White Paper

Essential Learning: Skills for Early IT Career Success

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IN THIS WHITE PAPER

The demand for information technology (IT) talent continues to grow. Correspondingly, an increasing number of graduates hope to enter the workforce to pursue a career in IT. It's beneficial to educational institutions and incumbent on their curriculum designers to focus on the skills that help their students find success in their IT careers.

But what, specifically, are the skill sets that lead to success in IT careers? Given the speed at which technologies morph and advance, it's challenging for institutions to create a curriculum that is valuable and of practical use to students and beneficial to potential employers.

A recent IDC study, based on a global survey of supervisors of new career entrants, examines the correlation between experiences and success for more than 900 entry-level new hires at over 450 organizations around the world. These new hires were for positions in IT or technical sales where the respondents were directly aware of how well the new hires perform their jobs over two years. The insights gained are useful in shaping educational programs for postgraduate success. Quite simply, this paper identifies the learning experiences that should be built into electrical engineering, computer science, and science curricula, because they are strongly correlated to early success in IT careers.

> **This paper identifies the learning experiences that should be built into computer science curricula because they strongly correlate to early success in IT careers.**

The survey identified two groups of entry-level new hires: successful hires and less successful hires. The successful hires were identified by supervisors as those new hires who they would unquestionably hire again and who had earned a promotion and received a raise in the first year of their career. Virtually none of the less successful hires achieved any of those hallmarks of success, and none would be hired again were their supervisors to be presented with that choice.

The message is clear: career entrants who have had educational experiences that matter to employers, and have had them more often, are far more likely to be successful. Not surprisingly, role-specific technical skills and job experiences are the most influential categories of experiences that hiring supervisors felt impacted success. Nontechnical skills and classroom experiences were also deemed important, though to a lesser degree (see Figure 1).

FIGURE 1

Essential Experiences for New Hire Success
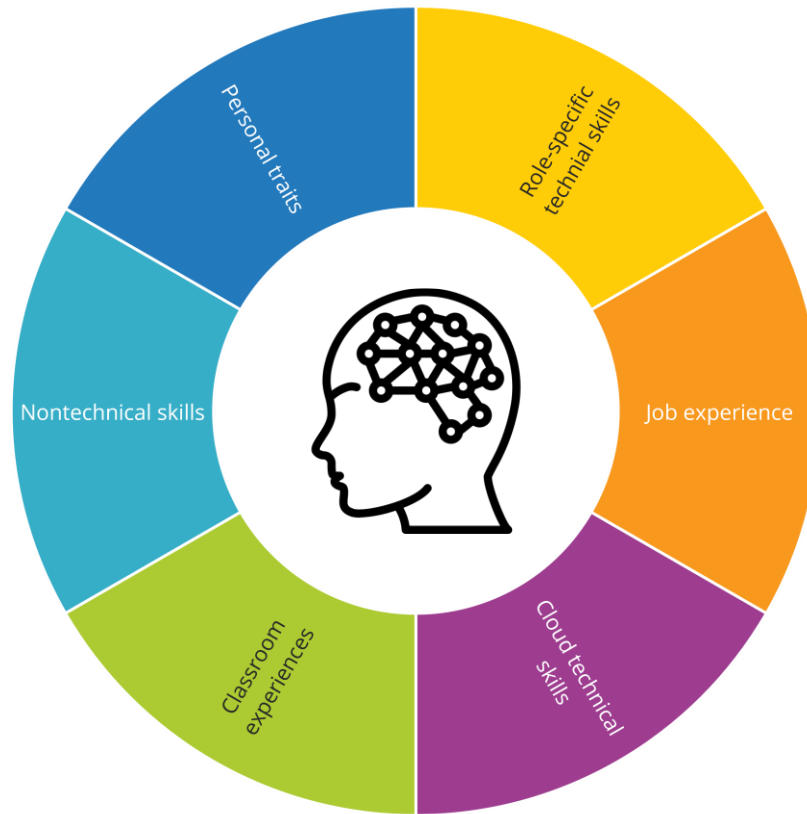
Source: IDC, 2021

Supervisors look to several key indicators that demonstrate a new hire has achieved a specific skill or has relevant job experience. Skill validation is most clearly indicated through testing/assessment, certifications, and review of project portfolios. Most influential job experiences were full-time experience, project management experience, and training experience. Classroom experiences that supervisors looked to most favorably were vendor-sourced courses and certifications and courses that incorporated hands-on projects or labs.

