White Paper

Keys to the Future: Align Workforce Readiness Skills to Ensure Student Success

Sponsored by: Microsoft

Cushing Anderson John F. Gantz

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IDC OPINION

Educational leaders at the state, local, and national level develop and administer educational curricula to best prepare our children and students for their future. Yet predicting exactly what skills will be needed for the jobs of tomorrow can be difficult. Educators must balance newer, nontraditional subjects such as emotional intelligence or the innovation process with more traditional skills such as reading, writing, and arithmetic. Educators should also balance the focus on job-specific skills with skills designed to develop well-rounded students and skills that can be broadly applied in the job market.

Compounding the educators' challenge, the number of skills required for the future jobs market is growing at an astonishing rate. IDC analyzed 76.7 million job postings to identify the positions expected to have the highest growth and wages during 2016–2024. We called these high-growth/high-wage positions "high opportunity" jobs. We then identified the skills required of job candidates for those positions. We found that there are 62 cross-category skills that were frequently required in the "high opportunity" jobs.

Adding further to educators' challenges is that the number of skills commonly required is increasing, up sharply from 37 "cross-category" skills we found in 2013.

Fortunately for educators, this finding also points to the path forward. Our analysis indicates that educators should focus on a broad set of cross-functional communication, integration, and presentation (CIP) skills such as oral and written communications skills, problem solving, and detail orientation. CIP skills represent 10 of the top 20 skills required in those categories. High school students require "job readiness" and not "job training," and an educational system that supports the development of these important and widely desired skills (including Microsoft Office skills, which came in at number 4 on the top 20 skills list for high-opportunity occupations) will not only support the success of the students who aspire to high-opportunity positions but also lay the foundation for future success in the competitive global economy.

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IN THIS WHITE PAPER

This IDC white paper presents research that forecasts the skills and competencies that will be most in demand by 2024. Just over half of these are "soft" skills that are in demand in nearly all occupations, but these skills will be in particular demand in jobs that are forecast both to enjoy high growth and to be well above the median in salary potential.

While analyzing job and skills requirements from 76.7 million job postings from the calendar year 2015, IDC identified the 20 most common skills required for these positions. IDC then examined the skills required in 70 positions that are forecast to enjoy both above-average growth and above-average salary potential during 2016–2024. For the purposes of this white paper, we refer to these positions as "high opportunity" positions. These 70 positions alone will account for 16.2 million positions by 2024 and 24% of job growth during 2016–2024. Finally, we illustrate the breadth of applicability of those skills by illustrating how they are represented in six examples of high-opportunity occupations.

The types of positions are rapidly changing and the number of skills is also increasing. Compared with a similar analysis IDC performed in September 2013, there are now high-opportunity positions that didn't exist then in meaningful numbers. These include green energy jobs such as wind turbine technicians and solar photovoltaic installers. Also, the diversity of skills that are necessary for high-opportunity jobs is increasing. We found only 37 skills consistently required across high-opportunity positions in 2013. In 2015, there are 62 skills consistently required across high-opportunity positions.

Local, regional, and national educators can use this information to support specific and meaningful dialog about particular elements of a curriculum. Educators can be confident that these skills will be relevant in the future and also that the students who achieve these competencies will be highly sought-after contributors to the global economy for decades to come.

SITUATION OVERVIEW

The debate over educational standards and the role of K–12 education in preparing students for the job requirements of the future continues to rage. In 2015, the U.S. Congress replaced the unpopular 2001 No Child Left Behind Act with the Every Student Succeeds Act. While this new act eliminates the one-size-fits-all approach of its predecessor, it retains standardized testing while localizing control and accountability of educational standards to the state level.

With greater flexibility, state and local educators must determine the appropriate curricula and requirements to prepare students for the next phases of their lives. And with ongoing changes to the global employment landscape, educators must consider not only the needs of today's jobs but skills most likely to be in demand in the future.

Requirements in a Changing Employment Landscape

In today's connected and competitive global economy, employers need job applicants with a broad range of capabilities. They need employees that can provide excellent service and support to customers and partners, work in fluid dynamic environments, and rapidly adapt to new technologies and skills in the workforce. With flatter organizational charts and more responsibility pushed to front-line employees, companies are looking for self-starting applicants who can work well both independently and in teams, with the initiative and creativity to perform problem solving and

troubleshooting on an as-needed basis. IDC sees that a number of major trends will drive employer needs over the decade to come:

