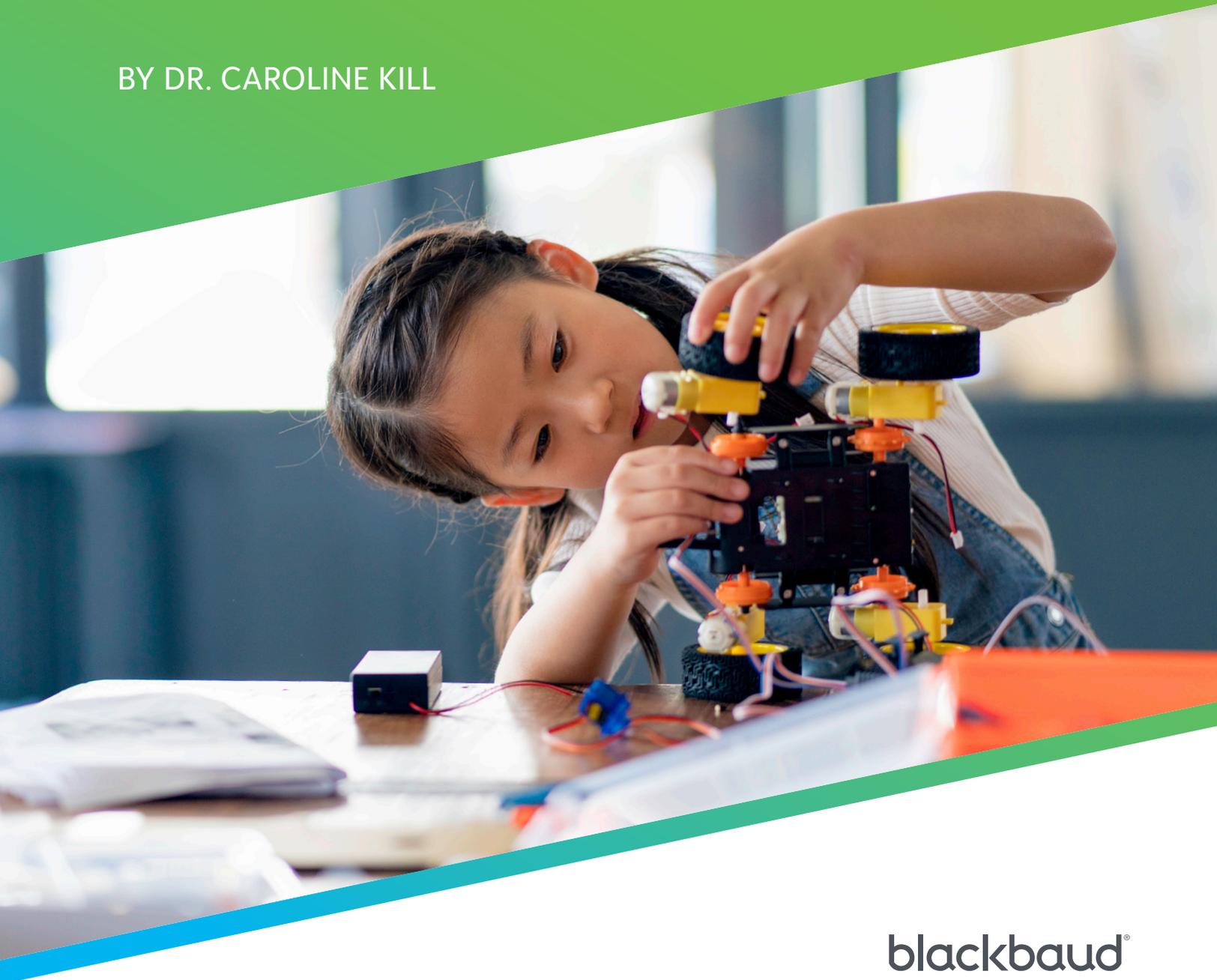


# Individualizing Student Learning with Competency-Based Education

BY DR. CAROLINE KILL



blackbaud®



Competency-based education brings a meaningful, inquiry-based, and growth-minded approach to education that promotes problem-solving skills and abilities in an individualized, differentiated, and connected way.

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# INTRODUCTION: WHY COMPETENCY-BASED EDUCATION?

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Today’s ever-changing world—with newly emerging technologies, innovative economies, and evolving skill sets needed in every industry—requires teaching approaches that will effectively equip students with the skills they need to succeed. It is no longer enough to recite specific facts and figures.

Employers need employees who can problem-solve, analyze, effectively communicate, and demonstrate technological literacy. It is not sufficient to be able to simply learn information or to equate time spent in class with educational achievement. Instead, schools must consider the skill sets students need to navigate the future. Traditional systems of education that focus on graduation credits earned rather than mastery of skills are no longer adequate. In this dynamic environment, students must be provided with opportunities to develop needed proficiencies and competencies. Competency-based education (CBE) offers students the opportunity to cultivate these skills.

CBE brings a meaningful, inquiry-based, and growth-minded approach to education that promotes problem-solving skills and abilities in an individualized, differentiated, and connected way. It enables educators to collaborate to provide students with meaningful learning experiences that will prepare them for the future.

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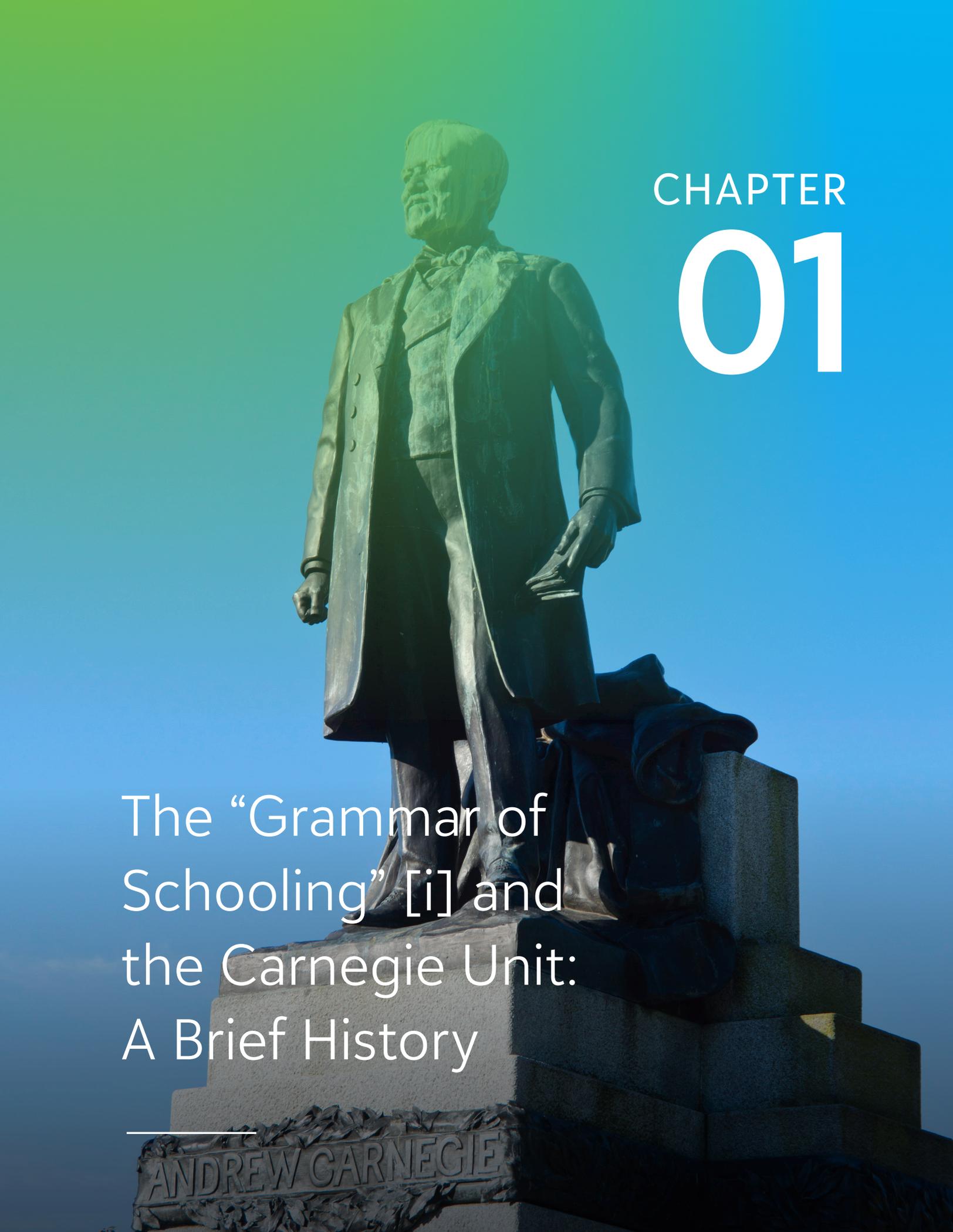
Traditional systems of education that focus on graduation credits earned rather than mastery of skills are no longer adequate.