SITUATION OVERVIEW

Worldwide Information and Communication Technology Employment Forecast, 2021-2024 (IDC #US47406321, February 2021), projects that there will be just over 8.3 million new IT positions created worldwide between 2021 and 2024 with just over 500,000 of those in the United States. Obviously, many graduates are needed to fill those positions. IT is an attractive career path, with most jobs offering above-average starting salaries and strong long-term career outlooks.

Jobs available within IT encompass highly technical roles (such as software developers, network/cloud administrators, and computer systems analysts) and technical sales and service roles (such as

software sales consultants, cloud sales specialists, and software customer support specialists). IT tends to offer stable careers with excellent pay. Base salaries for IT professionals are between 50% and 70% greater than average wages earned according to OECD wage data. Many of those positions are available to people just entering the technology field with no previous experience in IT roles.

While many recent graduates expect to quickly find jobs in IT, there are reports that some computer science and electrical engineering graduates are unemployed, are underemployed, or have stopped looking for jobs in their field. Beyond global or local economic conditions, there are likely many reasons, including:

- Curriculum that focuses on low-level programming or fundamental concepts that may be outdated
- Technology skills focused on areas that aren't high growth
- Rapid changes to technology practices and equipment
- Lack of practical experience

The research conducted for this study seeks to reveal and examine those skills and experiences that help promote early career success, with the goal of:

- Identifying the experiences that employers find most valuable to early career success
- Helping educational institutions select experiences and content to include in their technology and computer science curricula
- Providing instructors with evidence to support course development choices
- Assisting students in selecting programs and experiences that will most likely enhance early career success

Methodology/Approach

For this global study, IDC examined the early career success of 906 new hires from 453 organizations in Australia, New Zealand, the United Kingdom, and the United States. New hires were either in IT roles or responsible for technical sales and support related to technology equipment, software, or services vendors.

Data was gathered by conducting a survey of the direct supervisors of new career entrants during the employees' first two years of full-time employment in IT. The hiring managers surveyed represented organizations from a diverse collection of industries and company sizes.

The More Successful Hire Was Much More Successful

If this section were titled *A Tale of Two Cohorts,* the first sentence might read: "They were the best of cohorts; they were the worst of cohorts." Because there really was very little middle ground. The new

hires of the successful hires cohort – representing about half of the total sample – were massively more successful in their first two years of employment than the less successful hires.

Consider the following findings:

- **Successful hires are faster to proficiency.** For the hiring organization, faster time to proficiency means the new hire begins to add value to the organization more quickly. For employees, ramping up rapidly enhances their professional reputation because they are regarded as capable and, in some cases, more advanced than their peers. The successful hires quickly made themselves part of the team. Supervisors identified that 60% of the successful hires were faster to proficiency than expected, compared with 0% of the less successful hires.

- **Successful hires are rewarded for the greater value they offer to their organization.** Continuing that rapid progress, successful employees are more likely to be rewarded with promotions and pay raises because they are more valuable to their organization. 100% of the successful hires were promoted in the first year, compared with just 2% of the less successful hires. Their success and capability became apparent early in their work experience. And similarly, 100% of the successful hires received a performance-related pay raise, compared with only 2% of the less successful hires.

- **Successful hires are projected to have a strong future within their organization.** After a relatively short period of employment, the manager is far more convinced that the new employees are all good fits for the organization and that they should continue pursuing a career in IT. All of the successful hires are deemed to have a strong professional future with the organization according to the manager, compared with none of the less successful hires.

- **Successful hires would be hired again.** The essence of a quality hire is achieved when the manager believes the employee is a strong addition to their team after working with the new hire for two years. 100% of managers would hire each of the successful hires if that employee were a candidate again, compared with 0% of the less successful hires.

