Upskilling India

Building India's talent base to compete in the global economy

IBM Institute for Business Value

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Meeting industry's evolving skills needs

The future looks bright for India's economy, fueled by an entrepreneurial culture and youthful workforce, among other advantages. However, a looming talent shortage could threaten that future. New technologies, ever-changing skills requirements and outdated curricula are challenging India's higher education system in its efforts to equip graduates with job-ready skills. To address these challenges, India's education leaders should consider providing students with requisite skills by partnering with industry, adopting new learning technologies and delivering experience-based, applied learning.

Executive summary

India has significant socioeconomic advantages over other developing countries. A thriving entrepreneurial culture, strong investor confidence, a vibrant diaspora, a young enthusiastic workforce, supportive government initiatives and growing institutional engagement combine to form a solid platform for a robust, internationally competitive economy. But beneath the surface, several challenges are becoming increasingly evident regarding the availability of skilled labor.

A majority of Indian executives surveyed in a recent IBM Institute for Business Value (IBV) global skills study said the quality and quantity of skills in the country's workforce are at least comparable to those of other countries, and many reported them to be superior.[1] However, only 40 percent indicated new employees recruited in local labor markets have the requisite job skills.[2] A dynamic, responsive higher education system is crucial for India to redress current skills challenges and realize its full economic potential. But to serve industry and citizens fully, the system requires significant transformation.

In an effort to identify a higher education model that better aligns India's educational activities with industry imperatives, the IBM IBV conducted a survey of almost 300 academic, corporate-recruiting and emerging education leaders in India. In addition, we analyzed results of recent surveys of startup entrepreneurs, venture capitalists and corporate executives (see "Study approach and methodology" at the end of this report).

We found that higher education leaders and institutions need to evolve traditional educational models; address key challenges in filling the skills gap; and embrace applied educational experiences, emergent technologies, and industry and government partnerships to keep up with today's ever-changing skills requirements.

70%
of India's venture capitalists indicated that startups cannot find employees with the right skills

61%
of India's higher education leaders said that the education system is unable to respond to society's changing needs

Only 40%
of Indian industry executives said new employees recruited in local labor markets have requisite skills

A growing skills gap

The Indian economy has enormous growth potential. While many countries' economies face aging populations and declining markets, India benefits from a young, vibrant population and expanding economic opportunities. As a consequence, entrepreneurship in India has grown rapidly. From 15,000 Indian startups in the 1980s, the number has increased to almost 100,000 in the 2010s.[3]

And India's economy and entrepreneurial community are becoming ever more vigorous. Between 2014 and 2015, external funding of technology-oriented startups more than doubled, and by 2015, more than 80,000 people were employed in startups.[4] What's more, 97 percent of India's startups planned to continue hiring in 2016.[5]

But India's ongoing growth and development is not assured. In our recent report on Indian entrepreneurship, 70 percent of India's venture capitalists surveyed indicated that startups are experiencing difficulties scaling due to challenges obtaining employees with the right skills.[6] Of even greater concern is that, according to estimates from a recent employability survey, as many as 70-80 percent of India's engineering graduates are reported to be functionally unemployable.[7]

India's executives surveyed in our 2016 report on the Indian economy said that improved access to higher-quality skills will boost productivity and efficiency throughout the economy, and 54 percent were eager to better promote skills development.[8] But the types of skills required are changing as rapidly as industries and the economy itself. New digital technologies are disrupting the business landscape with major consequences for how industries are structured and economic activity occurs. Traditional value chains are becoming increasingly fragmented, and new types of business ecosystems are rapidly forming and evolving.