- **Increasingly diverse customer base.** Immigration and demographic changes and ethnic and cultural diversity are shifting economic power. Goods and services increasingly cater to interest, values, beliefs, and lifestyle — requiring recognition and sensitivity to the alignment and misalignment of products and services.
- **Employee's relationship with employer.** Many trends reflect a changing relationship between employee and "paternalistic employer," including increased use of contingent, part-time, or temporary workers; increased use of remote workers or telecommuters; and increased use of outsourced workers, subcontractors, or "value-added supply chains" to move noncore work out of the enterprise to more specialized providers.
- **Increased complexity of business structures and organizations.** Mergers, regulatory requirements, globalization, and ever faster corporate "boom and bust" cycles are creating enterprises that are not only more flexible and arguably more nimble but also increasingly interdependent, complex, or even temporal.
- **Expanding mobile customers and increased electronic communication.** This is causing a changing relationship with the employee and the customer and often creating opportunities for direct relationships between customers and employees.
- **Increasing economic importance of digital commerce and digital content.** The digitization of both routine and creative white-collar work not only has direct impact on the nature of employees and their work but also will indirectly but more profoundly increase the importance and relevance of more flexible organizational systems.
- **Emergence of the green economy.** Global acceptance of the impact of climate change and the need to address it is having an effect on the jobs marketplace. This year's analysis revealed several green tech jobs in the high-opportunity job set, and the number of green jobs in this set will likely continue to grow in the years to come.
- **Millennialization of the workforce.** As Millennials represent an ever greater percentage of the global workforce, they are introducing a new dynamic into the workplace. Widely regarded as an "entitled generation," they are sometimes accused of having overly high expectations of themselves and low expectations of the amount of work and dedication required for their jobs. More commonly, these are "digital natives" who bring high expectations for intuitive technology and connectedness.
- **Consumerization of information technology (IT) and IT in the workplace.** A small, though growing, number of workers are purely focused on technology, but technology is making its way into an increasing number of jobs that are not IT focused, including logistics/inventory (with handheld devices for record keeping and QA), manual labor (for measuring, designing, and fabricating), medical and auto and appliance repair (for monitoring, diagnosis, and record keeping), and hospitality/food service (for inventory, customer service, and scheduling). The technologies that are used in each of the previously mentioned jobs are also supported by an IT infrastructure that will be increasingly important to the global economy.

While some of these trends are facilitated by technology, these trends do not, for the most part, suggest a need to teach technology as an object of study. Instead, educators must anchor educational objectives in the real world and look at the underlying skills that provide the foundation for adapting to these trends. This analysis suggests educators should continue to focus on developing well-rounded students, capable of problem-solving and thinking on the fly and with the ability and curiosity to learn new skills in the future.

This approach will ensure that all stakeholders, including educators, policymakers, employers, and parents, can be assured that their students, children, and future employees will have the skills to become successful in the widest range of occupations.

FUTURE OUTLOOK

Tomorrow's Best Jobs

To identify the high-opportunity positions, IDC examined U.S. Bureau of Labor Statistics (BLS) employment data for 748 Standard Occupational Classifications (SOCs) — the U.S. equivalent of the International Standard Classification of Occupations (ISCO) — and selected the most attractive occupations according to three criteria:

- **Size.** To qualify, the occupation should have had at least 100,000 jobs in 2015.
- **Growth.** The occupation should grow by at least 100,000 jobs by 2024, or if it grows by fewer than 100,000 positions, then it must exhibit growth of 15% from its 2015 level. Categories were eliminated if they did not have at least 10% forecast growth.
- **Wages.** The occupation needed to have an average wage above the median U.S. wage.

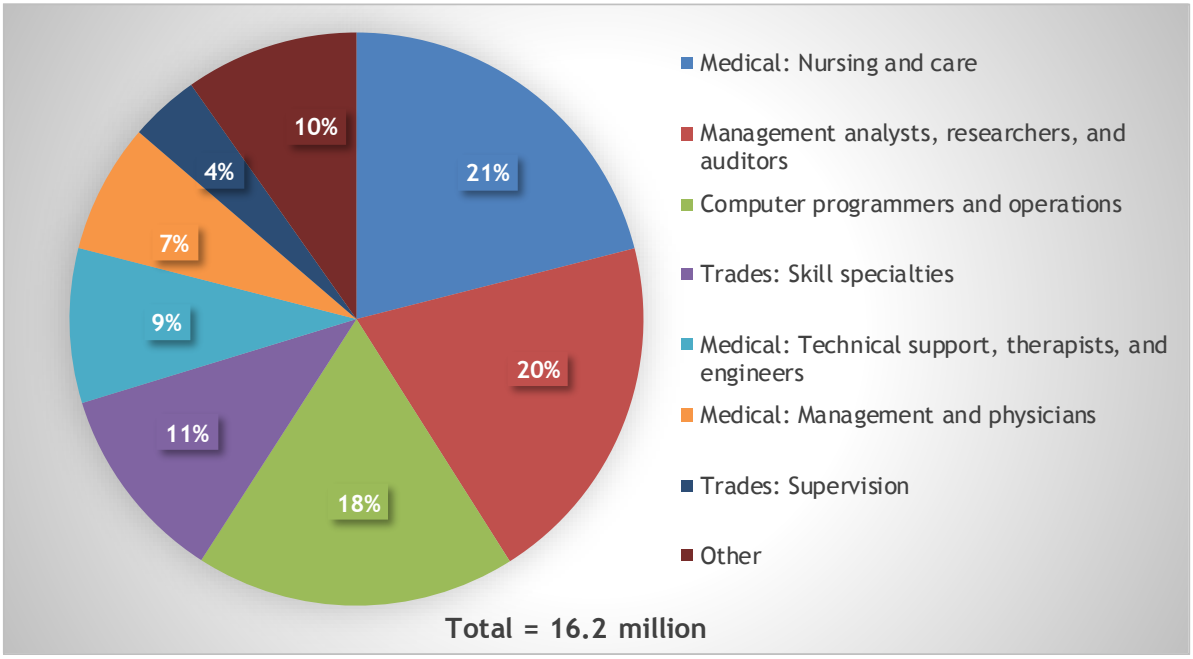
This analysis identified 70 occupations that represent high-growth and high-wage positions. IDC refers to these positions as high-opportunity occupations for the purpose of this white paper. They include nursing and care medical professionals; management analysts, researchers, and auditors; computer programming and operations; skilled trades including green energy jobs such as wind turbine technicians and solar photovoltaic installers; and medical support, therapists, and engineers. These top 5 categories are projected to make up 79% of the high-opportunity jobs and will account for 12.8 million positions in 2024 (see Figure 1). The current relevance of these occupations can be gauged by the employers that are currently posting these positions. On a recent weekday, more than 85,000 companies were looking to fill these high-opportunity positions. The global companies posting these positions included financial services firms such as Bank of America, Citi, and American Express; consulting and accounting firms such as Deloitte, Accenture, and Ernst & Young; healthcare firms including HCA, UnitedHealth, and Kaiser; manufacturers such as General Dynamics and Lockheed Martin; technology firms such as Apple and Oracle; and retail giants such as Walmart and JCPenney, in addition to tens of thousands of local firms looking to fill important positions.

