“With the speed of change reaching a frenetic pace, the idea of schools preparing students for the future is becoming more and more of a challenge,” writes Edutopia blogger and school administrator Ben Johnson. Educators are contemplating how to restructure teaching and learning to better match the needs of students as they enter the future job market. It is not an easy endeavor.

According to a 2013 projection from Georgetown University’s Center on Education and the Workforce, “By 2020, 65 percent of all jobs will require some level of post secondary education and training.” Beyond 2020, there will be occupations that do not even exist today. Thus, the quandary that educators face in addition to preparing students for the jobs of tomorrow is to provide learning experiences that will prepare students for jobs that have yet to be created. So how do we proceed? An investigation of the topic can help us make the wisest choices so that our students are as well prepared as possible.

Defining the Constructs
There are numerous definitions for college and career readiness in print; most of them include similar words. In essence, college ready means being prepared for postsecondary education or training experiences such as those offered at two- or four-year institutions. High school graduates need to possess the knowledge and skills necessary to be successful in entry-level, credit-bearing courses without the necessity of remedial coursework. Career readiness is not simply obtaining a job; a career includes a “family-sustaining wage and pathways to advancement.” Therefore, one must graduate from high school with the knowledge and skills to succeed in postsecondary job training or education necessary for a chosen career. Postsecondary training may include different experiences such as community college, technical or vocational programs, apprenticeships, or on-the-job training.

Sorting Through the Confusion
With the advent of these new definitions has come a certain amount of confusion. In the 20th century model, college and career readiness represented two distinct approaches. Students who were preparing for college enrolled in an academic track while students preparing for jobs after high school were on what was called the “vocational” track. Students on these two distinct avenues rarely crossed paths. Determining what might happen to students after high school often began when students entered high school. Now that thinking must begin sooner. Today’s students are bombarded with a profusion of dilemmas with which they must grapple including:
• Will the cost of attending college become a “life-thwarting burden” for me?
• I am told that I must “retool, adapt, and restart” continually during my lifelong occupational endeavors; will I be able to make those adjustments?
• I hear that I must begin thinking about my future before high school. To be successful, I have to learn about technological applications and digital learning during my K-8 years. Will I be provided those opportunities?
• If I do not go to college, will I be able to find a path to “family-supporting work?”

The U. S. Department of Education has established college- and career-ready standards which outline how schools need to “adjust their instructional practices to ensure every learner is on track to college and career readiness.” Author and education reformist Mickey Revenaugh examines the changes, challenges, and decisions students must make regarding career and college preparation and summarizes them this way: “Take all of that and throw it in a blender. Toss in a few hard chunks of economic reality, sprinkle in some global truths, add a triple-shot of technology, and hit 16 – that’s right, the highest blender speed of all. What have you got? College and career readiness as it must be for our students today.”

Listening to Business Leaders
Business leader Jonathan Magid acknowledges that in interviews he does not place emphasis on what students currently know but instead he is looking for “someone who can learn a completely new programming language on the fly because what is currently being used may be outdated in six months.” Like many company leaders Magid looks for someone who can demonstrate “reasoning, logic, collaboration, communication, and thinking skills.” He applauds the work of Anne Shaw who has been emphasizing these skills in her work since the mid 1990’s. Shaw established the 21st Century Skills Schools, an organization whose purpose was to “provide school systems all around the globe with the tools to change schools so that today’s students will have what they need to be successful in college and careers.” The aforementioned Ben Johnson emphasizes the skills he feels students will be need in his book, Teaching Students to Dig Deeper: The Common Core in Action; his beliefs are very much parallel to those identified by Shaw. Johnson enumerates skills that business leaders are “clamoring for in their future employees:”
• Critical thinking and problem solving
• Collaboration across networks and leading by influence
• Agility and adaptability
• Initiative and entrepreneurism
• Effective oral and written communication
• Accessing and analyzing information
• Curiosity and imagination

Preparing for the Future
According to the Business Insider website, “The US Bureau of Labor Statistics recently released its biennial projection for job growth across hundreds of occupations between 2014 and 2024. The site provides an itemization of the top jobs of the future including the typical level of education required, annual salary earnings, and what people will do on a daily basis. Those jobs are:
• Registered nurse
• General and operations manager
• Software application developer
• Computer systems analyst
• Physician and surgeon
• Accountant and auditor
• Management analyst
• Computer and information systems manager
• Supervisor of office and administrative support workers
• Personal financial advisor
• Physical therapist
• Market research analyst and marketing specialist
• Software systems developer
• Medical and health service manager
• Wholesale and manufacturing sales representative
• Lawyer
• Licensed practical and vocational nurse
• Electrician
• Financial manager
• Nurse practitioner
• Elementary school teacher

A close examination of the jobs indicates that there is a distinct match between the skills mentioned above and the predicted future occupations. A link to a detailed synopsis of the jobs is provided in the resource section of this newsletter. It is important to note that the skills required in these vocations are not exclusively college ready or career ready.