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This eBook provides a concise overview of CBE: What is it? What historical events contributed to the traditional system of education, and why is there now a need to update this approach? Why is CBE a more appropriate instructional and curricular strategy for the future than the traditional time-based approach? Finally, how can CBE be successfully integrated into our schools today?

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Much like how the manufacturing of goods in the United States became efficient and large-scale with the advent of the Industrial Revolution, the education of children followed a similar pattern.



CHAPTER

# 01

The “Grammar of  
Schooling” [i] and  
the Carnegie Unit:  
A Brief History

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ANDREW CARNEGIE

Why are most schools currently organized the way they are? In order to truly consider how to best implement meaningful reform in the American educational system that will benefit both teaching and learning, it is necessary to understand the history behind modern school organization and why these structures have remained consistent for many years. To develop a successful vision for the future, history must be understood.

Prior to the existence of grade levels within schools, regimented instructional schedules, subject-specific study, and graduation credits, the one-room schoolhouse provided the backdrop for education for American children. These schools were not subdivided into grade levels, age-specific groups, or academic departments. Rather, the one-room schoolhouse provided the opportunity for peer-to-peer tutoring and multi-age interactions during the learning process. However, after the Industrial Revolution in America, such schools became regarded as “...inefficient, unprofessional, meager in curriculum.” [ii] The drive toward industrialization encouraged efficiency, mass production, and equality of output. In many ways, the American educational system also evolved to reflect these new values.

As a result, one-room schoolhouses were eventually phased out of the American educational system in favor of larger, graded schools. Schools became larger to accommodate more students at a time. This led to the student bodies of these new, larger schools being subdivided into age-specific grades that employed subject-specific instructors, offering what appeared to be the advantages of efficiency, hierarchical organization, and uniformity—qualities that were perceived to be a modern improvement over the one-room schoolhouse. This new organizational structure provided a more stratified and ubiquitous approach to educating youth: one where all students would experience the same educational environment, a prescribed curriculum, a similar path through grade levels and courses, and a seemingly uniform educational experience. Much like how the manufacturing of goods in the United States became efficient and large-scale with the advent of the Industrial Revolution, the education of children followed a similar pattern.



In this new educational system, teachers could teach all of their students the same curriculum, at the same pace, using the same methods. The role of the teacher changed from facilitator of learning for students of all ages in all subjects to the instructional leader in a specific subject, creating subject-area specialists. Instead of individualizing instruction based on the mixed-age group within the schoolhouse, as had been done in years past, teachers were now encouraged to approach their craft with uniformity, providing all students with as close to the same educational experience as possible.

This type of school organization was appealing to administrators and school boards alike. It was believed that the new, larger graded school offered efficiency, equality, and the ability to educate mass numbers of students of all ages simultaneously. Like the factories that dominated the American socioeconomic landscape at the time, it was believed that large schools divided into grade levels and subject-specific departments could educate children in an efficient, hierarchical, high-volume, and equitable manner.

By 1860, schools organized into grade levels dominated major cities in the United States, and by 1870, this school structure had spread even further to include suburban and many rural areas. As these new schools spread, both critics and supporters emerged. Those who were not in support of larger, grade-level-specific schools noted that the structure seemed to satisfy the needs of the mainstream, whereas students who did not fit this mold were not accommodated. [iii] These critics tended to be more in favor of the one-room schoolhouse, as they felt that students with specific needs could be better supported by their peers and teachers in this smaller type of environment. Additionally, these critics claimed that a one-room schoolhouse was, by nature, inclusive of all students. The progressives maintained that even though schools organized into specific grade levels offered greater efficiency, students whose educational needs lay outside this norm were often left out. Despite this opposition, the structure of the grade-level school endured, as it seemed to provide a level of organization and continuity that most educators and the general public supported.

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The drive toward industrialization encouraged efficiency, mass production, and equality of output. In many ways, the American educational system also evolved to reflect these new values.

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In 1905, following the growth of the graded school across America, Andrew Carnegie, the philanthropist and industrialist, donated 10 million dollars to benefit American education. Originally, his grant was intended to provide a pension to retired college professors. However, the recipient of this grant, the Carnegie Foundation for the Advancement of Teaching led by Henry S. Pritchett, had a more enduring vision. On November 15, 1905, Pritchett met with several esteemed educational leaders at the mansion of Andrew Carnegie to discuss a meaningful use for the donation with the intent of benefitting the American educational system. Attendees of this meeting included the presidents of several respected universities: Charles William Eliot of Harvard; Woodrow Wilson of Princeton; Arthur Hadley of Yale; and David Starr Jordan of Stanford, to name a few. At this time,



although only a small percentage of American high school graduates obtained a post-secondary education, the university leaders saw the grant as a way to standardize and improve secondary education to ensure that a main objective was to prepare all students for college. Doing so, they believed, would benefit colleges and universities in America and, therefore, the country as a whole. [iv]

One of the key outcomes of this meeting was the establishment of the Carnegie Unit—a measure of time and credit for each high school course. A certain number of Carnegie Units in various subject areas were deemed to be the minimum requirement to graduate from high school and enter college. By inventing the Carnegie Unit, the group established an accounting method to quantify one’s high school experience that equated graduation credits with time spent in class and the earning of an academic grade in the course. Later, critics of the Carnegie Unit argued that it put value on time spent in class rather than on skills and concepts learned. Nonetheless, the Carnegie Unit became widely adopted in the American educational system, and it remains a key feature of it to this day.

Although the grade-level system and the Carnegie Unit became widespread in the American educational system, the progressive viewpoint endured that these newer, turn-of-the-century features of American schools were not serving the needs of all students. Stemming from the belief that these new school structures and the Carnegie Unit were excluding some students from the educational process, two widely divergent alternatives were tested in the field by progressive educators in the first half of the 20th century: the Dalton Plan and the Eight-Year Study. Both educational experiments challenged the dependence on grade-specific schools and the Carnegie Unit, and both demonstrated the tenacity with which these two 19th-century educational innovations would continue to leave a legacy on the American educational system, despite the advent of viable, student-centered alternatives.

The Dalton Plan, the first of the two experimental approaches, was designed by progressive educator Helen Parkhurst in the early 1920s. A follower of Maria Montessori, Parkhurst sought to establish a system more reminiscent of the one-room schoolhouse, where a prescribed curriculum and the Carnegie Unit were abandoned in favor of student-led learning. The plan was named after the town in Massachusetts where it was first implemented. A key component of the Dalton Plan was that students were given a set of tasks from which to choose their learning path, as opposed to being passive participants in a direct instruction environment. Additionally, students could work at an individual pace, following objectives in an individualized manner. There was no set schedule. Instead, students worked in small groups to complete the tasks at hand, which were agreed upon beforehand through teacher-student contracts. Teachers acted as facilitators to guide and encourage individual progress.

As schools learned about the Dalton Plan, many of them adopted components of the plan that they perceived added value to the educational process. Few schools adopted all components of the Dalton Plan. Reasons that schools and school communities failed to wholeheartedly adopt the plan included resistance to change, the belief that the plan would require increased preparation on the part of the teacher, and the perception of decreased student discipline that accompanied greater student choice in the educational process. [v] Although the Dalton Plan did not endure as a complete reform package, components of the Dalton Plan can still be seen today, including in CBE, which includes student choice and project development throughout the educational process.