A recent IBV study of global business executives found that 90 percent expect to change their primary business activities due to the emergence of new global business ecosystems – and 92 percent of the Indian executives surveyed agree.[9]

As a consequence, the types of skills required by industry will change. The same study found that 60 percent of global executives expect that employees will need new and different skills to be successful.[10] And 48 percent say that the "everywhere-anywhere" workplace will be the most important trend impacting their businesses.[11]

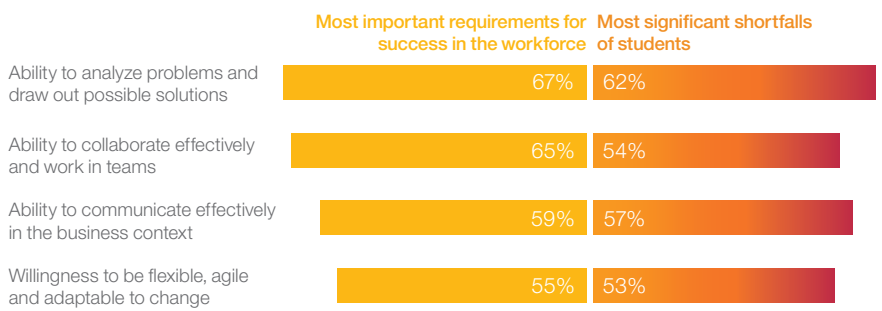
In this environment, 73 percent of education leaders surveyed in our global higher education study agreed that traditional education models, which have been in place for centuries, are now being disrupted.[12] These models need to evolve to continue serving changing needs.

New graduates are already demonstrating deficits in the most coveted employee skills, including the abilities to collaborate, communicate and analyze problems, and the willingness to be flexible and adapt to change (see Figure 1). And in our global report on higher education, 71 percent of surveyed corporate recruiters reported difficulties in finding applicants with sufficient practical experience.[13]

India is experiencing the perfect storm of rapidly changing skills requirements from industry combined with a higher education sector struggling to keep up. With only two universities rated among the world's top 400 higher education institutions,[14] India also has low scores in education capability and enrollment compared to global peers.[15] India will need to overcome hurdles of inadequate education quality, quantity and access to successfully exploit its other economic and cultural advantages.

Figure 1

Global education leaders indicate students lag in the most critical skills areas

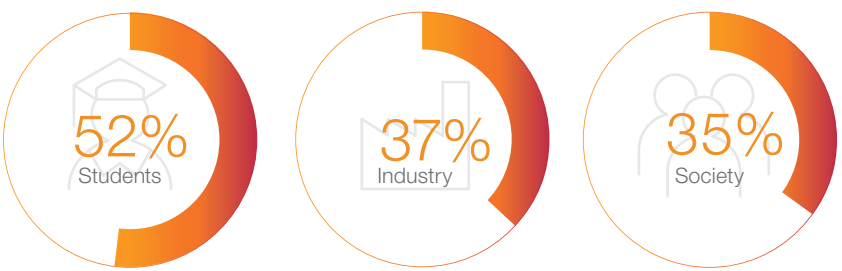


Challenges to meeting industry needs

Indian executives surveyed agree that much of the nation's current higher education system fails to meet the needs of students, industry and society in general (see Figure 2).

Figure 2

Indian executives' responses indicate the higher education sector falls short in meeting student, industry and societal needs



With only four percent of India's population possessing vocational training, for example, compared to 96 percent in Korea and as much as 22 percent in Botswana,[16] Indian executives say the country's higher education system lags in providing broad access to education, transferring relevant knowledge to students and preparing students for lives as entrepreneurs (see Figure 3).

Figure 3

Indian executives indicate its higher education system has room to improve in addressing skills-related challenges

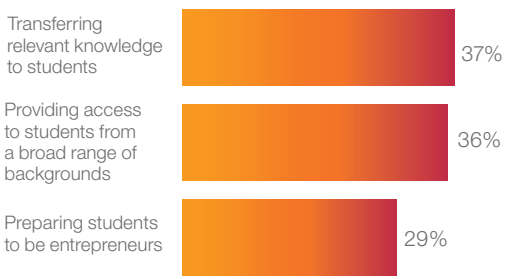
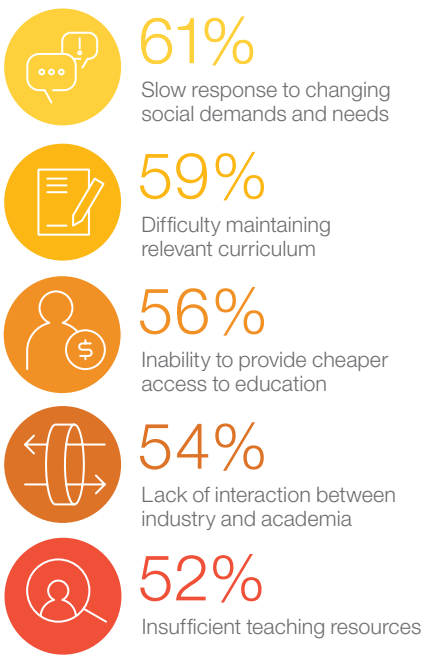


