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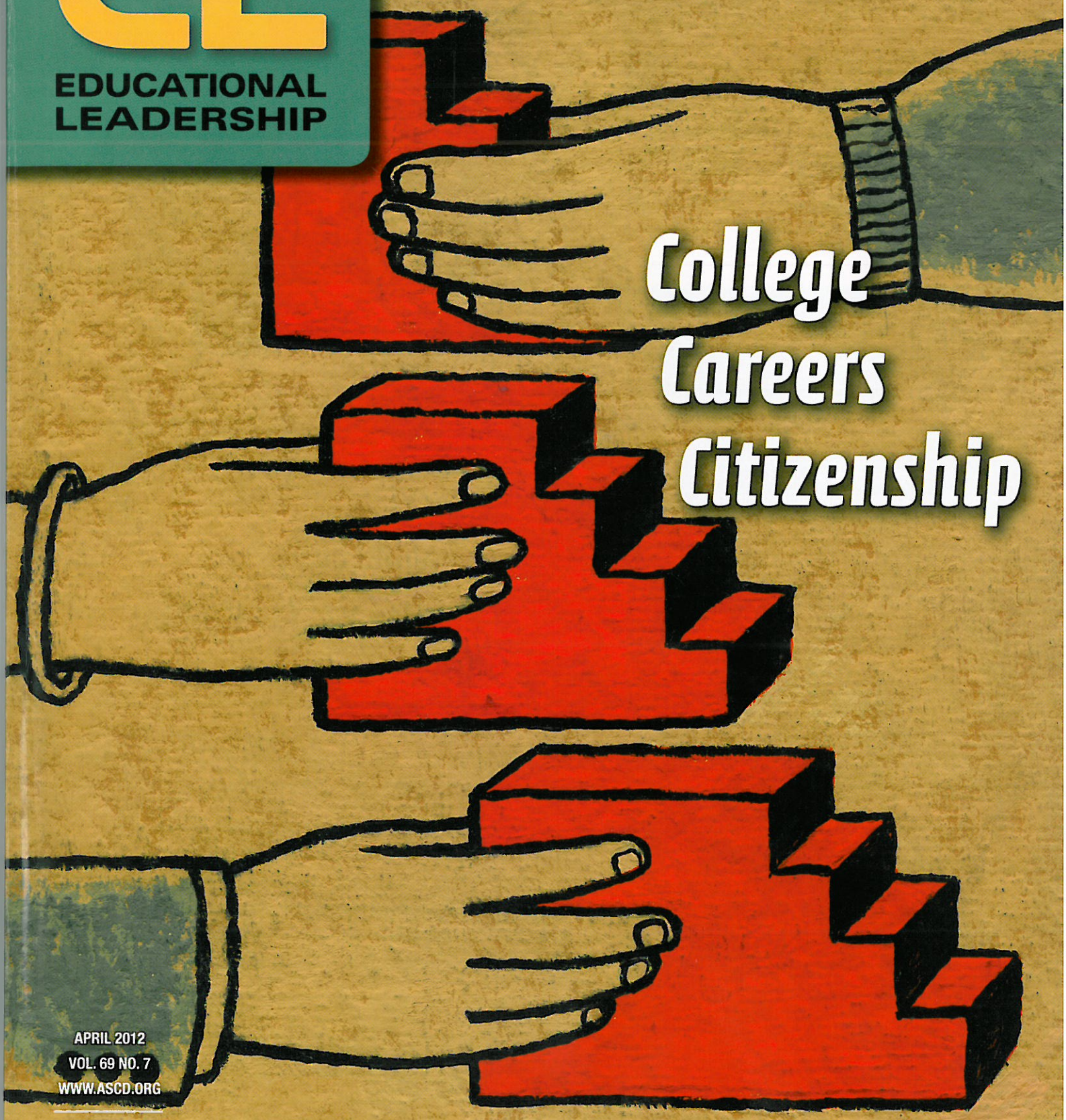

