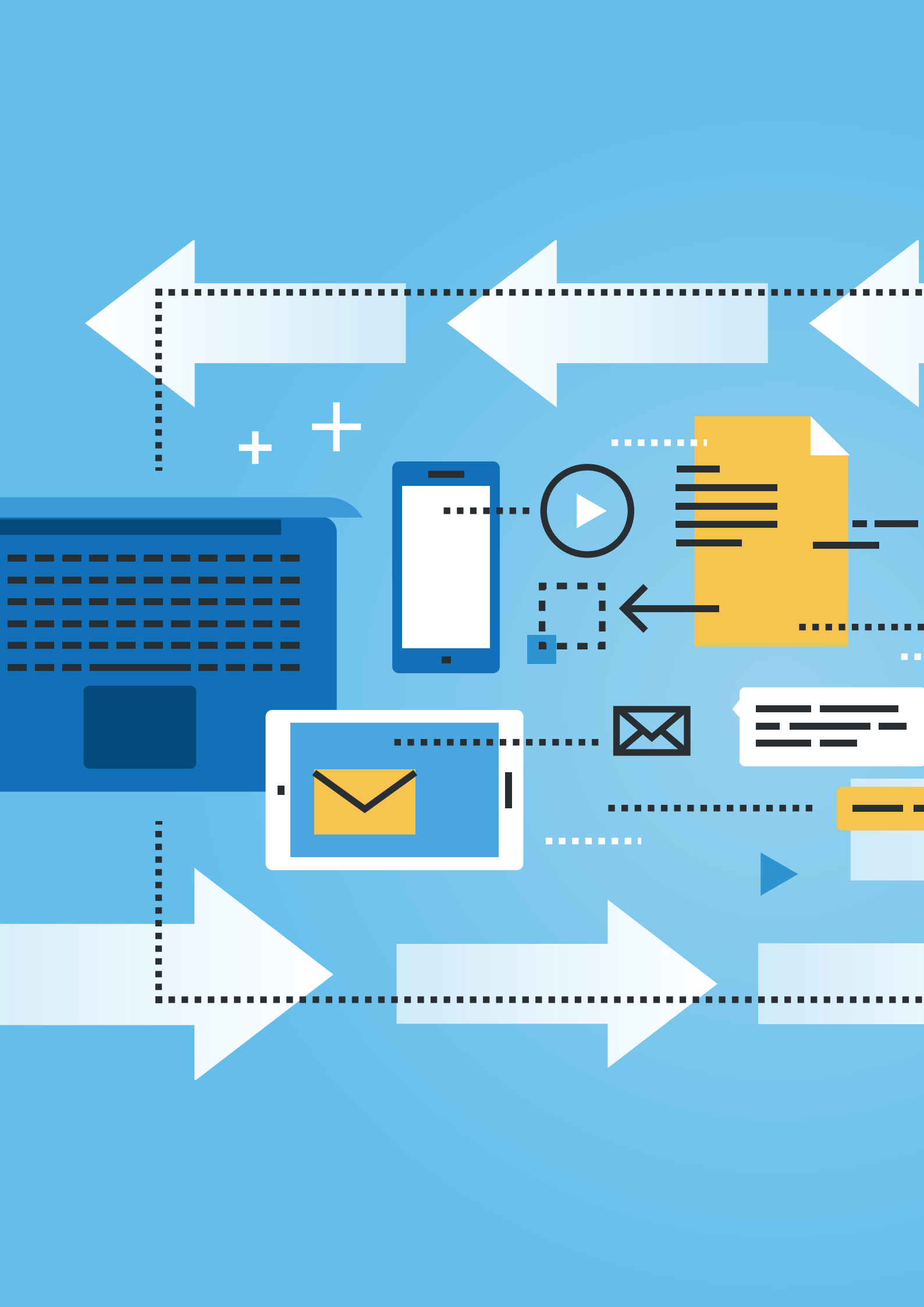


Technopak – SimpliLearn

Whitepaper on Digital Learning Market in India

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Technopak – SimpliLearn

Whitepaper on Digital Learning Market in India

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Business Strategy

Assisting in developing value-creating strategies based on consumer insights, competition mapping, international benchmarking, and client capabilities

- Corporate Strategy
- Organic and Inorganic Growth Strategy
- Financial and Operational Modeling
- Marketing Strategy

Implementation

Leveraging operations and industry expertise to 'commission' the 'concept' on a turnkey basis

- Project Management and Program Co-ordination
- Support for setting up Infrastructure
- Support for kick-starting Business Operations

Partnerships

Identifying and creating national and international partnerships across segments of Education

- Partnership Structuring
- Due Diligence of Partners
- Negotiations for JVs and Management Contracts

Capital Advisory

Supporting business strategy and execution with comprehensive capital advisory services

- Due Diligence – Commercial
- Mergers & Acquisitions
- Fundraising

Impact Assessment

Assessment and Audit of running programs

- Assessment of Schemes and Policies
- Audit of Projects
- Advisory on course to meet objectives

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01

About the Whitepaper

Over the past decade, online and technology-driven education have increasingly dominated educational discourse by circumventing the challenges of classroom-based education, be it cost, accessibility, time or convenience factors. Students are now able to increase their skill-set by opting for courses taught by the best professors and universities in the world.