Figure 4

India's education leaders identify five key challenges in the nation's higher education system



Little confidence in the ability to address skills-related challenges exists in the current education system. In our 2016 study on the global skills crisis, only 30 percent of Indian executives indicated the current education system succeeds at ensuring lifelong learning and ongoing skills development, compared to 55 percent of executives globally. The study also found that only about a quarter of Indian executives say the current education system succeeds at updating curricula to keep pace with technology and industry changes – compared to 63 percent of executives globally.[17]

Only 11 percent of India's accredited colleges and universities ranked as above average in 2014.[18] And India's education leaders are pessimistic about the sector's ability to improve in the future. Of those surveyed in our 2016 education study, only half (51 percent) said that the sector will meet industry needs in five years, and a mere 30 percent said that the current system promotes creativity and innovation. In addition, as few as 24 percent said that the education sector contributes to India's economic growth and competitiveness.[19] Specifically, India's education leaders identified five fundamental challenges in the nation's higher education system (see Figure 4).

Sixty-one percent of India's surveyed educators indicate that the higher education system is unable to respond to changing societal needs. Between 2010 and 2030, India's working population is expected to expand from 750 million to almost one billion. Without adequate education and training, such population growth poses increased risk of the emergence of a growing class of the under- or unemployed who are unable to achieve the Indian middle-class dream.

Of equal concern, 59 percent of India's educators say that curricula used by higher education institutions are outdated and irrelevant, and 56 percent indicate that the current system is unable to provide affordable and high-quality access to education for the broader population. Recent IBM IBV research of the global higher education sector reveals that outdated curricula are a systemic problem across all countries.[20] But given the imperatives created by changing industry structures and business practices, countries that can develop more highly responsive curricula will become strongly advantaged.[21]

What's more, 54 percent of Indian educators say that India's higher education institutions suffer from inadequate interaction with industry. And 52 percent cite an acute shortage of qualified and experienced faculty. While new learning technologies can redress some aspects of faculty limitations, there are few substitutes for inspired, engaged and experienced teaching faculty. Connections between universities and industry can facilitate both improved relevance of curricula and expanded research and analytical capabilities for commercial organizations.

Bharathiar University and TCS align curricula with industry needs[24]

In 2013, Bharathiar University struck an agreement with Tata Consultancy Services (TCS) to incorporate the latest technologies into its undergraduate commerce curriculum. The result was a first-of-a-kind, three-year full-time commerce degree with specialization in business process services (BPS). Starting with 150 students, the initiative has successfully expanded to include four affiliated institutions. In May 2016, Bharathiar University renewed its agreement with TCS BPS and further expanded the effort to three additional colleges and new subject areas, including corporate finance and accounting.

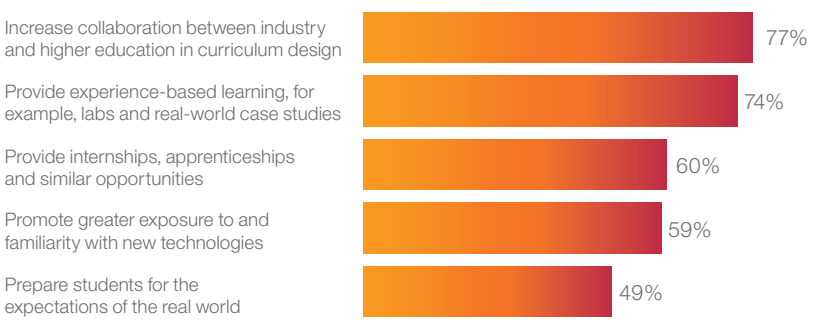
Equipping a "job-ready" workforce

Business and academic leaders agree that higher education is essential to India's future prosperity. Sixty-two percent who participated in our global higher education survey say it helps generate innovation, 59 percent indicate it helps create the leaders of tomorrow and 54 percent say it enables social and economic mobility and improved equality.[22]