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Perhaps the lesson to be learned from these two experiments is that rather than organizing a complete overhaul of the American educational system, it is likely that a more prudent approach to enduring educational reform is best implemented on a smaller scale—within the individual classroom, by trained educational professionals—rather than via top-down, administrative initiatives.

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Another progressive initiative to challenge the grade-level system of organization and the Carnegie Unit was the Eight-Year Study (1933–1941), sponsored by the Progressive Education Association (PEA). In this study, 200 universities agreed to base admissions decisions solely on the recommendations of principals and teachers rather than on student completion of Carnegie-Unit-based credits, specific grade levels, and the attainment of letter grades in the courses they took. Universities agreed to participate, as many post-secondary institutions were struggling financially as a result of the Depression. Secondary schools that took part in the Eight-Year Study were provided with curricular guidance and professional development. These schools were permitted to design a school setting that they believed would best fulfill the needs of students.

As a result, these schools organized more student-centered learning activities and courses of study. Students appeared to heartily benefit from the new approach. Their participation in community

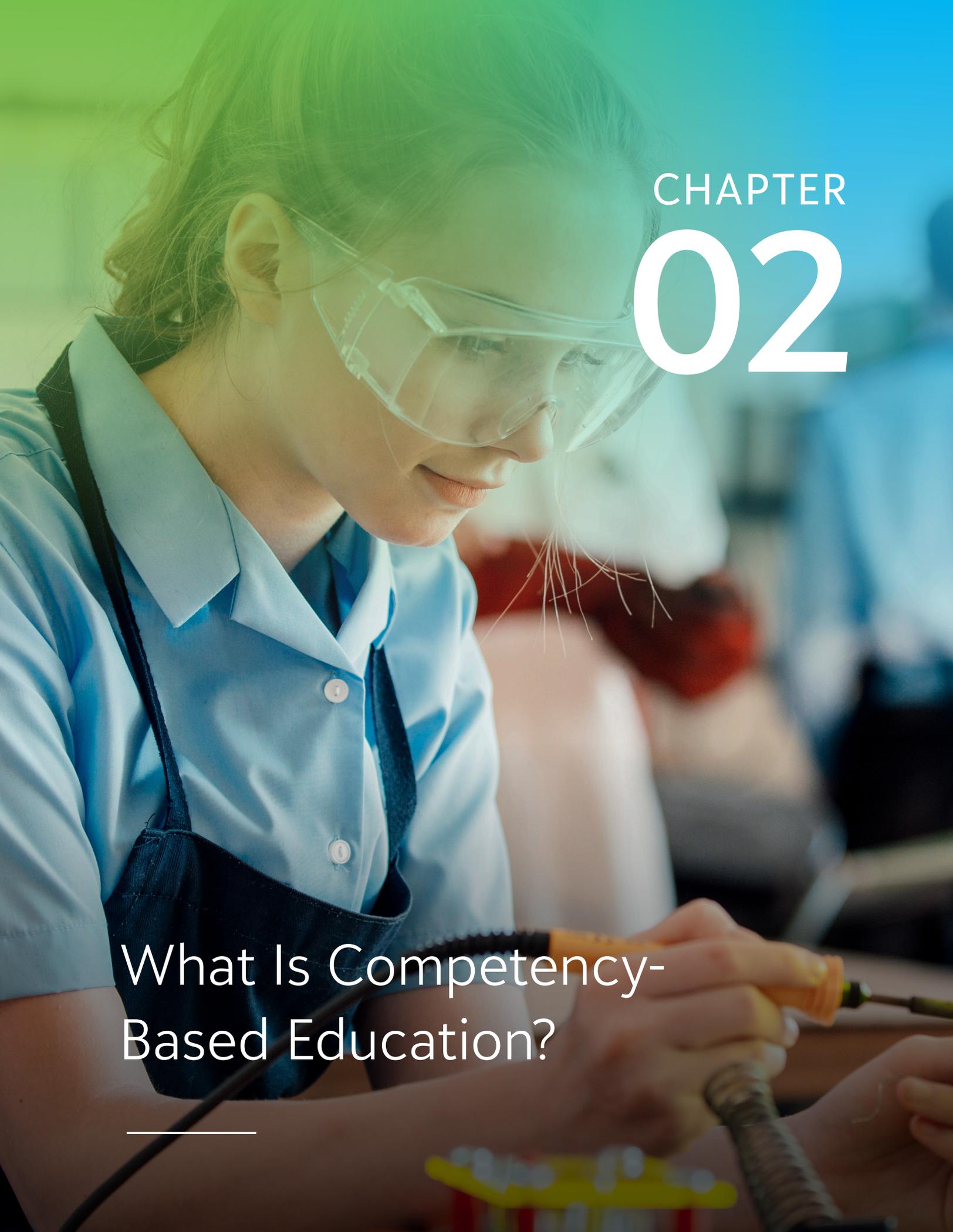
service, the arts, and extracurricular activities increased in participating schools. Additionally, students of the Eight-Year Study demonstrated increased success later in college, as they were more involved in campus life than their peers who did not participate in the study. Nonetheless, after the study concluded and the financial support for the reforms ended, the changes inspired by the Eight-Year Study did not endure among the participating schools. Reasons for this were numerous: Teachers felt that the demands of such a system were overly taxing; teacher turnover made continuity more challenging; the school community questioned the legitimacy of a more unstructured format; and in general, there was greater perceived buy-in from the community for a more traditional, grade-level-specific, Carnegie-Unit-based system. [vi]

Were the Dalton Plan and the Eight-Year Study a waste of time and resources? Overwhelmingly, the evidence suggests that they were not. Participants in both experiences reported a variety of benefits to student learning. However, the established and perceived legitimacy of grade-level-specific curriculums, time structures, and subject-specific Carnegie Units had greater organizational appeal. Perhaps the lesson to be learned from these two experiments is that rather than organizing a complete overhaul of the American educational system, it is likely that a more prudent approach to enduring educational reform is best implemented on a smaller scale—within the individual classroom, by trained educational professionals—rather than via top-down, administrative initiatives. Teachers and students have the power to integrate beneficial teaching and learning approaches at the classroom level that effectively facilitate student learning. Following this historical precedent, if teachers and students are empowered to implement skills-based learning objectives in the classroom, like those promoted by CBE, teachers and students have the potential to enrich, maximize, and individualize student learning while better preparing students and giving them the skills they need to succeed in the future.



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CBE provides a vehicle to improve and individualize student learning by offering students a unique and meaningful educational experience that better prepares them for what lies ahead.

A young woman with blonde hair tied back, wearing clear safety goggles and a dark blue apron over a light blue button-down shirt. She is focused on her work, using a power tool with a yellow handle. The background is a blurred workshop or classroom setting with other people. The image has a green-to-blue gradient overlay.

CHAPTER  
02

What Is Competency-  
Based Education?

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CBE transitions the emphasis of instruction away from simply measuring the time spent in class—and granting credits based on this time—toward focusing on the skills and proficiencies needed to succeed later in life. Since the establishment of grade levels, subject-specific classes, and the Carnegie Unit in the American educational system, in order for a student to graduate from high school, he or she must progress sequentially from kindergarten through twelfth grade.

Additionally, he or she must complete a certain number of required credits (Carnegie Units) in various subject areas as a requirement for graduation from high school. As a basis of feedback on one's progress in these courses, in most schools, students are awarded a grade of A, B, C, D, or F. Ultimately, a student's transcript, which contains both the grades and the credits earned, is forwarded to his or her future college or university. In other words, specific skills and knowledge are not cited on a student's transcript. Rather, the number of Carnegie Units earned in each subject area is shared with the student's post-secondary institution of choice. Is this the best way to individualize learning for students and to truly gauge whether or not a student has gained the skills and competencies necessary to succeed later in life? Furthermore, does this system ensure that the needs of all types of learners are met?