There certainly is no doubt that a substantial chasm developed between the successful and less successful employees during those first two years of their career journeys. But what created the chasm? And what placed any given candidate on one side or the other of that chasm? The research findings discussed in the section that follows help answer these important questions.
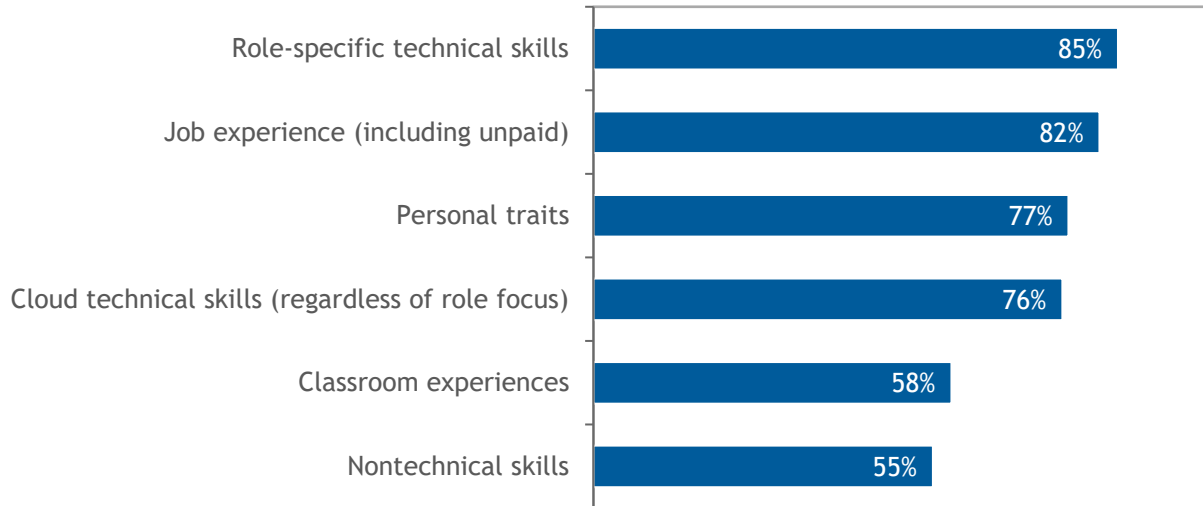
SO WHAT HELPED THEM BE SUCCESSFUL?

The speed with which entry-level employees can absorb their new environment is strongly correlated to the experiences and capabilities they bring with them to their first position. When new career entrants bring relevant technical, cultural, and interpersonal skills and experiences with them, they are more likely to be successful in their role. Managers identified role-specific technical skills (85%) and job experience (82%) as the types of experiences most important to new hire success. And while they are less impactful, classroom experiences and personal traits were also seen as important (see Figure 2).

FIGURE 2

Types of Experiences Important to New Hire Success

Q.   In your experience, please indicate how important each of the following categories of characteristics might be to the success of an entry-level candidate in a new position?

Category	Percentage
Role-specific technical skills	85%
Job experience (including unpaid)	82%
Personal traits	77%
Cloud technical skills (regardless of role focus)	76%
Classroom experiences	58%
Nontechnical skills	55%

n = 453

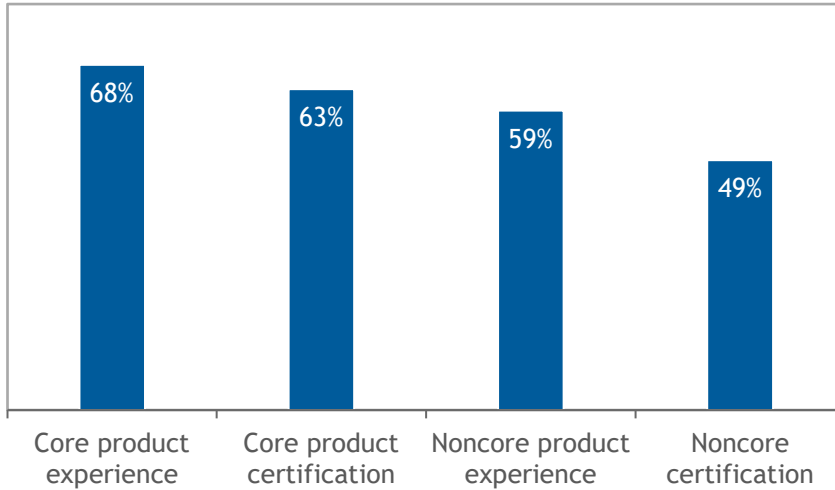Source: IDC's *Essential Skills Survey,* April 2021