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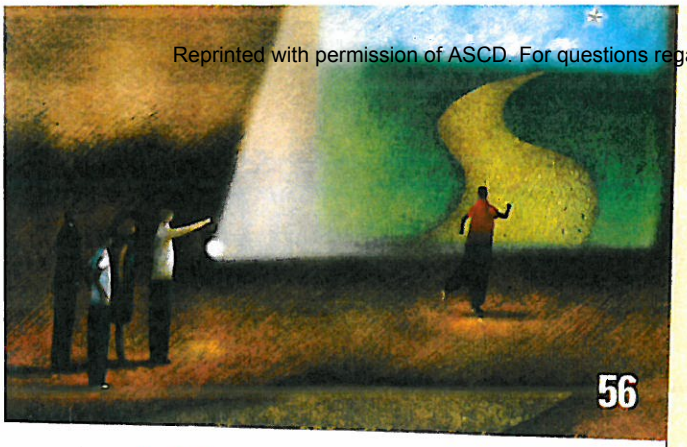

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College and Career

Whether they're headed for college or a career, students need a solid foundation of academic knowledge combined with crucial thinking and learning skills.

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David T. Conley and Charis McGaughy

The importance of all students being college and career ready is one of the most discussed issues in policy circles and secondary schools these days. But are college readiness and career readiness one and the same? The answer has far-reaching implications for how U.S. secondary schools are organized and how they educate students.

But First, A Look Back

Through most of the 20th century, college readiness and career readiness were more or less distinct, in part because what we now call *career readiness* was called *job training* and took the form of vocational education. In fact, from the 1920s on, large school districts had separate high schools for vocationally oriented students and those going on to college (Tyack, 1974). Even in the high schools themselves, vocational students were mostly separated from college-bound students. This model, with its assumptions about the separation of career and college preparation, remained strongly rooted in high schools throughout the 20th century.

The economy, however, was not so static. Entirely new categories of occupations rapidly emerged with the shift from agricultural and industrial jobs to service jobs. *Knowledge workers* and the *creative class* became increasingly prevalent (Florida, 2002). The skills to be successful in this new economy were fundamentally different from those that the old economy required (Carnevale, 1991, 1992). Increasingly important were foundational academic knowledge and skills; communication capabilities; technology proficiency; problem-solving strategies; and flexibility, initiative, and adaptability. This dramatically shifting set of expectations signaled the obsolescence of the distinction between college and vocation as the fundamental organizer for secondary education.

Readiness: Same or Different?

During the 1990s, states adopted education standards that defined what students needed to know and be able to do, but these standards were silent on what constituted college readiness and career readiness or the relationship between the two. Standards for Success, the first set of standards specific to college readiness, was created in 2003 under the sponsorship of the Association of American Universities (Conley, 2003). More than 400 faculty members at leading U.S. universities identified what it takes for students to be ready to succeed in entry-level courses at their institutions.

Reasoning and problem solving were the most highly rated skills across all subject areas in both academic and career-oriented courses.

Shortly thereafter, the American Diploma Project defined college and career readiness with input from postsecondary faculty, economists, and members of the business community. Achieve, the sponsor of these standards, characterized the standards as representing an "unprecedented convergence" of educator and employer opinions on what it means to be ready for college and careers (Achieve, Education Trust, & Thomas B. Fordham Foundation, 2004). Although Standards for Success and the American Diploma Project standards had considerable overlap, they were not identical (Rolfhus, Decker, Brite, & Gregory, 2010).

A few years later, ACT (2006) published an influential study that claimed that college and career readiness were the same. To research this question, ACT researchers studied job

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requirements, which they then cross-referenced against an ACT job skills assessment system. They then mapped the findings onto ACT's college-readiness standards (ACT, 2011) and concluded that the readiness requirements for both college and career were substantively comparable.

This finding was welcomed in many quarters because it seemed to solve the problem of how to educate students with a wide range of interests and goals. But the question still persists: Are career readiness and college readiness truly one and the same?

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At Gateway to College in Rockville, Maryland, students attend a series of classes designed to replicate the college experience and offer career development.