Apart from students, working professionals are another primary target group for digital learning companies. In the current fast-paced and competitive corporate environment in India, online certifications have been gaining popularity over the last few years. Be it in the IT industry, BPOs, KPOs or even start-ups, constant enhancement of skills is the expected standard. While for most professionals, online certifications are a job requirement, corporate employees are increasingly opting for online courses on their own so as to "stay ahead of the curve".

Digital learning and online certifications open up a gamut of options for students looking to enter both traditional and non-traditional fields. This paper outlines a variety of different drivers and delivery models for students, opportunities and challenges for online education service providers, and emerging trends for the future, keeping in mind current skill gaps and imminent advances in the field of digital learning.

This whitepaper has been created by Technopak, in partnership with Simplilearn, as a basis of reference on the global and Indian digital learning landscape, and in particular, the potential bottlenecks and opportunities for online certifications in India.



02

Foreword

Historically, the Indian education system evolved from the 'Gurukul' tradition. Students resided together at the home of their teacher to receive education from a guru, which was not based on wealth or personal gain. Over time, certain cities such as Varanasi in Uttar Pradesh, Kanchipuram in Tamil Nadu, Nagarjunakonda in Andhra Pradesh, etc. evolved as learning hubs, with famous learning centres such as the ancient Nalanda University, Takshashila University, and so on. By the end of the British era, this tradition had been rendered almost entirely redundant, with formal schooling taking its place. The Indian education practices have now been overhauled by the global practices.

It can be observed that the world has changed dynamically over time. We have moved from cumbersome landlines to sleek smartphones and from postal letters to e-mails. Setting up "brick & mortar" educational institutions will not suffice to address the huge need-gap and ever-changing requirements of the 21st century.

A revolution is taking place in the education system. There is a growing realization that education needs to be viewed from a lifelong learning perspective. People have begun to take their learning into their own hands. As a result, a new phase of education has emerged i.e. "e-Learning". eLearning refers to innovative use of technology in exchanging ideas and providing access to more people. The main aim of online education is to facilitate learning and improve performance by creating, using, and managing appropriate technological processes and resources. These eLearning methods are transforming the learning environment from static to dynamic by breaking down the barriers between students and the world.

The current global market for e-learning, including both self-paced eLearning and the live online learning, has reached US \$107 bn and is expected to grow at a CAGR of ~18% over the next 5 years. Currently, the US and Western European markets have the biggest instances of eLearning adoption, ranging from K-12 solutions to business-related training, with North America being the most dominant market for eLearning in the world.

In US, digital learning is already an integral part of formal education. While the growth rates in US are flat to negative, it contributes the highest revenues in the industry. Western Europe is currently the second largest buying region for eLearning products, but this is set to change as Asia is expected to surpass Europe by the end of 2016.

The digital learning market is undergoing a rapid expansion in India with a large number of start-ups entering this segment. According to Technopak's analysis, India's digital learning market is currently estimated at US\$ 2bn in 2016, growing at a CAGR of 30% and is expected to reach US\$ 5.7bn by 2020.



The increasing internet penetration, time constraint faced by the aspirants, geographical challenges in attending physical classes, and the low expense in the online training are the primary drivers of the digital learning sector. These drivers act as catalysts to further swell the reach of the self-paced learning. The increased demand of quality certification has also resulted in more people opting for online learning programs.

