# Why Mastery-Based Learning? Research Brief

*“When the goal is mastery … the focus is on what the student is learning rather than how much the student is doing.” —*Jeanetta Jones Miller

## The Meaning of 73

Consider a tenth-grade science teacher as she sits down to grade final exams. As she begins, her pen catches at the very first student’s test. Ali is a quiet, respectful young man whose attendance had been spotty. He struggled with several key concepts but also leaned on his strong writing skills to earn a passing mark. As she looks over his final exam, it’s clear that Ali has only a basic understanding of the scientific method.

The teacher scans her grade book; tallies up the scores on assignments, tests, and homework; and sees Ali earned a 73. At first glance, the number feels solid. Precise, decisive, mathematical, and fair. Ali did well enough with basic concepts but fell short of engaging with deeper skills. 73.

But as she moves to bubble it in, what once felt simple now feels hollow. With a 73, Ali will pass the class and move on to the next one. But how will the 73 help his teacher next year understand his gaps and skills? How will it help his parents understand his progress? And what does it tell Ali about himself? Does it point to areas where he fell short? Show him all the ways he should feel proud? Does it indicate how he can improve? All of a sudden, the once-straightforward 73 drops open like a trapdoor, its inadequacies forcing deeper and deeper questions right down to the basic function of grading itself: Why do we give grades to begin with? What do they mean? And how do they help our students learn?

## 21st-Century Needs

The modern educational system—and the grading system underpinning it—were not designed to answer those questions. Helping all students grow, improve, and develop higher-order skills was not the priority. Although the early schools set up in the United States focused on the goal of preparing students to be active citizens in the young republic, by the late nineteenth and early twentieth centuries there was a shift. Educational leaders sought to make school more *socially efficient*, an institution that would prepare workers for an industrial economy. According to historian of education, David Labaree, “On the one hand, Americans have sought to make schools an institutional expression of their democratic and egalitarian political ideals… Yet, on the other hand, they have also sought to make schools a mechanism for adapting students to the requirements of a hierarchical social structure and the demands of the occupational marketplace.” It was a movement designed to make the classroom useful to industry, ranking and ordering students as much as teaching them.

Over a century later, living in a different economic and social reality, we still see this kind of focus on efficiency embedded in our educational system. We see it in the continued use of time-bound Carnegie Units that award credits based on seat-time rather than mastery of skills; we see it in the use of summative assessments to verify knowledge at the end of a cycle when it is too late to make changes; and we see it in grading systems that focus more on rewarding students for showing up or behaving in a compliant manner than on rewarding for critically engaging with knowledge and learning skills.

Researchers Chris Sturgis and Katherine Casey of Competency Works put it bluntly: “The result of the traditional system is educational inequity…Traditional systems determine their work ‘complete’ when students meet the number of credits required for high school graduation despite the persistent inability to adequately prepare so many students for success in college, career and life. Time-based credits have allowed districts to graduate students from high school with only middle school skills or worse.” Even those students who do well in these traditional educational environments may not leave truly prepared when the limited skills reinforced in their classrooms pale in comparison to the deeper skills of critical thinking, communication, collaboration, and creativity required to flourish in the twenty-first century.

The Need for Mastery-Based Learning

When we come to understand the historical reasons behind the design of the American school system—and see how that design hinders educators’ abilities to truly prepare students for college and careers—we can appreciate the insufficiencies of giving a student a grade like “73.”

Mastery-based learning aims to upend the 73. A mastery-based learning system (also frequently referred to as “competency-based” or “outcomes-based” learning) is designed to recalibrate what happens in a classroom to focus on helping students progress in their development of skills, and to help them be metacognitively aware of that progression. Although research has shown that the implementation of mastery-based systems across classrooms has been varied and can take numerous forms, the core components remain the same (Haynes, et al., 2016). And while not every class or school will be able to shift in the same way, there are small shifts in classroom practices and school structures that can move you and your students toward a system that informs their progress, gives them active tools to help them address weaknesses, and transforms them from recipients of grades to participants in their education.