Eighty-four percent of education leaders agree that they – and the Indian education system in general – have a direct responsibility for equipping students to be "job ready" upon graduation. And 72 percent in our global higher education survey identify the job placement rate as a critical measure of education effectiveness, second only to development of innovation and problem-solving capabilities at 78 percent.[23] But to achieve these objectives of improved employability, higher education programs will need to become more relevant, practical and applicable (see Figure 5).

Figure 5

Education leaders identify specific actions to address India's higher education performance gap



When asked to rate specific actions to address the higher education performance gap, respondents ranked expanded collaboration between learning institutions and businesses highest, followed closely by the need to introduce more practical and experience-based elements into curricula. And some select institutions are already doing a good job of rethinking how learning should integrate with employment (see sidebar, "Bharathiar University and TCS align curricula with industry needs").

Higher education leaders in India agree that industry participation in education curricula development will increasingly prove essential to supporting successful education outcomes (see "Android skilling program trains two million Indian developers"). In our global higher education survey, 80 percent said that this collaboration between industry and education is necessary in developing curricula and coursework, and 68 percent said that industry demand for specific skills should directly drive higher education activities and strategic priorities.[25]

Android skilling program trains two million Indian developers[26]

Google is partnering with Indian universities, government bodies and private institutes to introduce an Android Developer Skilling Program. The program is aimed at creating a deeper Android developer community in India. With classroom-based training in collaboration with 31 universities and training institutes under the National Skill Development Corporation, Google is focusing on training 4,000 faculty members to support 250,000 students. Collaborating with the National Programme on Technology Enhanced Learning (NPTEL), Google offers free mobile computing courses to help students earn Google Developer Certification. Google is also working with Udacity, an online education business to offer additional nano-degree courses.

Taking quality education to remote India[28]

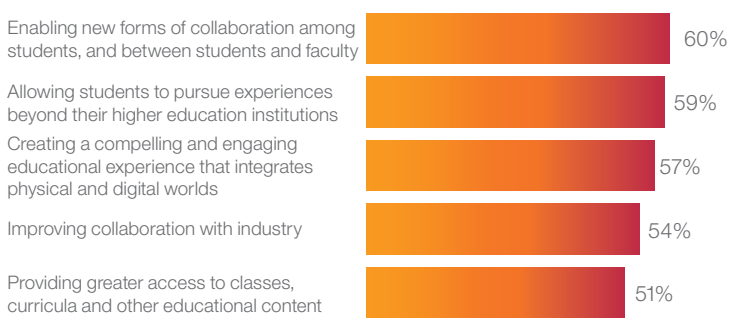
The National Programme on Technology Enhanced Learning (NPTEL) provides e-learning to geographically remote students through online web and video courses across 23 disciplines, with a focus on engineering, science and technology. As a joint initiative between seven Indian Institutes of Technology and the Indian Institute of Science Bangalore, NPTEL offers more than 1,000 live courses targeted at undergraduate engineering students and faculty. Open to anyone free of charge, NPTEL courses use a range of teaching methods, including chalk-and-talk functionality, tablet writing, 3D animation and online forums. Students can obtain a certificate from the Institutes of Technology upon successful completion of formal exams.

Technology also can play a key role in filling the gap (see sidebar, "Taking quality education to remote India"). While 73 percent of India's education leaders surveyed in our global higher education study say new technologies are disrupting higher education, 71 percent conclude that the benefits of these new technologies outweigh adoption costs.[27]

Specifically, they indicate that use of the latest technologies not only provides new opportunities to improve higher education effectiveness, but can enhance the quality of educational experiences, the variety or relevance of education curricula and overall student access to educational resources (see Figure 6).

Figure 6

India's education leaders identify top opportunities driven by technology in higher education



Recommendations

Develop more practical, applied, experience-based education.