03

Indian Education Ecosystem

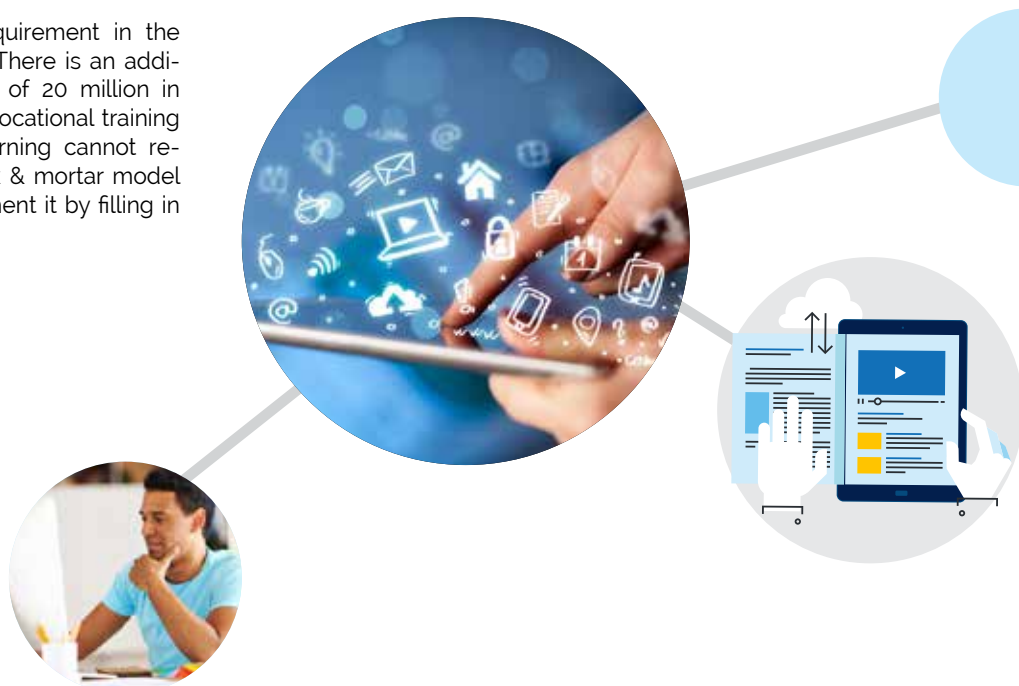
The Indian education market, currently estimated at US \$100 bn, is expected to reach US \$180 bn by 2020. India has one of the largest education systems in the world. It has the world's largest population attending classes at school, an age bracket of 6 to 17 - about 310 million. A typical Indian student is introduced to formal education at the age of five. The Right to Education (RTE) Act provides free and compulsory education for all children in the age group of six to fourteen years as a fundamental right. According to the University Grants Commission, in 2016, India is host to 751 universities and over 35,539 colleges. The distance education system contributed a quarter of student enrolments in the Higher Education System, with over 29 million students enrolled in the Indian Higher Education Systems.

	Schooling	Higher Education	Vocational Education & Skill Development	Ancillary Segments
Segments	Early Childhood Education (Pre-schools)	Graduation (General & Professional)	Vocational Education in Manufacturing	Test Preparation and Tutoring
	K-12 Schools	Post Graduation (General & Professional)	Vocational Education in Services	Content: Textbooks and e-Learning
		Research (PhD.)		Allied Services etc.
Market Opportunity	Market Size: \$52bn	Market Size: \$15bn	Market Size: \$5bn	Market Size: \$28bn
	CAGR: 14%	CAGR: 20%	CAGR: 20%	CAGR: 22%
Regulations	ECE: For Profit K-12: Not for Profit	Not for Profit	For Profit	For Profit

India has around 520 million people in the 25 to 59 (working age) bracket which constitutes the working population; this is expected to increase continuously, even as the world's working population ages and diminishes. India is blessed with a demographic dividend; every third person in India is a youth. These favourable demographics brings along with them enormous economic opportunities. However, the ability to seize these opportunities depend on how successfully the challenges plaguing the Indian education system can be addressed. Indian education framework suffers from poor infrastructure and capacity constraints. There is a shortage of trained teachers, which has become a major concern for the education sector. The comparatively low pay-scale and the availability of jobs in more lucrative sectors are some of the reasons that have contributed to this shortfall.

Educational Infrastructure					
Schools (K-12) 1.5 mn		Colleges: 35,539 Universities*: 751		Vocational Training Centers 22,000	
Govt. 1.1 mn	Private 0.4 mn	Govt. 8,000	Private 28,283	Govt. ITI: 2,571 Polytechnics: 9,900	Pvt. ITI 9,673
No of Students: 260mn		No of Students: 29mn		No of Students: 4.5mn	
Annual Intake 18 mn		Annual Intake 5 mn		Annual Intake 3 mn	
Additional Capacity Required 40 mn		Additional Capacity Required 20 mn		Additional Capacity Required 20 mn	
Additional Requirement for Teachers- 2 mn		Additional Requirement for Faculty- 1.7 mn		Additional Requirement for Trainers- 1 mn	
Additional Resources US\$60 bn		Additional Resources US\$100 bn		Additional Resources US\$40 bn	

The additional capacity requirement in the K-12 segment is 40 million. There is an additional capacity requirement of 20 million in both higher education and vocational training segments. While digital learning cannot replace the conventional brick & mortar model of education, it can supplement it by filling in the existing need-gaps.