Core Product Experience Is the Most Important Technical Skill

Not surprisingly, product knowledge and certifications of the core products and related technologies are generally seen as valuable to success. Of role-specific technical skills, 68% of managers view core product experience as the most valuable, followed by core product certification at 63% (see Figure 3). Managers looked for testing/assessment, certification, patents applied, and letters of recommendation as the top indicators that a new hire has the desired role-specific technical skills.

FIGURE 3

Importance of Role-Specific Technical Skills to New Hire Success

Q.   How important are each of these role-specific technical skills to a new hire's success?

n = 396

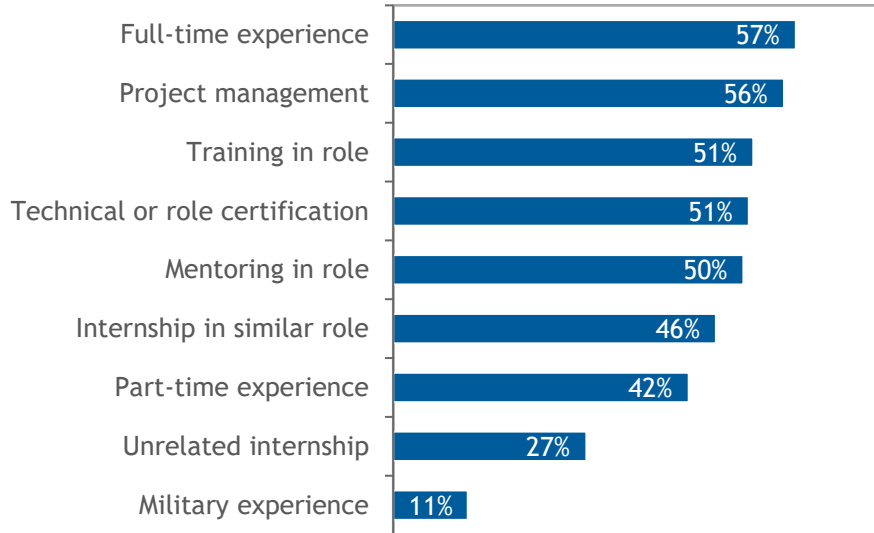Source: IDC's *Essential Skills Survey,* April 2021

Specific Job Experiences Are an Important Success Factor

Previous work experience is considered valuable within any industry, and information technology is no exception. In this study, full-time work experience was considered an important contributor to new hire success by 57% of managers. Specific experiences that are ranked as highly important include project management (56%), in-role training (51%), and technical or role certification (51%) (see Figure 4).

FIGURE 4

Importance of Job Experience to New Hire Success

Q. *How important are each of these job experiences to a new hire's success?*

n = 384

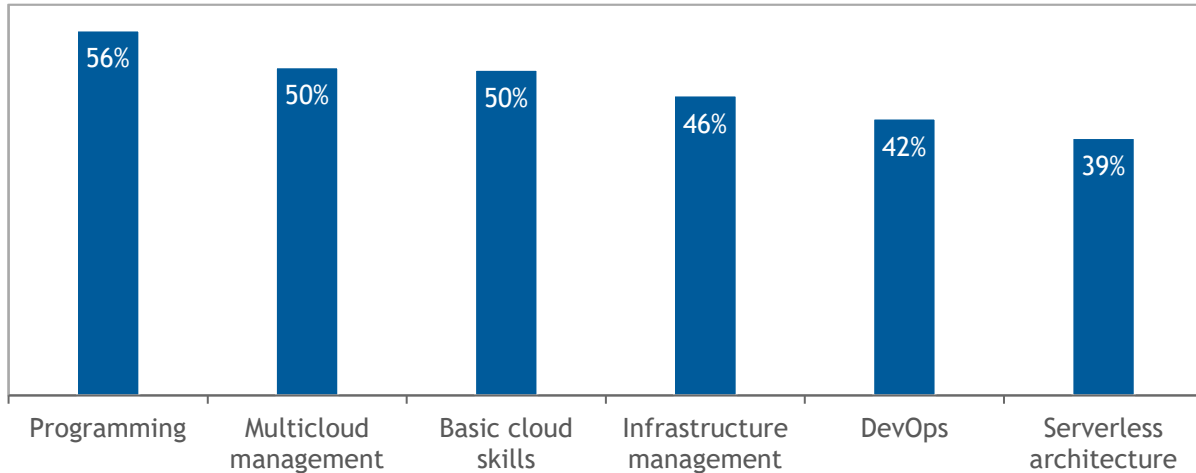Source: IDC's *Essential Skills Survey,* April 2021