At Eskolta we have identified **four key research-backed components** of such a mastery-based system that can help teachers put these ideas into action:

1. **Learning Goals Are Meaningful and Empowering.**What was the goal in Ali's class? From the way his teacher reviewed his grade, it appears that attendance was important to her, as were some aspects of writing. While this was evident in her thought process, all we see in the grade itself is that his learning goal was to hit some target number on his tests and quizzes (65? 75? 85?). Research suggests that when learning goals are written to describe specific, measurable takeaways, they can improve student learning (Richmond, et al., 2016). Further, when those specific takeaways are about the skills and strategies that help students master academics, then students build their own self-awareness and, again, are able to improve learning (Conley, 2013). For this reason, learning goals explicitly name the skills and knowledge students should be able to demonstrate in order to move to the next level. A mastery-based grade in the skill of “using evidence to support a claim” tells the student whether they have demonstrated their capacity to do this skill. A 73 gives us no such information.
2. **Align assessments and instruction to the learning goals.** In a mastery-based system, students can see the connection between what they are learning, what they are being assessed on, and ultimately why they received the grade they did because each element of a classroom—instruction, assessment, and grading—are aligned. When we think back to Ali, we might wonder how much he saw the connection between concepts taught in class and the assessment itself? How aware was he that the focus of the assessment was on the scientific method? How much did his teacher align lessons to allow Ali time to practice the scientific method and get feedback on it before the assessment? When teachers backward plan their instruction and assessment based on learning goals, that alignment helps students understand where they are and where they are going (Wiggins and McTighe, 2005). Furthermore, when assessments focus on providing a formative glimpse into student’s progress, rather than a verification of what they’ve learned, they can be a powerful tool *for* learning (Stiggins, 2006).
3. **Give grades that help students know where they are and where they are going in relation to mastery*.*** Ultimately earning a 73 can feel static. Ali passed the class, but what exactly does he still need to learn or be able to do to be successful in his next class? Although his learning process has not ended, the 73 does not give him much of an indication of where he goes from here. Does he need to improve in any analytical skills? Are his writing skills good enough? Does he just need to show up to class more often? When students are given grades in a mastery-based learning system, those grades are grounded in high-quality learning goals. When effective, these goals are sequenced such that as students are learning, they are moving toward mastery of skills and knowledge. The effect is that grades become more dynamic, effective, and equitable. They are dynamic when the learning goal allows the student to be aware of what they are learning to do, so that they can learn to do it better. They are an effective lever toward achievement when grades are about specific, essential habits and skills (O’Connor, 1995). And they are more equitable when they make classroom practices and structure more transparent (Sturgis, 2018).
4. **Provide students with individualized feedback and targeted support.** As Ali’s teacher graded his final exam, it was clear that she had developed a sense of the concepts or skills he would need to work on. Although a “73” might not be able to convey those areas of growth, a more specific grade report setting out descriptions of Ali’s progress in each skill coupled with opportunities to discuss strengths and weaknesses could go a long way in supporting Ali’s learning. Indeed, in his meta-analysis of studies on effective practices in schools, John Hattie has repeatedly identified feedback as one of the most influential for improving student learning (Hattie, 2009). With small shifts in practices to allow for more specific feedback on his progress toward learning goals, Ali would know where he was in the path toward mastery and where he needed to go next (even if that meant taking extra time to learn a skill or moving on more quickly on some skills than his peers).

When these components are in place, grading becomes a more accurate reflection of student learning, grading structures are more transparent and therefore more equitable, and classroom instruction is structured to meet students where they are. For a student like Ali, who received a final grade of 73, imagine what it would mean to know exactly what is behind that grade. Imagine a grade report that tells him which higher-order skills he has mastered, which he is still developing, and which he will need to practice again and how. With such a report in hand, Ali could be certain that it is based on what he has learned, not just how much time he has spent on tasks. He would know where he is progressing and what he needs to work on next. Equipped with such information, Ali would have a better chance of ensuring that he has developed the kinds of necessary to be successful in a 21st-century world.

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