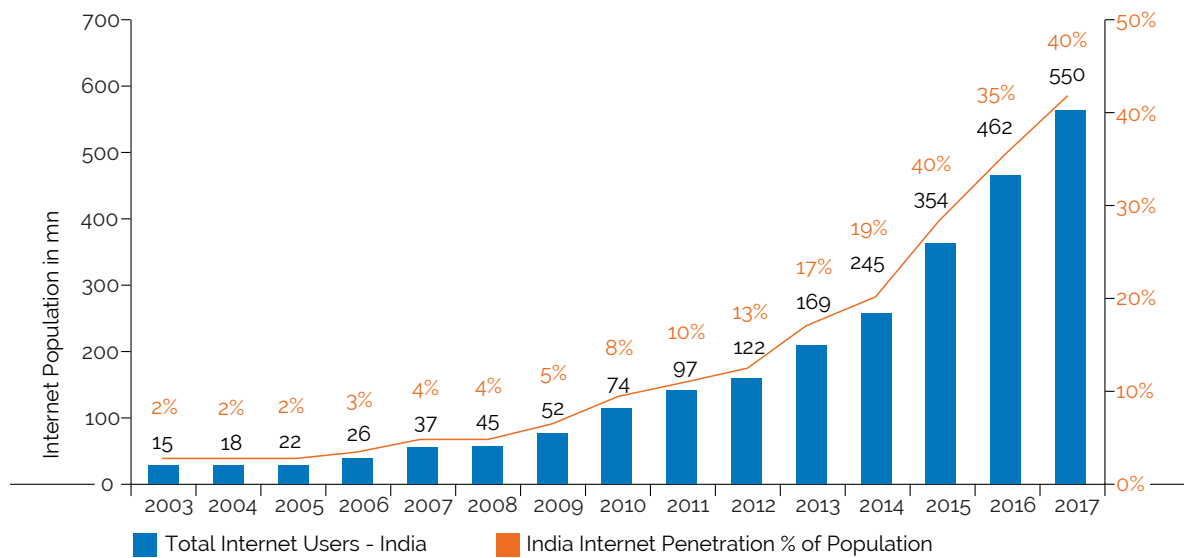


04

Digital Landscape in India

In India, the internet habitual consumers are rapidly increasing, and this is only set to escalate in the future. India's internet user base is estimated to reach 550 million by 2020 with a penetration of approximately 40%, a significant increase from the current 35%.