A complete list of the high-opportunity occupations, including size, wage, and growth data, can be found in Table 1.

The positions on IDC's high-opportunity list account for 9% of 2014 positions, but they are expected to account for 24% of new job openings through 2024. Further, the median salary is $76,334, which is 45% above the median U.S. salary for all occupations. A comparison of target occupations and all U.S. occupations is shown in Table 1.

FIGURE 1

High-Opportunity Occupations in the United States, 2024



Source: IDC, February 2016

TABLE 1

Comparison of U.S. High-Opportunity Occupations and All Occupations

	High-Opportunity Occupations	All Occupations
2014 employment (000)	13,879	150,540
Job openings, 2014–2024 (000)	5,016	46,508
Growth in employment, 2014–2024 (000)	2,359	9,789
Growth in employment, 2014–2024 (%)	17	6.5
Average wage, 2014 ($)	76,334	52,613

Note: Employment numbers are reported in thousands (000).

Source: IDC and U.S. Bureau of Labor Statistics, February 2014

Skills Requirements for Today and Tomorrow

To be ready for tomorrow's high-opportunity positions, educators today must understand the skills that will be required for those jobs. To determine those skills, IDC examined 76.7 million job postings between January 1, 2015, and January 1, 2016, and 25,000 job boards and staffing companies' corporate Web sites, supplied by WANTED Analytics, a provider of real-time business intelligence for the talent marketplace. This sample represents about 80% of all jobs posted during that period.

Our analysis revealed a massive number of skills. More than 12,000 distinct skills are necessary across 835 standard occupations. The top skills required across all U.S. occupations are shown in Figure 2.

The most required skills across all occupations include oral and written communication skills, detail orientation, marketing skills, integrity, and customer-service orientation. The only software package called out within the top 20 skills across all occupations is Microsoft Office: Microsoft Office is number 4 on the list of most required skills, and Microsoft PowerPoint is number 16.

This set of 20 skills represents the most commonly required skills in demand today. This set is more important than any specific technology skill, deep science or math, or even great business skills. This set represents skills that are both important and widely required across positions. And the vast majority of them are "soft" skills that are applicable across a wide variety of occupations.

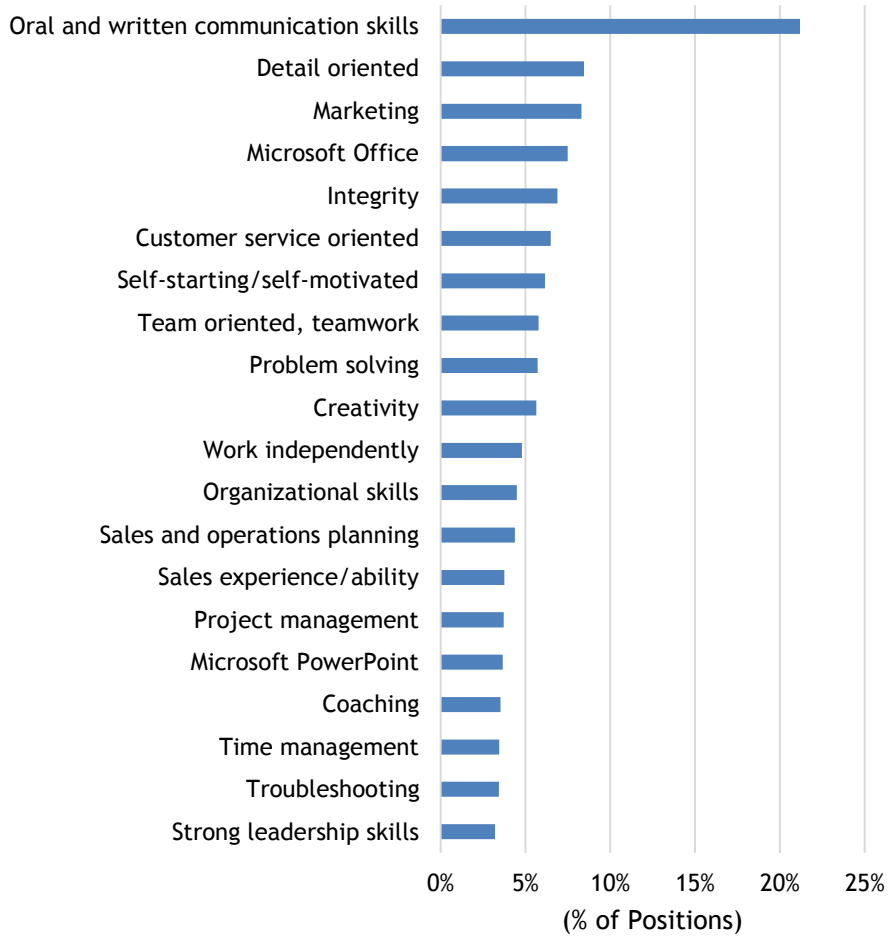
Many of these skills aren't foreign to most contemporary curricula. In fact, critical and creative thinking, problem solving, teamwork, and detail orientation are relevant across all knowledge and domains.