In many ways, these questions sound similar to those posed by the educational progressives from the late nineteenth and early twentieth centuries. Today, concerns persist as to whether individual student needs are being met by the current system or if educators ever truly know whether or not a student



leaves the classroom with the skills and competencies needed to succeed after graduation. It is for these reasons that it is imperative to consider whether or not students have mastered the skills and abilities needed later in life and to provide them with opportunities to develop these competencies. A skills-based approach in the classroom, rather than a singular focus on time, empowers students and teachers to create a learning experience that increases student choice and leadership in the learning process. By providing such opportunities to students, teachers can facilitate their development as learners, future citizens, and members of our society. In this way, CBE provides a vehicle to improve and individualize student learning by offering students a unique and meaningful educational experience that better prepares them for what lies ahead.

What is CBE? According to Competency Works, CBE focuses on student mastery of measurable learning topics. Competency Works notes that there are five components to CBE:

1. Students may progress once they have demonstrated proficiency in predetermined skills and objectives.
2. The competencies include clear, quantifiable objectives that enable students to take charge of their learning.
3. Assessment is a purposeful, favorable experience for students.
4. Students receive routine feedback and support that is customized to their learning needs throughout the process.
5. Competencies promote the ability of students to develop knowledge in addition to building thinking, learning, and problem-solving skills. [vii]

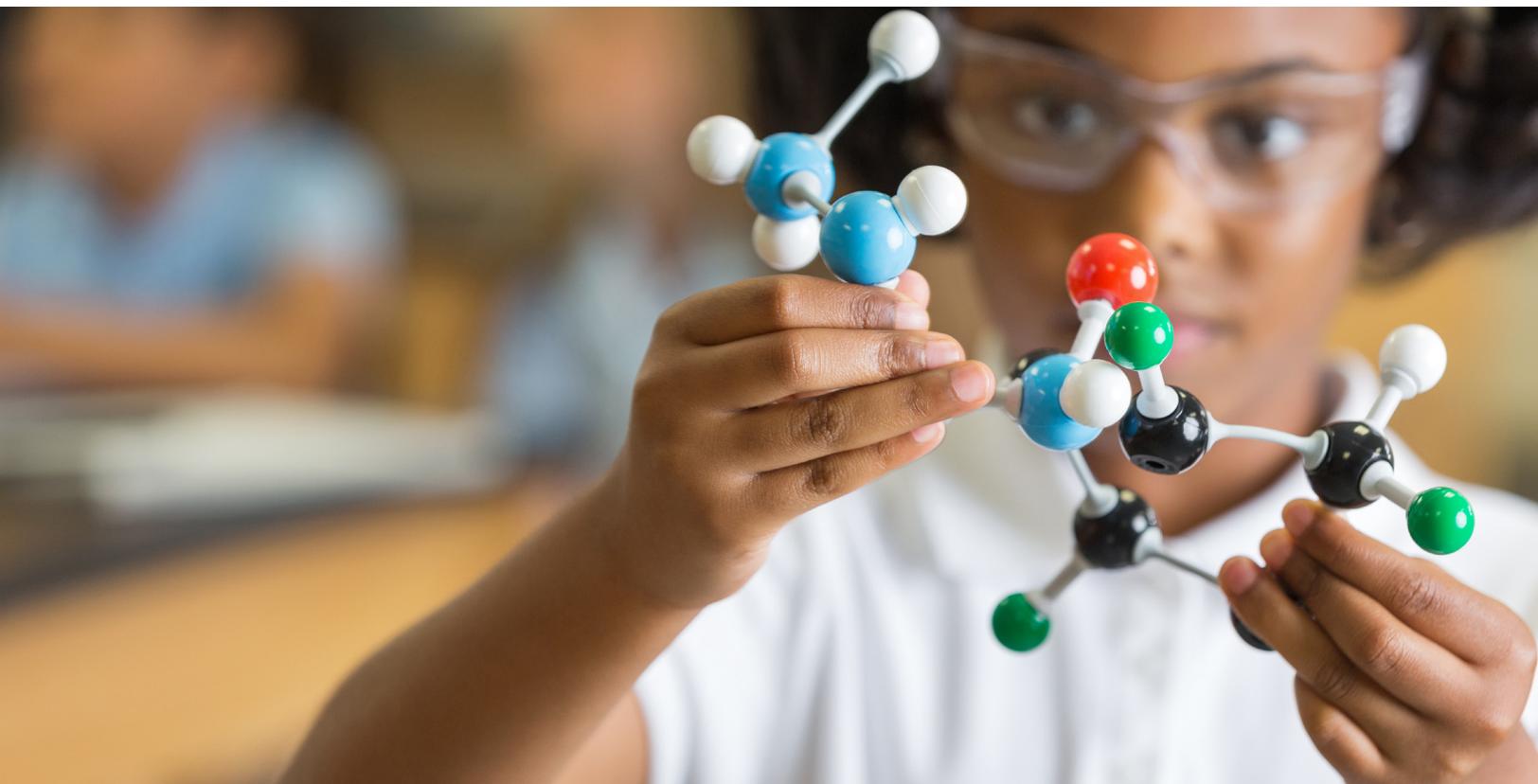
Educause notes that this approach to education, rather than emphasizing the time spent in class, enables students to progress based on their demonstrable abilities and learned skills. [viii] The Competency-Based Education Network echoes this idea, noting that students must satisfy predetermined expectations, but CBE enables them to do so at an individualized pace and with the guidance of the teacher. Therefore, throughout the process, CBE ensures that students will receive the facilitation and guidance they need to succeed. By taking part in various activities that are aligned with the goals, objectives, and skills to be learned in the course, students achieve predetermined outcomes. [ix]

In an op-ed piece in *The Huffington Post*, Dr. Robert Mendenhall notes that CBE measures learning, not time. However, most courses are organized into units of time. Therefore, although CBE at its core enables students to learn skills, objectives, and competencies at their own pace, measures must be taken to

successfully integrate CBE. First, it is imperative that assessment tools emphasize learning over time. Second, technology is a useful tool that can enrich teaching and learning. Third, the faculty role must evolve from a predominantly group-focused instructional leader to one that better supports individual instruction and enrichment. Fourth, the competencies on which a course is based must be clearly defined, and valid assessments must be designed to support these objectives. [x]