Refocusing Our Priorities
In a recent commentary in *Education Week*, Nicholas C. Donahue, president of the Nellie Mae Education Foundation, writes that our schools and communities should “work together to rethink the ways in which teaching and learning can better suit the needs and abilities of today’s youth.” He concludes that our high schools do not need fixing as much as a transformation. In order to accomplish this feat, we must move beyond the public education model that was designed over 100 years ago that sorted students into distinct categories; some students were tracked based on aptitude and often on race and/or income. In today’s global economy, career choices are much more complex and require a “rigorous and rich high school experience” for all students.

So, what are we do? Practices that individuals and schools can undertake include:
• As Nicholas Donahue has emphasized, “Rather than simply sitting through lectures, students use class time for interactive projects and thoughtful discourses.” He adds, “Learners complete internships for credit and run their own parent-teacher conferences. They advance by demonstrating understanding of material at their own pace, rather than by accruing credits based on the “seat time’ they’ve endured at a desk.”
• Mickey Revenaugh feels that some teachers are “holdovers from the 20th century.” They become frustrated at students’ lack of focus on one topic/textbook/lecture for a prolonged time span. He writes that, in fact, today’s students need the ability to move from topic to topic (often digitally) in order to be prepared for future occupations.
• Ben Johnson understands that students will need “discrete knowledge and skills on many subjects” in order to be successful in their future endeavors. When teachers make explicit and specific plans to include 21st century skills in their lessons, Johnson believes that it “will make it easier for students to learn the required content.” It is also important for teachers to share with their students the connections between their learning experiences and the skills they will need in the future.
• In her book *Instruction for All Students*, Paula Rutherford clearly affirms, “Facts are important but they aren’t enough!” She further writes, “We have obtained an increase in student achievement by aligning the curriculum to learning standards. Much remains to be done. To see further increases, it is essential that we adjust instructional practices so that students have a greater chance of retaining and transferring knowledge and skills to new situations.”

• A significant part of many Just ASK workshops is a focus on the learning-centered classroom which Rutherford bases on what we know about how students learn and how the brain works. Each of the components as listed below go hand-in-hand with the type of classrooms that will prepare students for college and career readiness.
  - Varied sources of information including technology
  - Opportunities for students to actively construct meaning
  - Growth-producing feedback
  - A safe, non-threatening, yet challenging environment that respects and responds to differences in learners
  - Real-world examples and applications of learning
  - Use of a variety of assessment strategies to provide ongoing opportunities for students to demonstrate learning

• It is important to note that many forward-looking schools are integrating successful practices that are having a positive impact on student learning. Approaches such as STEM, project-based learning, blended learning, the flipped classroom, maker space, and apprenticeships are helping students acquire skills they will need down the road.

• EPIC, the Educational Policy Improvement Center, promotes the belief that each of us should be a lifelong learner. To reinforce that belief, the center emphasizes that student ownership of learning is critical for future success. EPIC’s chart below lays out the key learning skills students should possess and which teachers can reinforce during their lessons.

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<th>Ownership of Learning</th>
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<tr>
<td><strong>Know Yourself</strong> - Be self-aware. Find out your interests, passions, skills and ambitions.</td>
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<td><strong>Set Goals</strong> – Know what you need to achieve based on self-awareness.</td>
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<td><strong>Be Motivated</strong> – Have the mindset to achieve your goals.</td>
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<td><strong>Persist</strong> – Don’t give up, especially when something does not come as easily to you.</td>
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<td><strong>Monitor Performance</strong> – Know how well you are really doing. Gauge your true skill level.</td>
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<td><strong>Ask for Help</strong> – Know when you are stuck, then get help. Don’t view this as a weakness.</td>
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<tr>
<td><strong>Show Self-Efficacy</strong> – Learn how to control the things you can control. Then, control them.</td>
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- Education Policy Improvement Center

As is often the case with *Just for the ASKing!,* the purpose of this issue is to provide educators a starting point to begin discussions about a topic that is impacting our practice. The resource section provides numerous resources that will enable professionals to delve more deeply into the topic. It is simply too important to ignore because of its impact on the lives of the children we work with for many, many years to come.
Resources and References


Rutherford, Paula, Instruction for All Students. www.justaskpublications.com/products/books/instruction-for-all-students


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