"If we take seriously the notion that learning is a consequence of thinking, then thinking — in all its forms: critical, creative, and reflective — needs to be a part of every lesson we teach," says Ron Ritchhart, director of the Cultures of Thinking project at Harvard's Project Zero.

Science, Technology, Engineering, and Mathematics (STEM) education has emerged as one of the most sought after curriculum designs for integrating science, technology, engineering, and mathematics into K–12 education. Initially intended to reduce performance gaps and increase employment prospects between student populations, it has become a platform for improving academic performance across disciplines. In fact, many STEM learning activities are designed to focus on student engagement, knowledge acquisition, literacy analysis, synthesis, and critical thinking skills that will impact the depth of student learning — precisely those skills that are the most in demand for future positions.

FIGURE 2

Top Skills for All U.S. Occupations



Source: IDC, based on WANTED Analytics and U.S. Bureau of Labor Statistics data, February 2016

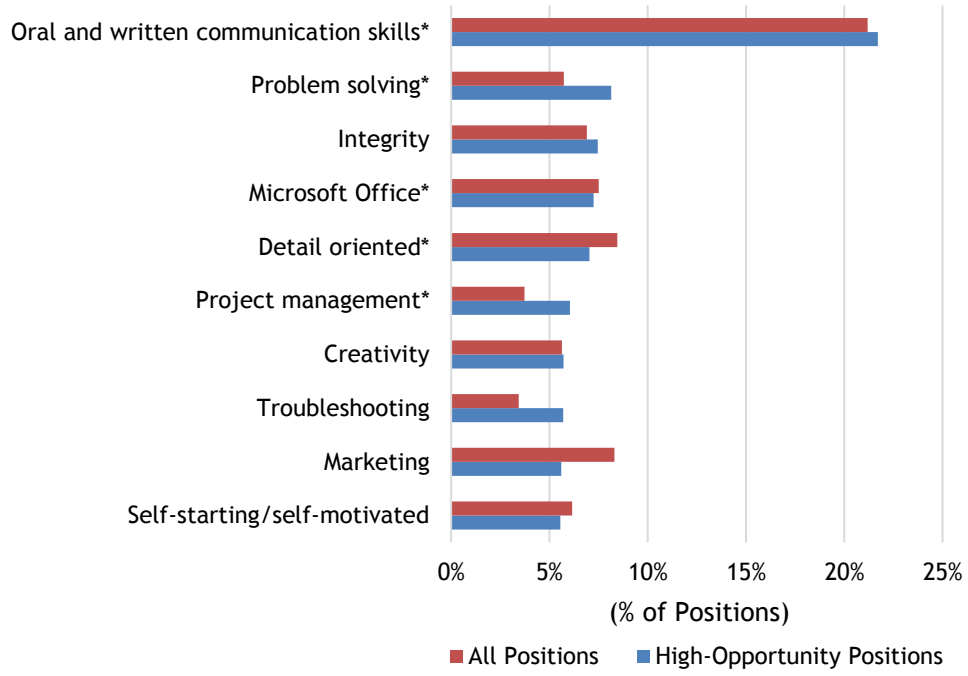
Comparing Skills for All Jobs with Skills for High-Opportunity Occupations

We wanted to understand the skills required for "good jobs" – those with high-growth potential and high salary. Our analysis revealed a large number of skills required in those 70 high-opportunity occupations. More than 1,100 skills are sought for just those 70 occupations.

IDC compared the top skills required for each of the high-opportunity positions with the top skills required across all U.S. occupations (see Figure 3). There is a large amount of overlap between the two sets of skills, with 14 of the top 20 skills in common.