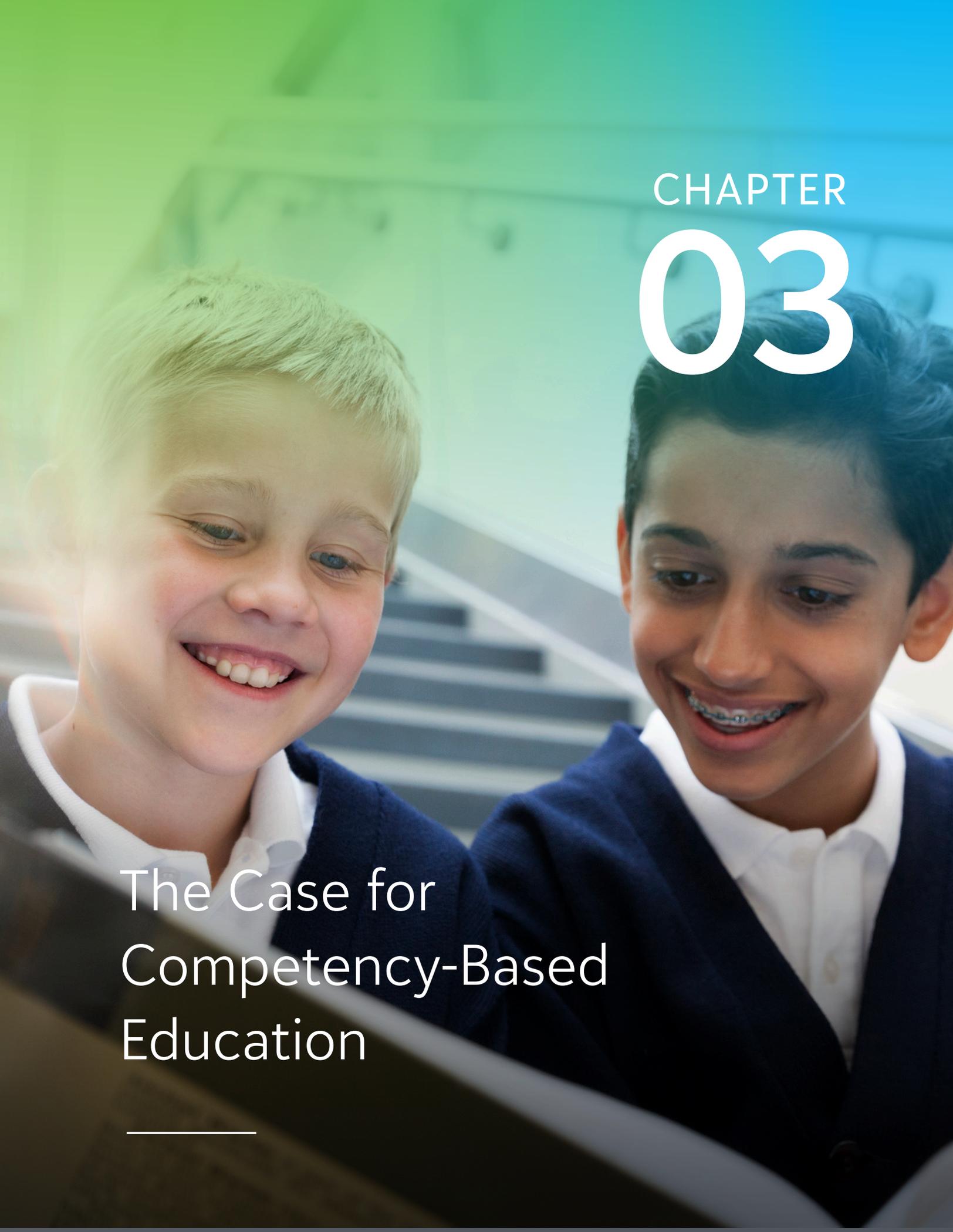
The International Association for K-12 Online Learning (iNACOL) describes CBE as an alternative to traditional education, where rather than basing student advancement on time spent in class, students must exhibit a mastery of the content. Courses organized in this way clearly outline learning objectives that are transparent, measurable, and applicable to students in a way that promotes their ownership in the learning process. Also, in order to be successful, CBE depends on routine and timely feedback from the teacher to the student, which enables instruction to be differentiated and meaningful. Important skills and dispositions are emphasized as students apply and create knowledge during the learning process. This promotes a more profound, individualized, and impactful educational experience for students than traditional instruction. [xi]

In sum, CBE empowers students to engage in their learning in a way that develops key skills and competencies over time. Additionally, CBE places emphasis on whether or not students acquire these skills and abilities instead of merely the time spent in class. By including students as active owners of their learning, CBE provides an educational experience where students develop key abilities over time and are assessed based on their demonstrable mastery of these skills.



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CBE ensures that the learning process will satisfy individual student learning needs by de-emphasizing whole-group instruction in favor of small-group, peer-to-peer instruction.

A photograph of two young boys in school uniforms. The boy on the left has light hair and is smiling broadly. The boy on the right has dark hair and is wearing braces, also smiling. They are both looking down at a book they are holding together. The background is a blurred school hallway with stairs. The image has a green-to-blue gradient overlay.

CHAPTER  
03

The Case for  
Competency-Based  
Education

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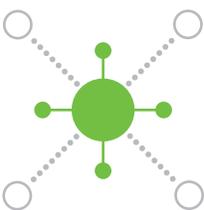
The benefits of competency-based education are numerous. To start, CBE individualizes instruction. Because a more student-led format enables students to go deeper into the curriculum at their own pace, students develop the skills necessary to engage in the learning process and to become active learners rather than passive participants in their learning.



Robert J. Marzano, author of *The New Art and Science of Teaching*, recommends that schools should move gradually toward a competency-based system. This is because in a traditional system, whole-group instruction is the norm, so the entire group shifts from topic to topic, without regard as to whether or not an individual student has fully mastered a certain objective. Conversely, in CBE, Marzano notes that learning tends to be more personalized because individual students are not permitted to progress to the next unit, topic, or level until they have demonstrated mastery of the previous competency. This enables students to progress rapidly or slowly through the objectives depending on their individual learning needs. [xii] Either way, however, CBE ensures that the learning process will satisfy individual student learning needs by de-emphasizing whole-group instruction in favor of small-group, peer-to-peer instruction. [xiii]



According to the United States Department of Education, “Competency-based strategies provide flexibility in the way that credit can be earned or awarded and provide students with personalized learning opportunities.” [xiv] In other words, CBE may provide students with multiple pathways to earn credits that are less dependent on time spent in class and more flexible in nature. Examples include online and blended learning; dual enrollment, where students are provided with the opportunity to earn college credit while still in high school; project-based and community-based learning; and credit recovery programs. CBE provides students the opportunity to develop the skills outlined in the curriculum of the course at their own pace in a flexible format. [xv]



Other advantages of CBE include the ability to take advantage of educational opportunities outside of the classroom and the traditional school day; the use of technology in novel ways to support learning; the updating of staffing patterns to better support individual and small-group learning; the use of new opportunities and interventions to better support student learning; the expansion of student pathways to graduation through alternative, enriched opportunities to earn graduation credits; and potentially, the saving of both



time and money. Ironically, the grammar of schooling and the Carnegie Unit were originally designed to increase efficiency in schools. However, The U.S. Department of Education points out that some of the positive outcomes of CBE—including utilizing tools that increase use of technology and expanding the possible pathways to graduation—*increase the efficiency and productivity of education.* [xvi]