Tackling the Issue

Over the past six years, we at the Educational Policy Improvement Center in Eugene, Oregon, have conducted a series of studies that provide insight into this issue. Our approach has been to determine the requirements that students face on entry into a wide range of initial postsecondary courses. The instructors of these courses review college- and career-readiness standards and identify the standards necessary for success in their courses. We collect and analyze material from their courses, including syllabi, assignments, readings, and tests, to confirm what they tell us.

Academic Content and Cross-Disciplinary Skills

We conducted multiple analyses of general education courses required for a bachelor's degree and of courses associated with career certificates and associate's degrees (Conley, 2005, 2010; Conley, McGaughy, Cadigan, Forbes, & Young, 2009). One such study (Conley, McGaughy, Cadigan, et al., 2009) analyzed nine common entry-level career and technical education subject areas at Texas colleges. Participating instructors completed a course profile, uploaded a course syllabus, and determined the importance of a set of cross-disciplinary standards that included key cognitive strategies, learning skills, and foundational knowledge necessary across all subject areas. We analyzed courses statewide in accounting, drafting, introduction to computers, marketing, and business English. We found that cross-disciplinary standards, such as study skills, problem solving, critical thinking, and goal setting, are important for student success in these career-oriented courses.

A second study analyzed nursing and computer programming courses in Texas (Conley, McGaughy, Brown, van der Valk, & Young, 2009). The key finding was that the prerequisite academic content necessary for success varied much more than did the cross-disciplinary skills, which we found common to all courses. For example, the computer programming courses required significantly more mathematical skills than did the nursing courses. Conversely, nursing courses required significantly more scientific knowledge than did courses in computer programming.

The Common Core Connection

We recently completed a national study that included nearly 2,000 faculty members who taught entry-level courses in 25 subject areas at more than 500 two- and four-year postsecondary institutions (Conley, Drummond, DeGonzalez, Rooseboom, & Stout, 2011). We asked the faculty members how applicable and important the common core state standards were for success in their classrooms. The course areas included 14 necessary for a bachelor's degree and 11 associated with career pathways. Bachelor's-related classes were drawn from general education subjects in English, mathematics, science, and social sciences. Career pathways courses came from the fields of business, computer science, and health care.

We found a subset of the common core state standards to be important across all course areas. These included speaking and listening, reading informational texts, and writing in a variety of genres. The standards for mathematical

practices, which include reasoning and problem solving, were the most highly rated across all subject areas in both academic and career-oriented courses.

The specific applicable English and math content standards varied considerably by course area in both the academic and career-oriented courses. For example, reading literature was not emphasized outside English courses. Statistics were more important to science readiness, and computer technology courses required higher math skills across all math standards.

What We Found

The Skills Students Need

These results suggest that college readiness and career readiness share many important elements, but they're not exactly the same. The elements they share most consistently are the skills all students need to be ready for a variety of postsecondary learning environments. These include study skills, time-management skills, persistence, and ownership of learning. Postsecondary instructors at a wide range of two- and four-year institutions stress the importance of these skills across subject areas and programs. A lack of proficiency in these skills probably affects career-oriented students more adversely than it does students entering bachelor's degree programs—in part because career-oriented programs tend to offer fewer supports to help students develop these skills if they lack them on entry and in part because students in such programs are more likely to be discouraged by problems early in their program.

In addition, we found that students need to have a range of cognitive strategies at their disposal, such as the ability to formulate problems, collect information, interpret and analyze findings, communicate in a variety of modes, and do all of this with precision and accuracy. These strategies are particularly important when students are confronted with tasks that require them to apply content knowledge in novel and nonroutine ways.

The precise set of knowledge and skills students need is influenced significantly by the next step they intend to take, with various fields of study, institutions, and certificate or degree programs requiring proficiency in different content knowledge.

Speaking and listening, reading informational texts, and writing in a variety of genres were important across all course areas.

Career Awareness Opportunities

Although we don't expect students to craft a customized program of study while in high school, they do need to be exploring more college and career opportunities earlier on so they can understand what content knowledge, learning skills, and cognitive strategies are necessary to succeed in a particular career pathway or college major.