FIGURE 3

Comparison of Top 10 Skills for High-Opportunity Occupations and All Occupations in the United States



* Indicates communication, integration, or presentation skill

Source: IDC, based on WANTED Analytics and U.S. Bureau of Labor Statistics data, February 2016

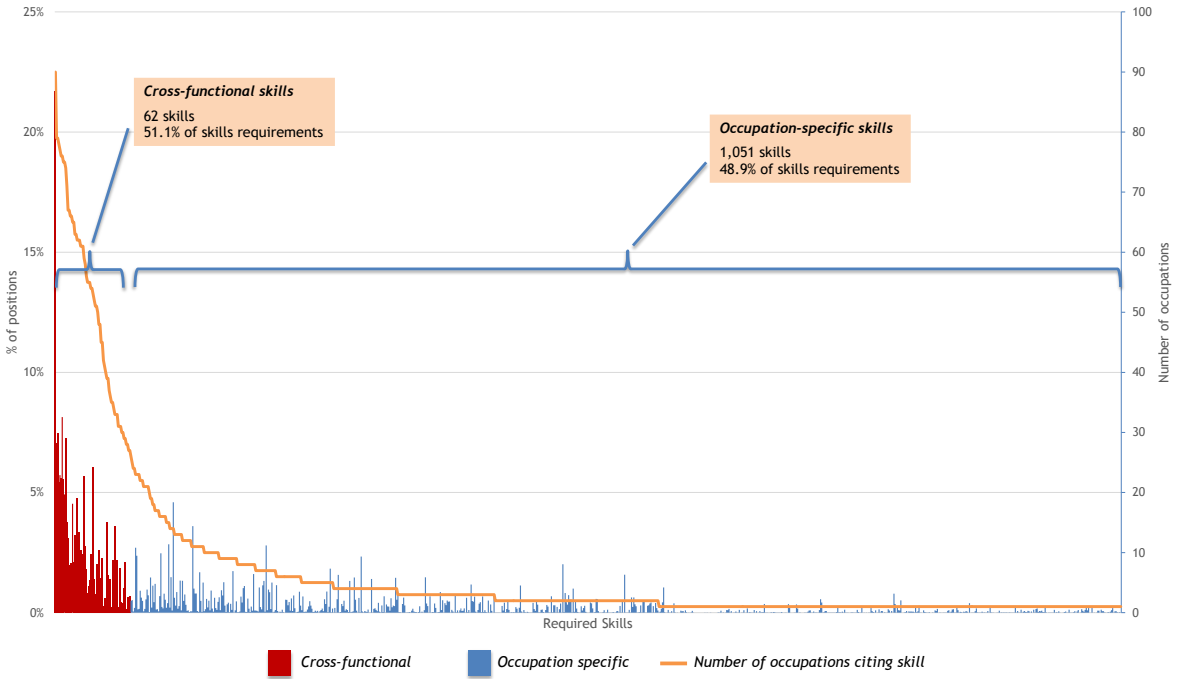
Most Common Skills Are Cross-Functional; Occupation-Specific Skills Are Lower Incidence

Most of the top skills are required by more than half of the high-opportunity positions. These skills, which we refer to as "cross-functional," include oral and written communication, attention to detail, problem solving, and being self-starting/self-motivated.

In comparison, skills that are specific to individual positions such as programming skills, skills for healthcare or legal professions, and skills required for trades such as electrician and plumber are much less frequently required. IDC analysis shows that 5% of skills are each required by more than half of the high-opportunity positions, representing more than half of all skills listed for specific job postings. In contrast, the remaining 95% of occupation-specific skills, or 1,051 skills, make up the remaining half of skills listed for each position (see Figure 4). For tomorrow's workforce, these cross-functional skills represent the fundamental tools for success in high-paying, high-growth jobs.

FIGURE 4

Frequency of Skills Mentions: Comparison of Cross-Functional Skills and Occupation-Specific Skills in the United States



Source: IDC, based on WANTED Analytics data, February 2016

This high concentration of cross-functional skills suggests that high school students require "job readiness" and not "job training" for success. The skills most needed for the best jobs cut across many occupations, so educators should consider focusing on the skills with the broadest applicability to success. In contrast, skills associated with specific occupations are less applicable for the broader occupation set, suggesting that they should receive less emphasis in general high school curricula.

It is instructive to compare the 2016 analysis with the one IDC performed in 2013. In 2013, 37 skills qualified as cross-functional compared with 62 identified as cross-functional in 2016; in other words, the number of cross-functional skills – skills required to be broadly successful in positions in the future – has increased by 68%. This increases the burden on educators who must prepare their students with this large and growing set of skills. It is instructive to think about these skills in three big buckets that overlap somewhat:

- Communication, integration, and presentation skills
- Entrepreneurialism and related skills
- Microsoft, Microsoft Office, and other software skills

Each of these sets is easy to understand, and they are mutually reinforcing.

Communication, Integration, and Presentation Skills

Of particular interest is a subset known as communication, integration, and presentation skills. These skills broadly include the ability to seek, evaluate, and examine information and data; create a reasoned position; present findings; and make a case for or advocate for that position. These skills necessarily include both thinking and communicating competencies and often a facility with the tools and technologies that support those activities.