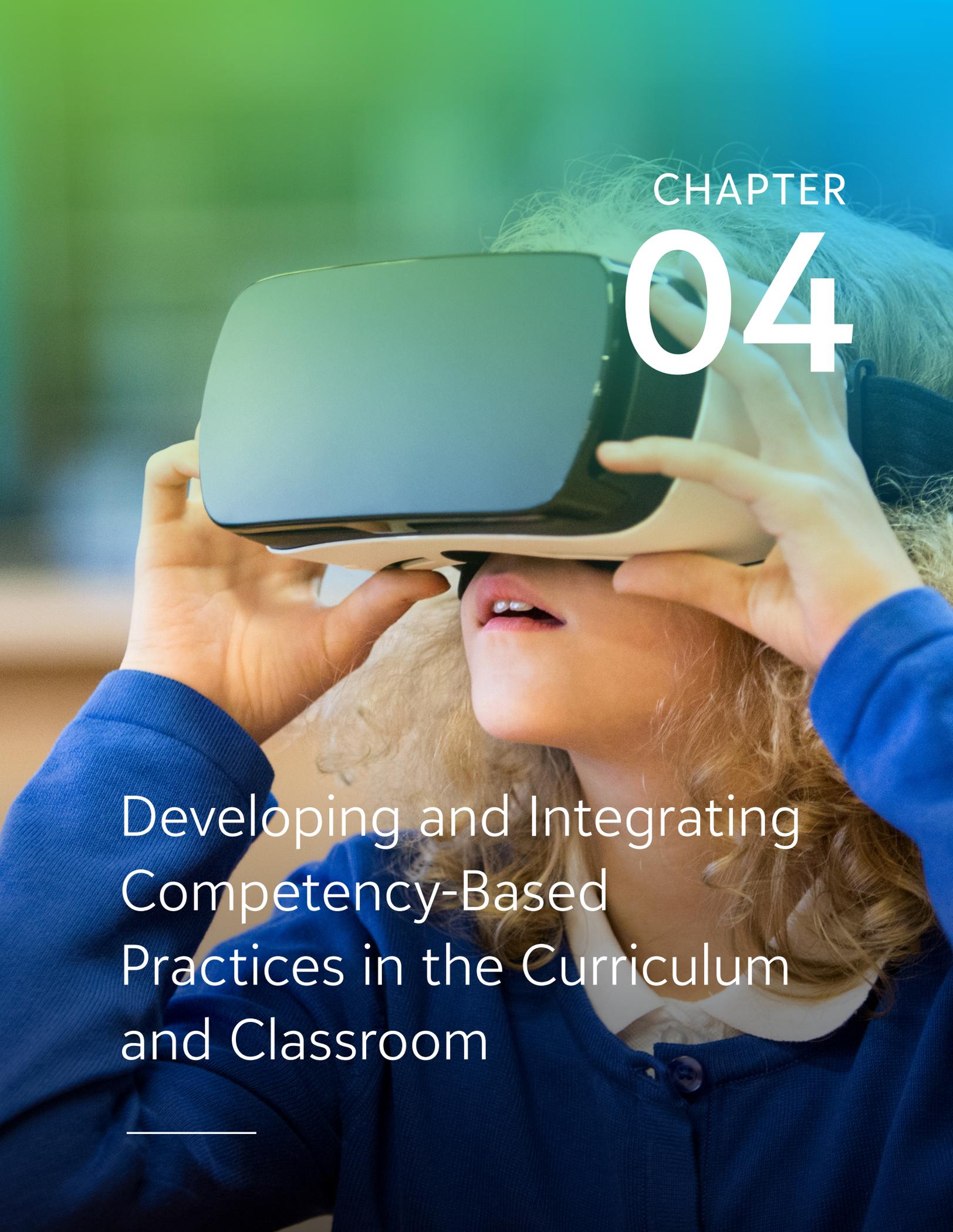


CBE offers many other benefits as well. The Glossary of Educational Reform notes that in CBE learning environments, students and parents are provided with more detailed feedback on student progress. Families learn about the specific strengths and weaknesses of their student, as well as the objectives that students have mastered and those that they have not. In this way, rather than simply receiving a letter grade to indicate progress, families develop a richer understanding of their students' areas of strength and those needing improvement. [xvii]

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The student represents the heart of successful teaching based on competencies, not the attainment of credits.

The focus by the teacher on the different learning needs within the classroom ultimately supports every student in his or her educational journey.



CHAPTER

# 04

Developing and Integrating  
Competency-Based  
Practices in the Curriculum  
and Classroom

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In his book *The New Art and Science of Teaching*, Robert Marzano notes that there are three core components of a successful learning experience:

1. Students must receive feedback.
2. Students need to experience instruction that inspires advanced thinking and reasoning.
3. Students' basic psychological needs must be met throughout the learning process. [xviii]

CBE offers educators the vehicle to satisfy these learning needs and to develop the intellectual growth of their students. Therefore, Marzano recommends that schools progress toward a competency-based model. This is a novel recommendation by Dr. Marzano, as it shifts the focus from teacher actions and philosophies toward the learning needs of the student, which was the focus of his past work. Reasons for this about-face are based on the pedagogical philosophy that students should not progress to the next topic or level until they have demonstrated a mastery of material at the previous levels. Additionally, students should be permitted to move through the levels at their own pace in order to accommodate their individual learning styles and needs. Marzano's change in focus

from teacher actions to student learning needs requires an evolution from the traditional classroom format to a more competency-based one. [xix]

Adopting CBE typically involves modification in four areas of teaching: whole-class instruction, small-group instruction, individual instruction, and peer-to-peer instruction. In a conventional classroom, direct instruction is the dominant form of teaching. Topics are presented to the entire class simultaneously. However, in a competency-based classroom, instruction in smaller groups is a more common teaching practice, which better accommodates the different learning styles and needs of students. Also, in a competency-based environment, individual and peer-to-peer instruction—which better support individualized student learning—take place more frequently. [xx]

How can schools begin the process of transitioning from a traditional instructional model to a more competency-based one? Dr. Robert Mendenhall notes that, ideally, CBE measures learning, not the time spent in class (the measurement of Carnegie-Unit-based courses). Therefore, he suggests four actions that can be taken by schools to initiate this transition:



1. Individual student learning and skill development should be assessed—not simply judged on whether the student spent the appropriate amount of time in class completing the work.



2. The use of technology should be maximized in a way that fully optimizes teaching and learning, thus enriching the learning process.



3. The role of faculty should be reexamined to better facilitate CBE and the support of individualized student learning.



4. Competencies must be identified and coupled with effective, reliable assessments that accurately measure these competencies. [xxi]

According to Stack and Vander Els (2018), implementing CBE can be successfully supported through the use of professional learning communities (PLCs). [xxii] Richard DuFour (2004) describes a PLC as any of the following: a specific team of teachers in a grade level or department; a committee associated with a school; a school district; a professional group; or any other group of individuals with an interest in education. [xxiii] There is no minimum or maximum size for a PLC. However, in order for the PLC to achieve its goals, it must strive to guarantee that all students will learn to collaborate and be results driven. [xxiv] The student represents the heart of successful teaching based on competencies, not the attainment of credits. The focus by the teacher on the different learning needs within the classroom ultimately supports every student in his or her educational journey. However, teachers must be empowered and supported through collaboration, professional networking, and communication—all qualities that a professional community, large or small, can provide.

DuFour (2015) suggests that in order for students to be ready for the future, they must be able to learn and demonstrate skills in the following areas:

- Critical-thinking and problem-solving skills
- Creativity and innovation
- Effective communication through clear and convincing written and oral expression
- Collaboration skills
- Inferential reasoning
- Analytical-thinking skills
- Self-directed learning (in other words, having learned how to learn)
- Transference of learning to new situations
- Evaluation of sources for importance and credibility
- Openness to—and utilization of—critical feedback [xxv]

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Because many state and national standards are written at a competency-based level, there may not be a big difference between a competency and a standard in many schools. This can be helpful because as teachers and administrators collaborate to design appropriate competencies for their specific situations, they do not necessarily need to reinvent the wheel.

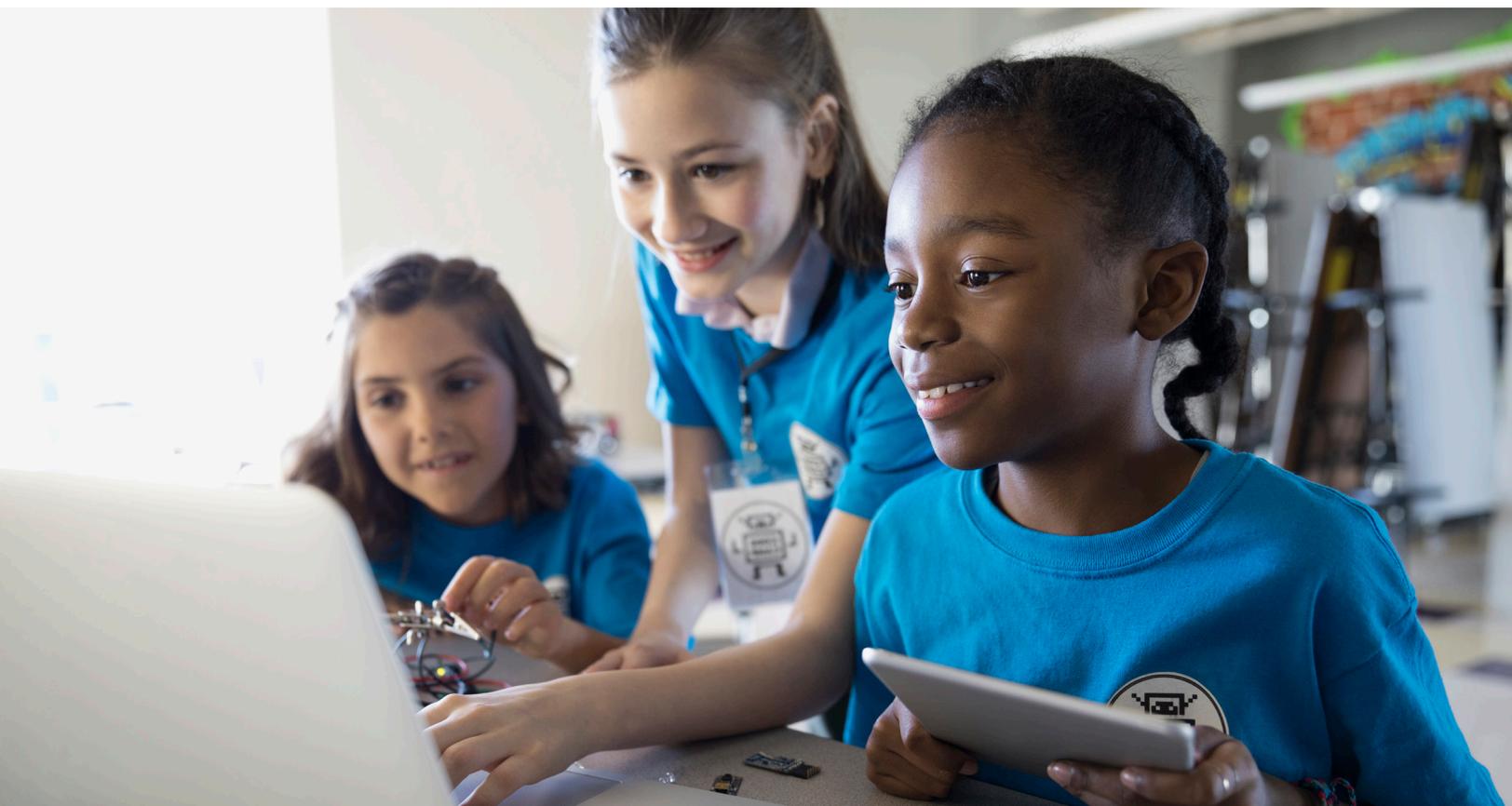
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Stack and Vander Els (2018) state, “In a competency-based learning model, *learning* means transferring knowledge repeatedly and to different tasks, truly reflecting a deeper level of understanding.” [xxvi] Assessing students in ways that give them the opportunity to demonstrate their ability to apply their knowledge to different situations and problems is a measure of their mastery of a competency and the skills associated with it.