For example, students can explore career options beginning in middle school through assignments requiring research on the requirements and opportunities associated with various occupational and professional pathways. Students should be encouraged to state a career goal beginning in 9th grade (which they could easily and regularly change thereafter).

Courses with challenging academic content that also apply knowledge to real-world problems and projects help bridge the gap between college-bound and career-oriented students. Brief internships or career-exploration opportunities can help students develop more specific aspirations. Secondary school programs that help students take greater ownership of a learning plan linked to their post–high school goals will see more students prepared for college and careers. Students should not necessarily be trained for a specific job by the time they leave high school, but they should be focused on a career pathway or an area of study. This principle holds true for all students, regardless of whether they plan to pursue a certification in a two-year program or a bachelor's degree.

Steps Schools Can Take

Secondary schools can accommodate both a core of common expectations and enough customization to prepare all students to pursue both college and careers. Here are some suggestions gleaned from schools that are having success in this area (Conley, 2010; Educational Policy Improvement Center, 2009).

Establish a college- and career-ready culture in the school and community. The debate about whether high school is for job training or college prep is over. All adults in the school community, including parents, faculty, and business leaders, understand that the school's mission is focused on college and career readiness for all. Adults send the message to all students that education and preparation continue beyond high school by holding high expectations for all students, talking about "when you go to college," being knowledgeable about college-readiness standards and college entrance requirements and majors,

The Career-College Blend: Two Schools Where It Works

Polytech High School, Woodside, Delaware

Students in this magnet career technical high school engage in a rigorous college-preparatory curriculum and learn under the motto, "Power of knowledge for work and/or college." The school serves more than 1,100 students, of whom 71 percent are white, 22 percent are black, and 22 percent are eligible for free or reduced-price lunch.

Polytech is composed of five academies: the Educational Foundations Academy for freshmen as well as four career-themed academies that focus on industry, technology, professional services, and health care. Incoming students explore 21 different technical concentrations and undergo a formal interview to gain acceptance to their chosen concentration. Over the next three years, students follow a prescribed course plan. By graduation, they gain skills in a high-demand career area and, in some cases, also earn a professional certification (for example, automotive service excellence [ASE] certification or certified nurse's assistant [CNA] certification).

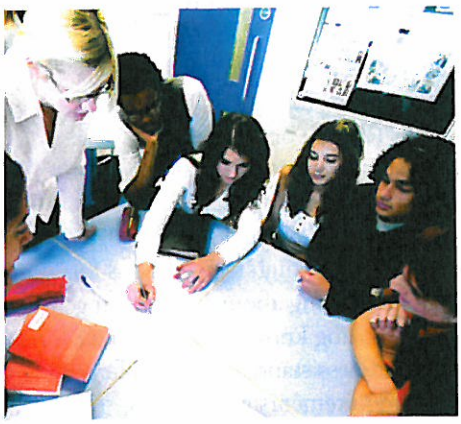
The school also focuses heavily on college preparation. It's the only technical school in Delaware to offer advanced placement courses. The school's graduation requirements exceed Delaware's curriculum standards, with additional credits required in a technical concentration area. Consequently, Polytech has the highest number of required credits in the state.

All students participate in and benefit from Polytech's advisement and support system (PASS). Students meet with their advisors at least four times each year to discuss their four-year high school plan and their two-year post–high school plan (known as the 4+2 plan).

In 2008, the school's graduation rate was 97 percent. Black students graduated at the highest rate of any high school in Delaware. In 2009, more than 70 percent of Polytech graduates went directly into postsecondary education. Most of these students were the first in their family to attend college. Many students use the marketable skills they acquire at Polytech to support themselves through college, and they use their academic preparation to succeed in college.

Sammamish Senior High School, Bellevue, Washington

Sammamish Senior High School's mission is to prepare all students for postsecondary success, and the school expects all students to complete an advanced placement (AP) course before graduation. This comprehensive public high school serves 1,200 students. Thirty-four percent of students qualify for free or reduced-price lunch. Thirty-two percent of students speak a first language other than English, and students from ethnic minorities represent approximately 40 percent of the student body.