IDC found that CIP-related skills are required for about 41.1% of all job postings and make up 8 of the top 20 skills required for all positions and 10 of the top 20 for high-opportunity positions. Note that IDC considers proficiency in Microsoft Office to be a CIP-related skill because Microsoft Office is a fundamental enabler for critical communication and presentation skills.

Entrepreneurialism and Related Skills

Competitiveness and entrepreneurial skills help prepare students for the changing workplace and even help students create those changes in the workplace and in society. This category includes self-starting/self-motivated, which is the number 10 most frequently required skill for high-opportunity positions. "Entrepreneurial" — meaning enterprising or willing to take risks for profit or gain — was number 66 on the list of job skills.

Microsoft, Microsoft Office, and Other Software Skills

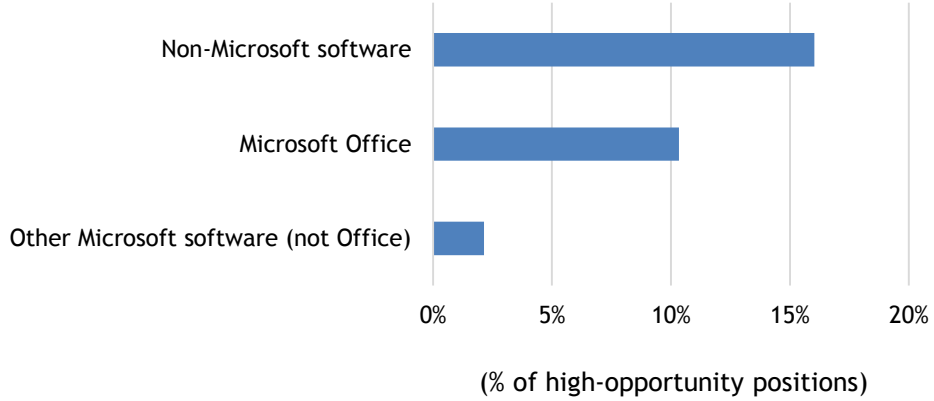
A large number of positions call for specific software skills. These positions span a broad range of categories, including technical/programming, management and administration, and financial/analytical. Microsoft Office was the most frequently required software skill and was explicitly required in 10% of high-growth/high-salary positions (see Figure 5). Other Microsoft software (such as SharePoint, Project, Access, and Visual Studio) was required in about 2% of high-opportunity positions. Other software was a required skill in 16% of high-opportunity positions, but no single brand or category was mentioned in more than 4% of high-opportunity positions.

In a broader comparison, IDC also examined the number of high-opportunity positions that call for "Microsoft Office–related" skills such as written and oral communication, analytical skills and financial analysis, word processing, spreadsheets, and financial reporting.

These skills may not explicitly call for knowledge of Microsoft Office, but knowledge of personal productivity software such as Microsoft Office can contribute to proficiency in those skills — such skills include word processing, data manipulation and analysis, and data/information presentation. 12.5% of high-opportunity occupations call for Microsoft Office–related skills, and when these positions are combined with positions explicitly requiring Microsoft Office, the percentage of tomorrow's high-opportunity positions requiring Microsoft Office or Microsoft Office–related skills grows to 19.4%.

FIGURE 5

Explicit Software Skills Requirements for High-Opportunity Occupations in the United States



Source: IDC, based on WANTED Analytics data, February 2016

Sample Skills Requirements for High-Opportunity Occupations

The requirements for cross-category CIP skills, entrepreneurial skills, and Microsoft Office skills span a broad range of high-opportunity occupations. IDC analyzed six high-opportunity occupations: management analysts, computer/IS managers, nurse practitioner, postsecondary mathematical science teachers, solar photovoltaic installers, and first-line supervisors of construction trades (see Figure 6). We chose these specific occupations because they represent a wide variety of positions and because they could be considered representative of the types of positions that will grow through 2024. While a number of skills are specific to individual positions, such as information security for IS managers and patient electronic medical records for nurse practitioners, cross-category soft skills make up well over half of the top 10 skills requirements for each of these six positions. Similarly, CIP skills including oral and written communication skills are in the top 5 in each category, and Microsoft Office or one of its components (e.g., Microsoft PowerPoint, Microsoft Word, Microsoft Excel) is also among the top 10 skills required for each position except for nurse practitioners and computer and IS managers.

FIGURE 6

Skills Requirements for Select High-Opportunity Occupations in the United States

Management Analysts

Rank	Skill	% of Positions
1	Oral and written communication skills	38.1
2	Project management	28.2
3	Microsoft PowerPoint	19.7
4	Problem solving	18.4
5	Microsoft Office	17.5
6	Business process modeling	16.4
7	Analytical skills	15.3
8	Detail oriented	14.6
9	Business requirements gathering	13.7
10	Data analysis	12.1

Postsecondary Mathematical Science Teachers

Rank	Skill	% of Positions
1	Oral and written communication skills	15.1
2	Creativity	5.1
3	Problem solving	2.9
4	Integrity	2.6
5	Academic affairs	2.2
6	Microsoft Office	2.1
7	Applied statistics	2.0
8	Program development	1.8
9	Recruitment advertising	1.8
10	Organizational skills	1.7