Rethink higher education curricula.

- Identify opportunities in current curricula to infuse experience-based and real-world learning experiences, such as internships and apprenticeships.
- Embrace new teaching technologies and techniques that support experimental learning and customized coaching.

Partner with industry.

- Build alliances with industry partners to identify and validate particular needs for specific skills.
- Work with partners to establish apprenticeships, internships and other practical programs.

Share learning and refine strategies.

- Develop a benefits-realization plan to monitor and evaluate the impact of real-world learning programs on student skills and capabilities.
- Create a framework for sharing and adopting best practices with higher education institutions across the nation.

Embrace technologies that improve education access, experience and outcomes.

Assess current capabilities and requirements.

- Engage core customers to evaluate existing capabilities, programs and mechanisms for providing access, experience and variety to identify opportunities for improvement.
- Evaluate analytics capabilities and decision-support tools within the ecosystem to identify opportunities to enhance decision making and improve student outcomes.

Experiment with what's possible using new technologies.

- Closely monitor new education innovations and validate disruptive technologies (such as analytics, cognitive computing and simulation modeling) that can enable expanded access, experience and variety to help improve outcomes.
- Pursue opportunities to experiment and to broaden organizational acceptance of the inevitability of failure as well as success in the process of innovation.

Extend capabilities through ecosystem partners.

- Identify and evaluate new opportunities to expand access, experience and variety by leveraging capabilities, resources and assets of ecosystem partners.
- Conceptualize and execute new operating and business models working with partners that would be unattainable if operating alone.

Build deeper relationships with ecosystem partners

Identify the right partners and empower an orchestrator.

- Identify key potential ecosystem partners from academia, industry and the public sector.
- Define, empower and enable a strong intermediary to recruit partners, build consensus among partners and orchestrate emergent ecosystems.

Crystalize your partner vision and gain commitment.

- Define and reach consensus with key partners around a common vision for the education ecosystem, with clearly defined commitments from all partners.
- Define business intelligence requirements and strategies for collecting and sharing data among partners.

Formalize processes and design for sustainability.

- Define and formalize processes, accountability mechanisms and governance requirements to help ecosystem partners remain engaged and committed.
- Encourage partners to align internal business metrics to the ecosystem vision.

Key questions

- How can your higher education institution meet the needs of core customers and equip students with the skills they need to be competitive and effective in the workforce?
- How engaged and coordinated are your industry, higher education and other ecosystem partners? What opportunities exist to expand these relationships to improve student outcomes?
- How can your organization include more practical, applied educational opportunities that leverage experience-based learning techniques, new technologies and real-world learning experiences (such as internships and apprenticeships) in curricula?
- How are you leveraging new technologies to improve student access, experience, variety and outcomes?
- What opportunities for improvements and new partnerships exist? How can technology be used to improve the efficiency and effectiveness of partner interactions?

For more information

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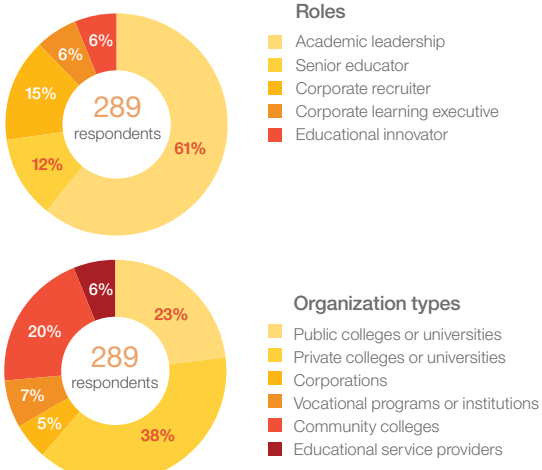
Study approach and methodology

To evaluate requirements for enabling India's higher education system to cope with the nation's skills challenges, the IBM IBV, in cooperation with the Economist Intelligence Unit, surveyed 289 education leaders across five major roles. In addition, we analyzed results of recent studies about the state of higher education globally and how startups and skills needs are impacting higher education in India.



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