Cloud Technical Skills Are Important in Today's Modern Workplace

The cloud is a critical component of many organizations' IT strategies. And for today's new hires, specific cloud skills are very important to early career success. Programming is considered the most important cloud skill at 56%. Multicloud management and basic cloud skills are also both highly ranked at 50% (see Figure 5). Managers looked for certification, project portfolios, and testing/assessment as the primary indicators that a new hire has the desired cloud technical skills.

FIGURE 5

Importance of Cloud Technical Skills to New Hire Success

Q.   How important are each of these cloud technical skills (regardless of role focus) to a new hire's success?

n = 396

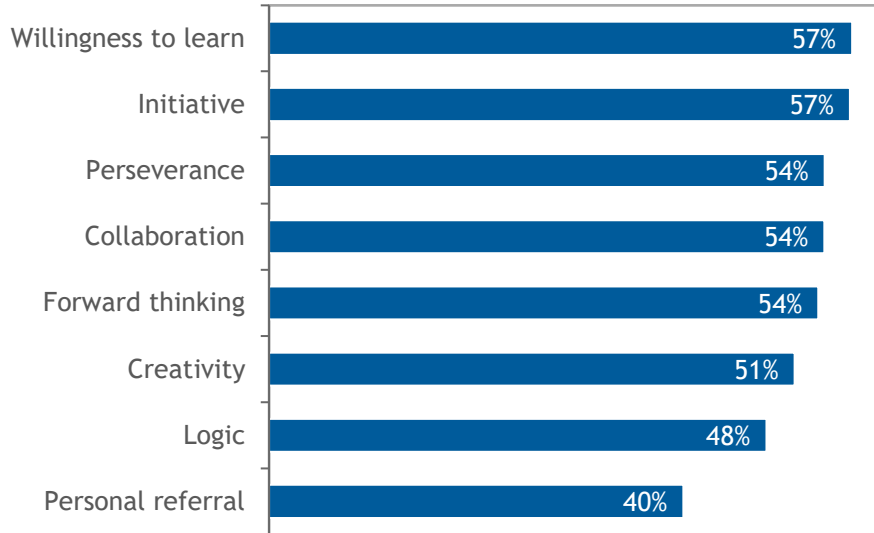Source: IDC's *Essential Skills Survey,* April 2021

Personal Traits Are Highly Impactful to Success

Personal traits may be both inborn and acquired, but educational experience can play a role in activating, honing, and shaping traits such that the new hires better lend themselves to success. This survey confirmed that managers consider the personal traits of new hires to be impactful to their professional prospects. Willingness to learn and initiative are the most important, with both rated at 57%. Perseverance, collaboration, and forward thinking are all considered equally important at 54% (see Figure 6).