Computer and IS Managers

Rank	Skill	% of Positions
1	Oral and written communication skills	34.5
2	Project management	33.3
3	Strong leadership skills	15.1
4	Management experience	14.9
5	Problem solving	13.0
6	Coaching	12.4
7	Creativity	11.9
8	Management skills	11.0
9	Integrity	10.9
10	Risk management	10.8

Supervisors: Construction Trades and Extraction Workers

Rank	Skill	% of Positions
1	Oral and written communication skills	13.3
2	Carpentry	10.7
3	Construction management	6.6
4	Detail oriented	6.4
5	Microsoft Office	6.1
6	Self-starting/self-motivated	5.6
7	Sales and operations planning	4.8
8	Quality control	4.7
9	Dependability	4.1
10	Work ethics	3.7

Nurse Practitioners

Rank	Skill	% of Positions
1	Geriatrics	13.1
2	Oral and written communication skills	11.7
3	Patient electronic medical record	10.4
4	Pediatrics	8.4
5	Work independently	4.6
6	Creativity	4.4
7	Integrity	4.3
8	Basic computer skills	3.4
9	Detail oriented	3.4
10	Administrative skills	3.3

Solar Photovoltaic Installers

Rank	Skill	% of Positions
1	Oral and written communication skills	26.4
2	Customer service oriented	24.5
3	Basic computer skills	15.2
4	Carpentry	15.1
5	Microsoft Office	12.7
6	Detail oriented	12.0
7	Operations management	11.9
8	Time management	5.5
9	Work ethics	5.2
10	Retail sales	4.9

Microsoft Office Explicit/Related CIP Cross-Category

Source: IDC, based on WANTED Analytics data, February 2016

CONCLUSION

The global economy is dynamic, and many of the skills required for positions in the future will pertain to technologies and work practices yet to be developed. The number of skills required to be successful in the jobs forecast to be most in demand in the future is growing and will likely continue to expand as employers increase expectations for new hires and entrust front-line employees with greater levels of responsibility.

Employers look for new employees that are adaptable and think critically. Employers need workers who:

- Are equipped to serve, work, and communicate with a diverse base of customers and coworkers
- Are self-motivated, self-directed, and able to adjust to the changing relationship with employers and a less paternalistic work culture
- Can deal with ambiguity and take initiative to function effectively in increasingly complex business structures and organizations
- Work effectively both independently and in teams, often with limited or infrequent guidance
- Are well-versed in digital, mobile, and social technologies
- Can think beyond the specific task or job to the systemic implications of an action, inaction, or failure

These trends suggest that educators should prepare their students with a set of common, core skills that students will leverage to be successful for the rest of their working lives. Many of the most important and common skills are evident and even common today. These include the broad CIP skills including oral and written communication, problem solving, detail orientation, and project management. Included in these CIP skills is familiarity with Microsoft Office and Microsoft PowerPoint, which provides the foundation for communication and critical thinking required in tomorrow's marketplace.

Through 2024: Implications for Educators, Employers, and Tomorrow's Job Seekers

"Anchor Standards in the Real World"

IDC analysis suggests that a relatively small, albeit growing, set of cross-functional skills are those most in demand for current and future occupations and that those skills focus more on job readiness than on job training per se. Not only are they necessary to create well-rounded students and employees, but they are also the most specific and important skills common across the high-opportunity positions in this study.

For Educators

Educators cannot teach job-specific skills for all positions or even most of the high-opportunity positions of the future. With over 1,000 job-specific skills required to be successful in high-opportunity positions, preparing students with job-specific skills cannot be a reasonable objective in a general education classroom. Data science, welding, SQL, electronic medical records, and carpentry are best left to vocational and post-secondary programs or to on-the-job training.

But with the number of cross-category skills also increasing from 37 or so in 2013 to 62 in 2015, it is challenging for educators to take on this entire list of valuable skills. Instead, educators should focus on foundational CIP skills including oral and written communication skills, problem solving, detail orientation, analytical skills, team orientation, and organizational skills. These skills not only are among the top 20 skills necessary for success in high-opportunity positions but will also continue to be relevant well beyond 2024.

We haven't attempted to exhaustively document these skills or their individual importance, but taken as a whole, they provide a foundation of capabilities that will be widely applicable in future positions. CIP skills enable students and future employees to:

- Communicate by posing and responding to questions that probe reasoning and evidence. These skills include listening for a full range of opinions on a topic or an issue; responding thoughtfully to diverse perspectives; synthesizing comments, claims, and evidence made on all sides of an issue; and determining what additional information or research is required to complete the task.
- Integrate/synthesize multiple sources of information into a coherent understanding to make informed decisions and solve problems, evaluating the credibility and accuracy of each source.
- Summarize, represent, and interpret data to form an opinion and defend a position and to make inferences and draw conclusions from observations, surveys, and experiments.
- Use probability to evaluate outcomes of decisions.
- Present information, findings, and supporting evidence, conveying a clear and distinct perspective, including the appropriate use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) to enhance understanding of findings, reasoning, and evidence.

While many of these skills benefit from knowledge of personal productivity applications, there are few broad-based requirements for heavily technical skills in either high-opportunity positions or occupations overall.