What is a competency, and how does a competency differ from a learning progression? A competency is a broad idea in which a student must be proficient upon completing a course. A student’s progress toward achieving a competency may be measured through their mastery of various learning progressions that lead to the achievement of a given competency. [xxvii] Learning progressions, therefore, represent the steps toward mastering a competency.

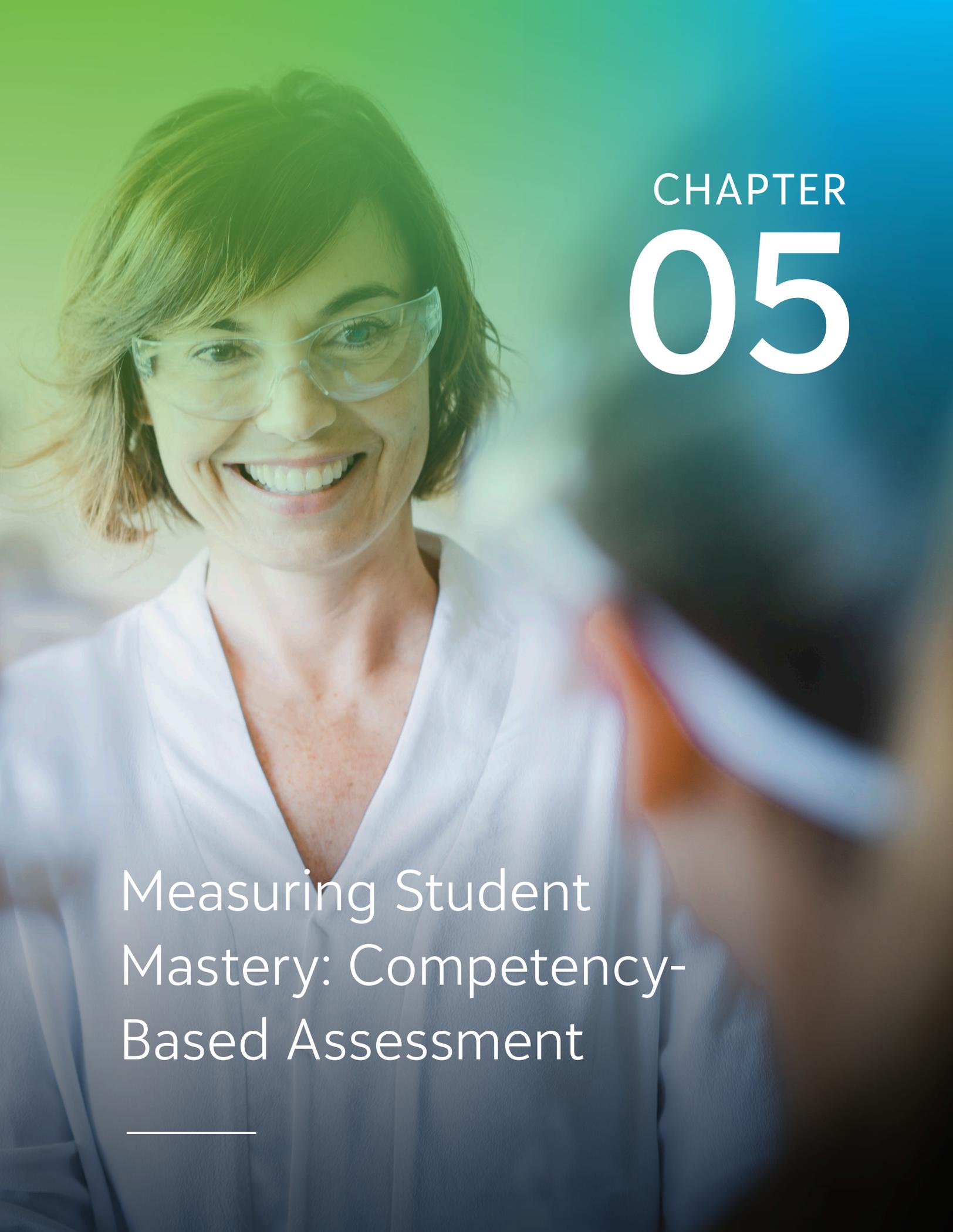
In order to develop appropriate competencies for a course, it is helpful to work collaboratively with professional groups like PLCs to develop and agree upon the competencies. This ensures that there is a shared understanding of the competencies and learning progressions among all educators. Stack and Vander Els (2018) suggest that a bottom-up approach, where teachers work together to create appropriate competencies for their grade levels or subject areas with support from upper administration, results in the greatest success in identifying the ideal competencies for a course and/or grade level. Such an approach “...is the most conducive to developing rigorous, developmentally appropriate competencies and learning progressions that teachers base on other teachers’ and their own input and recognized expertise,” according to Stack and Vander Els. [xxviii]

The key to competency development is to emphasize key skills and attributes needed by students at the conclusion of the course. Because many state and national standards are written at a competency-based level, there may not be a big difference between a competency and a standard in many schools. This can be helpful because, as teachers and administrators collaborate to design appropriate competencies for their specific situations, they do not necessarily need to reinvent the wheel. It is entirely appropriate to use national and/or state standards as a guide when working together to develop competencies that are appropriate for a specific educational setting. [xxix]



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Because the process of changing from a traditional curriculum to a competency-based one is a continuous process, providing students and teachers with the support they need is vital.

A woman with short brown hair, wearing clear safety glasses and a white lab coat, is smiling warmly at the camera. She is pointing her right index finger towards the viewer. The background is a blurred laboratory setting with a green-to-blue gradient overlay.

CHAPTER  
05

Measuring Student  
Mastery: Competency-  
Based Assessment

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Assessment in CBE should include meaningful, real-world tasks that are deeply reflective of the competencies associated with a course. This can be a challenge to implement initially, because it requires a shift in focus from whole-group completion of objectives to a highly individualized opportunity for student growth and reflection.

In traditional assessment, tests are administered to an entire class simultaneously. Exams are often designed by the individual teacher and are based on the content presented to students via direct instruction in addition to other, less dominant instructional methods that were employed throughout the unit. Often, tests play a significant role in the determination of grades. After the test, the class as a group moves on to the next unit. In the traditional classroom, where whole-class, direct instruction is the dominant form of instruction, these types of assessment practices are appropriate. However, in CBE, where small-group instruction and individual guidance are the norm, it is imperative to consider ways to measure student learning that better reflect this more individualized, skill-based educational philosophy.