FIGURE 6

Importance of Personal Traits to New Hire Success

Q.   How important are each of these personal traits to a new hire's success?

n = 370

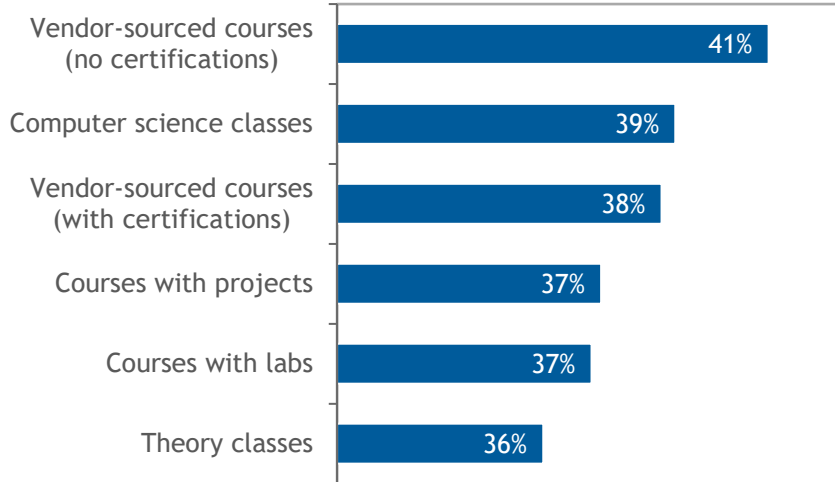Source: IDC's *Essential Skills Survey,* April 2021

Specific Classroom Learning Experiences Are More Important Than Others

The classroom remains at the heart of the educational experience, providing a foundational platform upon which specific skills and experiences can be built — a foundation that, when carefully crafted, serves new hires well in helping them adapt to new technologies with greater speed and proficiency. The modern classroom experience is evolving, often adding practical, hands-on experiences to the valuable traditional curriculum based on theory. Yet certain specific classroom learning experiences are more important than others. At 41%, vendor-sourced courses (that don't include certifications) are the most important classroom experience. Computer science classes (39%) are also important, followed closely by vendor-sourced courses (that include certifications) at 38% (see Figure 7).

FIGURE 7

Importance of Specific Classroom Experiences to New Hire Success

Q.   How important are each of these classroom experiences to a new hire's success?

n = 304

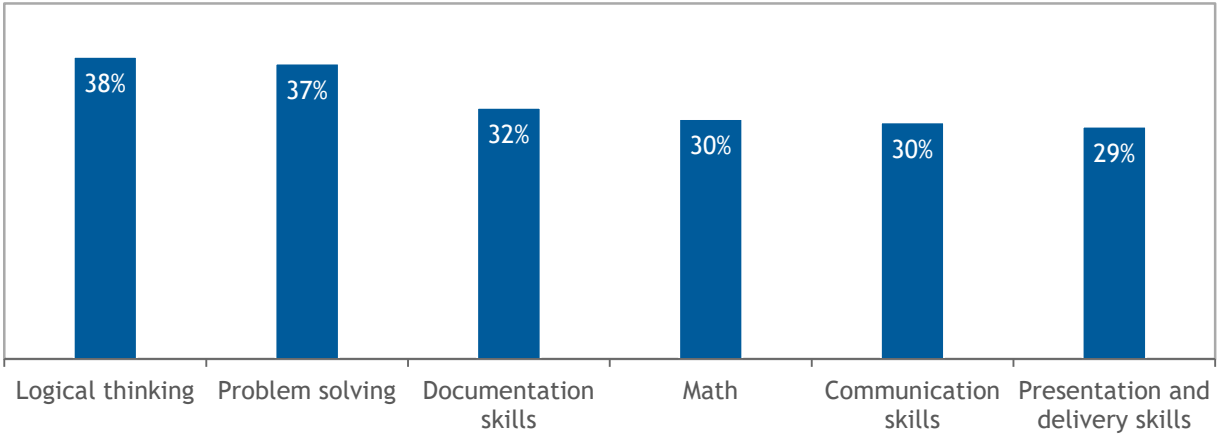Source: IDC's *Essential Skills Survey,* April 2021

Nontechnical Skills Are Quite Important to Success

Success in a technology-focused career isn't solely built upon technological prowess. A range of nontechnical skills are also needed to ensure success. Logical thinking is the most important nontechnical skill with 38% of managers identifying the skill as valuable, followed closely by problem-solving ability (37%) and documentation skills at 32% (see Figure 8).

FIGURE 8

Importance of Nontechnical Skills to New Hire Success

Q.   How important are each of these nontechnical skills to a new hire's success?

n = 289

Source: IDC's *Essential Skills Survey,* April 2021

Vendor-Sponsored Technical Certifications and Hands-On Practice

As described previously, technical vendor-sponsored certifications are considered generally important by hiring managers and certifications appear well correlated with early success. More than 60% of hiring managers believe that certification in a technology core to the position influences success.