This suggests that as educators consider how to augment classroom instruction with technologies or to invest in applications that support ongoing achievement, decision makers should consider proficiency with the tools that support communication, integration, and presentation skills. And when purchasing software for use within the classroom, educators and school district leaders should consider both the current penetration of that software and its future position to ensure the decision is anchored in common or expected requirements.

Establishing appropriate assessments is essential to ensure a truly career-ready education outcome. Education policymakers should link real-world objectives and high-quality assessments to curricular materials in a way that does not undermine the instructional process or the intentions of the standards. This is particularly important as responsibility for assessments is transferred to the states with the new Every Student Succeeds Act. An assessment program should include:

- Formative, summative, and interim adaptive assessments to engage both teachers and students (Students should be able to observe their progress, and teachers should be confident in the impact of their practices and behaviors in the classroom.)
- Performance-based, real-world tasks to extend beyond the recitation of facts and instead demonstrate the ability to apply standards in practice to demonstrate CIP capabilities

- Sufficient analysis and diagnostic capacity to provide student and teacher feedback on areas of improvement and approaches or techniques likely to result in improved performance
- Appropriate technologies not only to facilitate consistent administration and evaluation of assessments but also to be used as a platform for demonstrating core practices

For Employers

Ensuring employee readiness for any given occupation is an ongoing challenge. New hires will often have only a small set of specific skills required to be successful in an occupation. Job training and ongoing career development is also the responsibility of managers and companies. Training performed after a candidate is hired can augment and refine the employee's skills and provide the specific skills required for that particular position.

It is unrealistic to expect schools to prepare students for any given specific job or even a specific industry. To do so would require schools to prepare students for more than 835 occupations and more than 12,000 skills that might be outdated by the time the students enter the workforce. For effectiveness and efficiency, employers and vocational schools must assume the responsibility of training new career entrants in the job-specific skills the occupation requires.

For Today's Students/Future Job Seekers

Many high-opportunity jobs require little more than a high school degree, including trades such as electrician, plumber, construction supervisor, and millwright. But it is notable that the largest categories in the high-opportunity occupations list — those expected to represent the largest number of jobs in 2024 — are higher-skilled positions in the medical, professional, and information technology areas.

These categories generally require at least an associate's degree, and most require a bachelor's degree or higher. The clear implication is that success in the job market of the future will continue to require investment in higher-level skills and schooling.

For Everyone

Calls to introduce new technologies into the classroom are common, but examples abound of school districts investing in the latest, hottest technology only to find limited ability to integrate it into a meaningful curriculum. Stakeholders must resist the urge to call for technology for technology's sake in the classroom and instead focus on technologies that contribute to the CIP skills.

While it is beyond the scope of this research to suggest specific technologies to include or the best way to incorporate them into curricula, it is essential to align instructional content, in-class expectations, assessments, and educational tools to prepare students and assure stakeholders that the skills students learn in school will be relevant and valuable for the future.

LEARN MORE

Appendix: Skills Definitions

Table 2 lists the skills IDC considers cross-functional skills, CIP skills, and Microsoft Office–related skills.

TABLE 2

Cross-Functional, CIP, and Microsoft Office-Related Skills

Cross-Functional Skills ("Soft" Skills)	CIP Skills	Microsoft Office-Related Skills
Oral and written communication skills	Oral and written communication skills	Oral and written communication skills
Microsoft Office	Microsoft Office	Analytical skills
Detail oriented	Detail oriented	Word processing
Problem solving	Problem solving	Financial reporting
Self-starting/self-motivated	Organizational skills	Financial analysis
Organizational skills	Microsoft PowerPoint	Financial planning
Work independently	Project management	Financial management
Microsoft PowerPoint	Analytical skills	Business analysis
Project management	Microsoft Word	Variance analysis
Troubleshooting	Bilingual/multilingual	Financial modeling
Customer service oriented	Strong interpersonal skills	Technical writing
Time management	Microsoft Excel	Business case development
Business development	Team oriented, teamwork	Spreadsheet software
Analytical skills	Quality assurance	Quantitative analysis/modeling
Microsoft Word	Word processing	Statistical software
Bilingual/multilingual	Data analysis	Presentation software
Strong interpersonal skills	Critical thinking	
Work ethics	Financial reporting	
Microsoft Excel	Data entry	
Team oriented, teamwork	Financial analysis	
Ability to travel	Financial planning	
Technical support	Financial management	
Entrepreneurial	Administrative skills	

TABLE 2

Cross-Functional, CIP, and Microsoft Office-Related Skills

Cross-Functional Skills ("Soft" Skills)	CIP Skills	Microsoft Office-Related Skills
Risk management	Business analysis	
Sales and operations planning	Highly organized	
Strong leadership	Microsoft Project	
Word processing	Variance analysis	
Integrity	Financial modeling	
Process improvement	Keyboarding	
Data analysis	Business analytics	
Quality control	Technical writing	
Critical thinking	Business case development	
Dependability	Spreadsheet software	
Adaptability	Quantitative analysis/modeling	
Data entry	Budget management	
Program management	Statistical software	
Conflict resolution/management		

Source: IDC, February 2016

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Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com