Competency-based assessments must include a variety of formats to gauge skill mastery, including both formative and summative assessments. In their book *Building School 2.0: How To Create the Schools We Need*, Chris Lehmann and Zac Chase outline the key attributes of a school that successfully integrates project-based learning, a teaching and assessment philosophy commonly used in CBE. Lehmann and Chase served as principal and educator at the Science Leadership Academy (SLA) in Philadelphia, Pennsylvania, a school developed in conjunction with The Franklin Institute to support modern scientific teaching and learning. As a successful college preparatory school, the SLA altered its class schedule from a traditional, Carnegie-Unit-based one to a flexible schedule, where different subject areas and teaching styles can flourish to promote inquiry and support student learning. Lehmann and Chase point out, “Students at SLA learn in a project-based environment where the core values of inquiry, research, collaboration, presentation, and reflection are emphasized in all classes.” [xxx]

In their book, Lehmann and Chase outline 95 attributes of SLA or any school that successfully integrates these values. Among them are qualities that support CBE. Ultimately, the authors explain that in a successful modern school, vision, theory, and practice must all coexist. Rather than employing a one-size-fits-all approach, schools find more meaning and excitement in the learning process when reflection has taken place to determine why students need to know certain content. Also, providing students with activities and assessments that are meaningful offers the opportunity for collaboration, which builds excitement about learning. Throughout the process, teachers must adopt the role of facilitator, caring for students’ individual needs and providing them with a class experience that enables them to construct their own knowledge and develop the skills necessary to succeed both in the classroom and in the future. [xxxi]

When educators work collaboratively with other educators to determine the demonstrable skills a student should develop while actively engaged in a course of study—and when the educators work together to build appropriate, common assessments that can be employed in order to measure student



mastery—educators are in effect participating in a reflective, research-based, and collaborative practice that will improve student learning and the school learning environment as a whole.

As they outline a unit, teachers and teacher teams estimate a timeline for completion of the unit along which students are guided as they increase their mastery of the associated skills and competencies. Although not all students will progress at the rate predicted by the timeline, it is vital that teachers provide support and guidance to all students as they progress through their own educational paths. *Formative assessments* offer insight to both the teacher and the student during the process of working toward mastery of a given competency. By contrast, *summative assessments* take place at the conclusion of mastery and formal instruction. The takeaway from using both formative and summative assessments is that feedback to the student must be ongoing. Assessment represents the continuous process of improvement and development of predetermined skills and competencies. Continuous feedback and assessment represent the ongoing nature of learning and skill acquisition. Ideas for formative assessment might include the teacher circulating around the room during a learning activity to provide guidance, support, and instant feedback. Additionally, digital portfolios can be employed in both formative and summative assessment, enabling students to produce an ongoing record of their learning. The use of technology enriches the learning process and provides teachers and students innovative resources to develop skills and enrich learning.

Because the process of changing from a traditional curriculum to a competency-based one is a continuous process, providing students and teachers with the support they need is vital. Stack and Vander Els (2018) explain that it is common in classrooms that are undergoing a transformation toward CBE to retain assessment practices used in the traditional classroom setting. However, when schools are transitioning toward competency-based practices, it can be helpful for teachers to work in professional learning communities to develop common assessments together. [xxxii] By joining forces, teachers can collaboratively decipher what a competency truly means, as well as interpret as a group the skills that a particular competency is meant to develop. Additionally, group development of assessments provides the much-needed feedback and validation to all teachers involved that the assessment truly measures a student's mastery of a given competency. [xxxiii]

When educators work collaboratively with other educators to determine the demonstrable skills a student should develop while actively engaged in a course of study—and when the educators work together to build appropriate, common assessments that can be employed in order to measure student mastery—educators are in effect participating in a reflective, research-based, and collaborative practice that will improve student learning and the school learning environment as a whole.

Another factor to consider is the student’s role in the assessment process. Rubrics provide a helpful tool for students and teachers alike. Rubrics can provide students with the opportunity to self-evaluate their progress formatively, and to then compare their estimated results with those of the teacher. Also, students can be given choices in the assessment process, where they are empowered to select the means to provide the demonstration of their skill and competency development.

The Center for Collaborative Education (2012) lists five steps in building a valid performance assessment:

1. Identify common tasks that all students will perform through the course of their assessment.
2. Write clear criteria that correlate with the competencies they are meant to measure, and design a rubric that matches these criteria.
3. Facilitate student performance of the assessment, and score their work using the rubric.
4. Double-check the accuracy of rubrics and assessment validity through excellent work.
5. Edit and perfect the performance assessment and rubric accordingly. [xxxiv]

Bottom line: Support is a tiered structure and process. Teachers and administrators need support in the form of technology training, professional learning communities, professional development, and collaboration. Students also need support in the form of formative and summative evaluation, collaboration with peers in small groups, freedom and encouragement, and a change in the predominant form of instruction from direct instruction to a small-group and individual format, which better supports the differential learning needs of students.

What if a student does not demonstrate mastery of a competency, or what if a student has previously mastered it? In situations such as these, the school must integrate three strategies into its practices: intervention, extension, and enrichment. *Intervention* is when individual or small groups of students work with teachers to receive additional support in order to master a certain competency. *Extension* includes those activities in which a student or group of students is provided with the opportunity to delve more deeply into the curriculum and/or add to their knowledge related to the curriculum. *Enrichment* refers to those experiences that are outside of the realm of the curriculum but serve to broaden the horizons of student learning. Each of these approaches supports students at their level, whether they have advanced quickly through the curriculum or are in need of greater support. [xxxv]

Ultimately, each of these approaches requires additional one-on-one time outside of the typical class meeting time. One option is to examine ways to integrate additional support time into the school schedule. This may involve the designation of a certain period of the day as a flexible time, when students may individually or in small groups seek out the additional help they need in order to satisfy their individual learning needs. Other options may include providing a 30- to 45-minute time segment during the school day when students may consult with teachers as needed or having an extended lunch period during which students can meet with individual teachers.



# CONCLUSION: HOW CAN COMPETENCY-BASED EDUCATION BE IMPLEMENTED?

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The traditional system of schooling—which includes Carnegie Units, a schedule that denotes certain blocks of time for specific classes, subject-specific departments, and grade levels—is a system that is deeply embedded into the American school system. Therefore, it is not feasible to expect that this traditional system of school organization could or should be completely disregarded overnight in favor of a new system, even if the new system provides many benefits to student learning in the 21st century. The integration of CBE and the benefits it offers does not need to be an all-or-nothing process. Rather, it can be extremely helpful to adopt CBE practices gradually and intentionally.

First, educators must work together in small groups to identify appropriate skills and knowledge needed by students as they prepare for the future. This can be completed in PLCs such as departments, grade-level teams, or other similar groups in the school. Depending on the class, the grade level, and the educational setting, these competencies may align with state and national standards. Next, it is necessary to examine current practices and brainstorm how some of the competencies can be integrated into instruction and class activities. Third, appropriate formative and summative assessments should be integrated into the curriculum that genuinely measure a student's progress toward mastery of a given competency. Fourth, schools and PLCs should reexamine their system of organization to consider ways of implementing CBE, such as integrating teacher/student support time into the schedule and providing professional development and collaboration time to faculty and staff.

CBE offers an exciting opportunity for schools to modernize educational practices to better meet the needs of students in the 21st century. Like the American Industrial Revolution, which had a variety of cultural and societal impacts, we are currently experiencing a time of great change as we more deeply enter the digital age. Therefore, as educators, it is imperative that we provide our students with opportunities and guidance to help them develop the skills they need to succeed in our ever-changing world.



CBE offers an exciting opportunity for schools to modernize educational practices to better meet the needs of students in the 21st century.

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[iv] (Tyack, et al., 1995)

[v] (Tyack, et al., 1995)

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[vii] (Competency Works, 2018)

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- [xxii] (Stack and Vander Els, 2018)
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- [xxvii] (Stack and Vander Els, 2018)
- [xxviii] (Stack and Vander Els, 2018, p. 55)
- [xxix] (Stack and Vander Els, 2018)
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