More than 40% of managers think that being certified in any technical area contributes to success. And, we also found that new hires are 40% more likely to have achieved technical certification as part of their course work.

This is consistent with the findings described previously: if product knowledge, role-specific technical skills, or cloud skills are important to success, it follows that validation of those skills is also important. And a majority of managers recognize that certifications are among the most reliable validation of skills. Many of the skills that correlated with success and were more common in successful new hires require walking the walk. An interesting finding is how many different ways practical experience is perfectly suited for delivery in the classroom. These include:

- Presentation and delivery
- Collaboration skills
- Programming
- Vendor-sourced courses that include certifications
- Courses with project
- Courses with labs

This suggests that educational institutions can play a critical role in offering experiences that can put new hires on a strong path toward success.

Experiences That Are More Common to Successful Employees

Across all of the experiences and skills in the study, some experiences were perceived by managers to matter more. These skills were cited more often as being important to the early career success achieved by new hires. In addition, IDC analyzed how much more frequently that experience was cited as being important to success among managers of the successful hires cohort compared with the less successful hires cohort. Having those experiences that matter and having them more often favorably influence the success of new hires. Full-time experience, programming skills, project management, infrastructure management, basic cloud skills, internship in a similar role, and creativity were the essential experiences that managers more commonly cited as most valuable to successful new hires (see Figure 9).

Programming skills, project management, and basic cloud skills were commonly cited as most valuable to successful new hires.

FIGURE 9

Essential Experiences Important to New Hire Success

Q. *Which of the following skills and experiences did the new IT professional have (percentage more likely than least successful new hires)? (x-axis)*

Q. *How much did this skill contribute to the success of the new IT professional? (y-axis)*
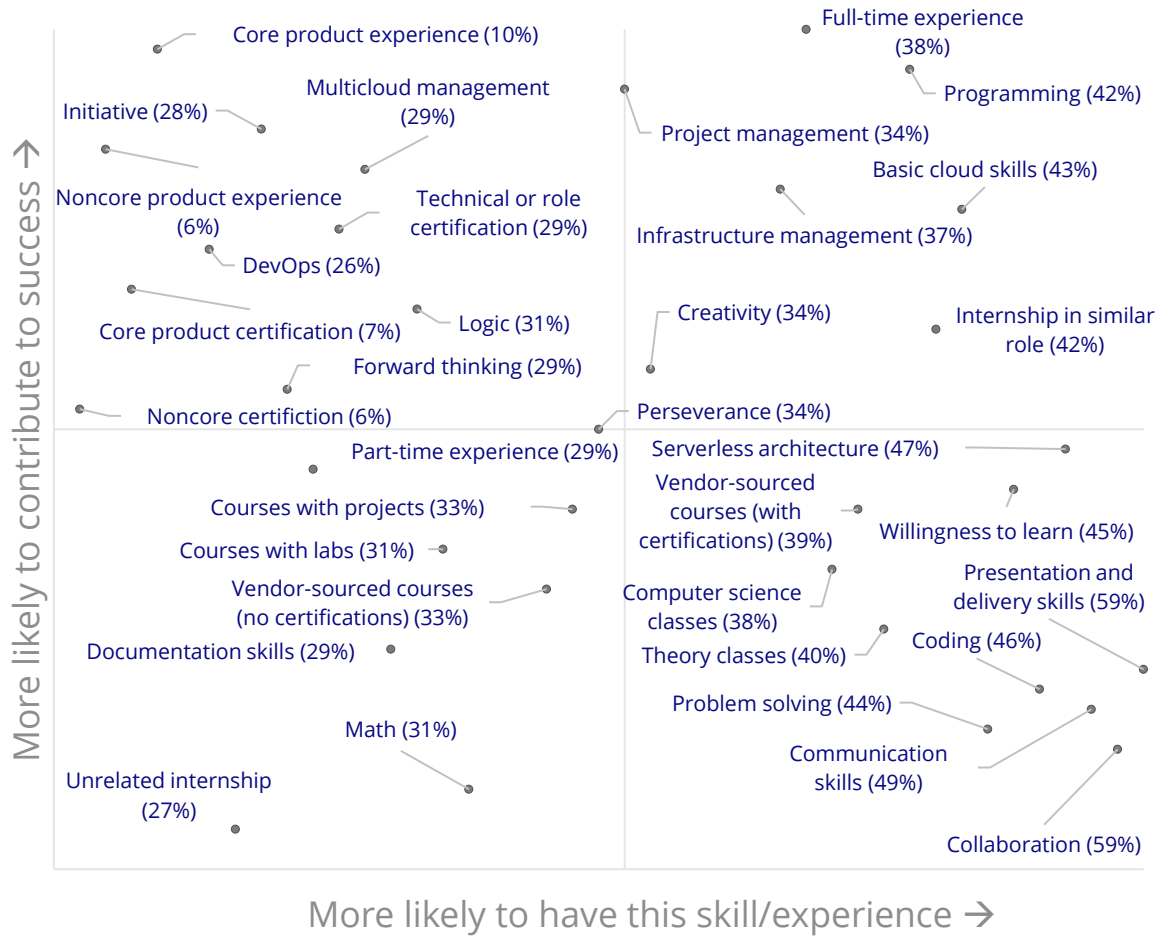
n = 906 recent hires

