for success

how students should approach that question if it appeared on a test.” The quizzes mirror the format of the evaluative exams—multiple choice questions, no TAs to help—which sets students up for success.

Unlike some professors, Profant has always allowed students to bring mobile devices like laptops and phones to class. “The way I see it, they already have their phones in their hands, they are probably looking at them in class, so why not turn that into something useful,” she says. “My colleagues say they don’t want students using their phones any more than they already are. My feeling is, you can’t police that. We have huge classes, we have no TAs, and I’m not sure it’s productive.” Profant likes the way Top Hat keeps students on task, and says her students respect the privilege of using their devices. “If they get off task, their grade suffers,” she says. “It’s that simple.”

## AT EAST CAROLINA U, A KINESIOLOGY INSTRUCTOR USES IN-CLASS QUIZZES TO BOOST STUDENT COMPREHENSION



**"As long as they come to class with their phone in hand, they can gain access to the material and follow along. Beyond that, when they leave the classroom they now have built-in study guides provided to them through the Top Hat quizzes that are available for the remainder of the term."**

—SUE-L COHEN,  
Kinesiology, East Carolina  
University

Sue-L Cohen, a teaching instructor in the department of Kinesiology at East Carolina University oversees all the physical activity courses at ECU as well as the graduate students and teaching assistants who run them. “As educators we need to be mindful of the way students use technology in every part of their lives,” she says. “We have to meet this generation where they’re at.”

At East Carolina, the state’s third largest university, every undergraduate is required to take Kine1000, a course that aims to equip students with the necessary tools to become an educated, repeat consumer of physical activity. That adds up to about 3,500 students every year taking this foundational requirement course. The 16 graduate students charged with teaching the courses are asked by Cohen to conduct verbal, on-the-spot quizzes at the end of each lecture to review and hammer home key learnings. The trouble, says Cohen, is inconsistency. Are the instructors covering the right material? Are they even remembering or finding time to conduct the quizzes? And are students getting the same messages about what’s important?

“When I arrived the department was still doing things this way because ‘this is the way it’s always been done,’ ” says Cohen. “But that wasn’t good enough for me. I knew there had to be a better way to engage the students.” Her goal to kickstart a more interactive program was a perfect fit with

Cohen's instructors use Top Hat to conduct in-class comprehension quizzes and to take attendance, making the course more interactive

[Top Hat Classroom](#), which her instructors use to conduct in-class comprehension quizzes and to take attendance. (In the kinesiology program, class attendance is mandatory.)

"It doesn't matter if students forgot everything else that day," she says. "As long as they come to class with their phone in hand, they can gain access to the material and follow along. Beyond that, when they leave the classroom they now have built-in study guides provided to them through the Top Hat quizzes that are available for the remainder of the term." In the future, Cohen plans to integrate the course's textbook, which she and a few fellow professors authored, into [Top Hat Textbook](#) so she can include more interactive elements that boost student comprehension.

"We are a society of technology now and our manner of creating educated consumers of physical activity and exercise has to adapt."

## Set Clear Goals, Assess Achievement

The technology available to assist faculty with college students' assessment is advancing rapidly in sophistication—it likely won't be long before some form of digital assessment is used for every classroom in America. Digital assessment also has the potential to take much of the drudgework out of assessment, giving professors feedback on student progress in a fraction of the time such efforts once took.

This is good news, because neither students nor their instructors should head into a midterm or final exam without having received intermittent feedback on their performance. But the technology can't replace professors or their judgment—and it's not intended to. Digital assessment is a tool for professors to use, and it will only be as effective as the faculty-designed rubric it is being used to support.

If faculty set clear goals for their courses in terms of knowledge and skills acquisition, they'll know which concepts to test through intermittent formative assessment. They'll also know what kind of summative assessment they need to measure student proficiency at semester's end. And they'll have confidence, even before the exams have been written, that students will perform better. ■