The district has what amounts to a default college-preparatory program for all students. The curriculum development team has worked in partnership with outside experts, district officials, and teachers to design a curriculum that is aligned with AP and International Baccalaureate requirements. Curriculum coaches work directly with teachers to implement and periodically evaluate the curriculum, and teachers take an active role in improving and adding to the curriculum through an online system known as the Curriculum Web.

In 2010, Sammamish High School received a U.S. Department of Education Investment in Innovation grant. One objective of this initiative is to raise the level of rigor in the curriculum by connecting students with local professionals in science, technology, engineering, and mathematics. The initiative uses problem-based performance assessments in both AP and non-AP courses to support and measure student growth; provides supports for struggling students, with a particular focus on increased mathematics literacy; and offers professional development for teachers implementing a rigorous problem-based curriculum.

The four guidance counselors and support staff at Sammamish Senior High School play a key role in helping students understand college readiness, develop an academic plan, prepare and register for the PSAT/SAT and AP exams, research career options, and apply to colleges or technical schools. The graduation rate at Sammamish is 91 percent, and approximately 85 percent of graduates matriculate to a two- or four-year college or university.

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and telling their own story of how they became college ready.

The adults in school pay particular attention to students who would be the first in their family to attend college, and they provide programs and supports that help these students develop and maintain high aspirations. These programs include additional information on college requirements and financial aid options, along with individual attention and encouragement.

Measure what's important for both college and career success.
The school moves beyond traditional standardized test results and includes additional indicators of college and career readiness that measure a range of skills. These include key cognitive strategies; key learning skills and techniques, such as goal setting and progress monitoring, test-taking and note-taking methods, and persistence with challenging tasks; and key transition knowledge and skills, such as "college knowledge" of admissions requirements and processes, financial aid, the culture of college, and self-advocacy.

More courses use embedded assessments tied to college and career readiness, such as extended essays, demonstrations and culminating projects, research papers, and inquiry-based experiments and investigations. These assessments yield information on student thinking and problem-solving skills. Grading is better calibrated to college readiness so that an *A* really means that a student is ready for postsecondary studies. Career-oriented courses include demanding projects and tasks that incorporate academic skills.

Align all courses to college- and career-readiness standards.
The school ensures that any course a student takes, whether it covers career and technical education or college-prep content, builds core academic skills necessary for postsecondary readiness. Key skills, such as time management, study skills, and goal setting, are explicitly taught and practiced. Middle and high school courses and expectations integrate closely so that students progress continually toward the outcome of college and career readiness, even as they take varying routes toward this goal.

Students should be encouraged to state a career goal beginning in 9th grade (which they could easily and regularly change thereafter).

Partner with local postsecondary institutions and businesses.
The school offers students more exposure to postsecondary opportunities. High school and college course expectations are aligned and continuous. Students have multiple opportunities for career exploration through class assignments and connections with local colleges.

Transition programs help more students prepare gradually for postsecondary expectations by conceiving of college readiness as a continuum, not a cut score. Offerings ranging from senior seminars on college readiness, to placement tests administered in high school, to advanced placement classes, to college campus visits, to summer bridge programs help students get ready for postsecondary education.

Concurrent and dual-enrollment programs offer students additional opportunities for college-like experiences. Recent high school graduates who are enrolled in local colleges return to advise and mentor students. Strong partnerships with postsecondary education institutions result in extensive data sharing, which suggests changes in the high school curriculum. These include reevaluating the high school's reading and writing requirements, the informational reading skills and technological skills that students need, and the types of exams that students should expect.

Flexible, Yet Targeted

As convenient as it would be to declare that college readiness and career readiness are one and the same, evidence suggests it's more complicated than that. The good news is that secondary school programs of study can be designed in ways that don't require distinctly different courses or programs for students with different interests or aspirations. All students can be challenged with rigorous academic content and then build skills and nurture interests necessary to achieve more personalized goals.

Foundational content knowledge provides students with flexibility. More targeted knowledge and skills prepare them for postsecondary success in specific areas. By focusing on both, secondary schools can enable *all* students to prepare for successful futures. EL

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