Source: IDC's *Essential Skills Survey,* April 2021

CHALLENGES/OPPORTUNITIES

Education providers seeking to prepare their students for successful careers in information technology face a number of challenges as they design their curricula and implement needed changes. Challenges include:

- There is difficulty in keeping abreast of key curriculum adjustments needed to keep information technology programs up to date and relevant. Information technology is a highly dynamic, rapidly changing industry, and even those who work in the industry on a daily basis may, at times, be hard pressed to stay in sync with the latest developments.
- Project-based courses can be difficult to develop and implement. But as this research paper revealed, providing students with this specific type of experience is likely to pay dividends in terms of the student's career success.
- Labs may be inaccessible to some students. And, in very recent times, the challenges of providing students with in-person, hands-on lab experiences have intensified.
- Creating rigorous assessments and test banks that measure learning and skills relevant for success in the modern IT workforce is often an expensive and labor-intensive activity for educators, even taking time away from specific teaching and learning initiatives.

Educational providers also have opportunities that can be leveraged for the benefit of both institutions and students:

- Vendors offer experience-appropriate curricula that can help expose students to advanced concepts and technologies. As major technology vendors deploy advanced or innovative approaches, they typically also prepare instructional material and, with increasing frequency, also provide labs and other hands-on approaches to teaching and learning that can support students who may be unable to physically attend institutions because of restrictions or schedules.
- Advances in technology typically occur at a lightning pace, but those advances don't always roll quickly through industry players. Therefore, most new career positions leverage highly available and widely deployed technologies that have proven valuable and cost effective. The stability and popularity of these technologies make them more easily implemented as components of successful educational curricula.
- Entry-level certifications and the training to prepare for them aim students at the skills that managers can leverage right away on the job, enhancing students' chances of early career success.
- Well-prepared students who complete a curriculum that is highly reflective of current industry needs are far more likely to be successful in their early career years.

CONCLUSION

New information technology career entrants with the skills and learning experiences identified by hiring managers as important are far more likely to be substantially more successful.

Industry certification credentials, particularly — when leveraged as indicators of capability, along with the education that helps prepare students to pass certifications — boost new career entrants' chances of success by providing experience with technologies that may be used on the job or that may be similar to capabilities needed for jobs in IT. Cloud skills are increasingly important. Familiarity with

basic cloud administration, along with more advanced infrastructure management, can help new career entrants achieve success in a range of IT roles. And computer science and technical theory classes can help new employees become successful in new IT careers by providing a foundation of knowledge upon which more focused skill sets can be constructed.

Scholastic experiences that provide these skills and experiences, or that provide opportunities to exercise these skills, result in greater early career success. These skills aren't difficult to come by for dedicated students. But student exposure to these skill sets often requires the development of a course or curriculum designed to specifically ingrain and exercise those skills. This study provides a guideline for educators seeking to design curricula and add industry-aligned learning experiences that best position graduates to achieve success in their information technology careers.

About IDC

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