Internet Users' growth in India

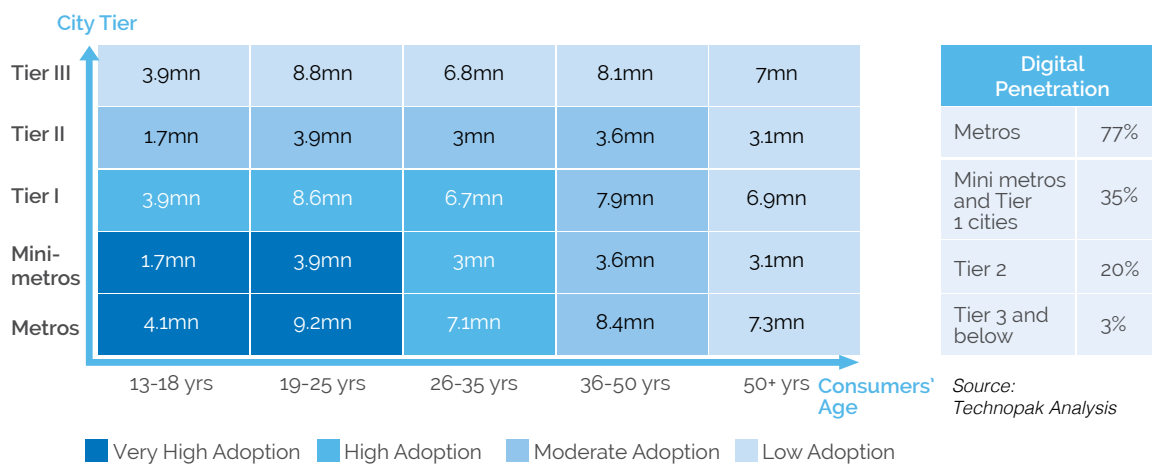


Source: IAMAI, World Bank, CNNIC, Technopak Analysis

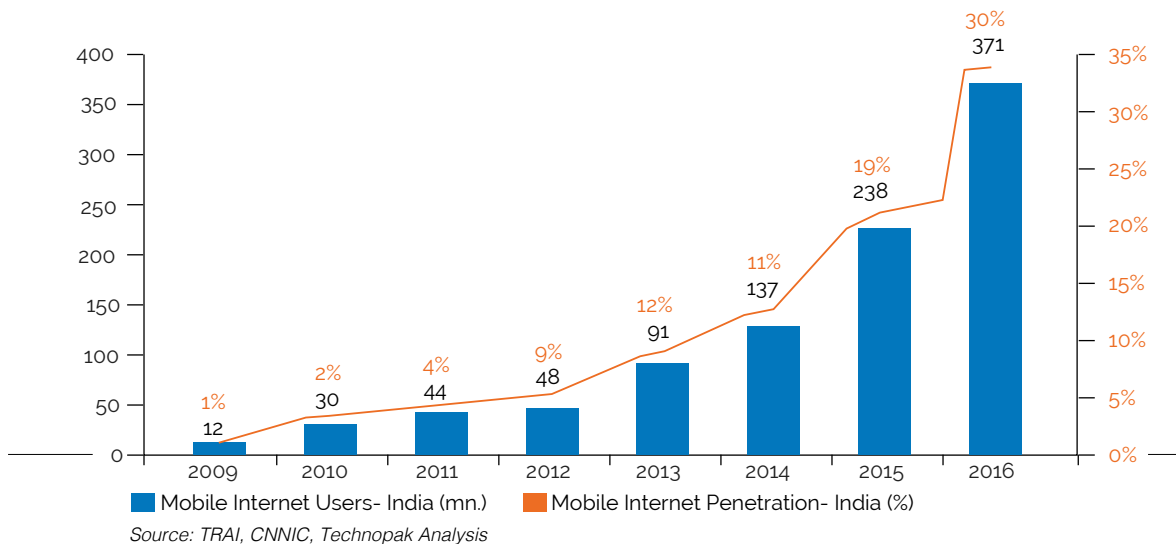


The youth have the highest adoption rate of technology. With every third person in India being a youth, India will witness an incredible pace of Internet growth.

Tier and Age wise Target Population



According to Strategy Analytics Survey report, India would overtake Japan to be the world's 3rd largest 4G LTE market by 2016. It will also surpass US to be the world's second largest smartphone market by 2017. Due to the declining selling price, there is a widespread adoption of smartphones resulting in an enormous surge in the number of mobile internet users in India. India is estimated to have 371 million mobile internet users by June 2016. Mobile internet users have seen much faster growth as compared to broadband users. This growth is expected to continue given the increase in the penetration of high speed Internet, driven by 3G and 4G (more recently) wireless technology.



India's internet user base increased by 49% in 2015. Mobile internet is primarily responsible for this growth, with 94% of users accessing the Internet through their mobile phones in urban India.

65% of the internet traffic comes from mobile phones. Smart phone users in India are estimated to grow at a CAGR of 38% in the next 4 years. Most of this growth will come from device migration of feature phones to smart phones. Combining this with the increase in the Internet user population, a greater demand of digital learning products among the masses can be expected in the future.

05

Broad Market Segments

The digital learning market in India can be categorized from the provider side and the user side. The provider side consists of companies offering Learning Management Systems (LMS) for content and assessment solutions. The user side consists of K-12 segment, Higher Education, Professional Courses, Skill Development, Language Training, Test Prep and MOOCs.

5.1 K-12

With the current enrolment of 260 million, the K-12 segment offers the largest and most attractive segment for digital learning providers in India.

Digital learning in the K-12 space comprises segments such as Smart Class solutions, Online Tutoring, Online Preparation for Exams, Simulation and Virtual Reality, STEM Learning, AR and Robotics, and Assessment. Sub-segments like Simulation, STEM and Augmented Reality, Tablet Learning, and Online Tutoring are at an early stage of adoption but demonstrate a massive potential. Key players in these segments are pushing the boundaries of innovation and delivering learning in the form of novel and more technologically-efficient models.



5.1.1. Smart class:

When the SmartClass model was first launched in the Indian market, the high upfront cost posed a challenge for the players to make inroads. Players explored the model of innovative and alternative financing wherein computer manufacturers financed the product for schools. This was similar to a BOOT/Hardware leasing model. Apart from financing, there were challenges of managing the "last mile" in terms of ensuring that the logistics are handled effectively and schools don't face issues in terms of installing and maintaining the infrastructure.

The Smart Class solution market is dominated by private sector providers. With many new entrants ranging from traditional education companies (e.g. Everonn, Navneet) to IT heritage companies (e.g. NIIT, HCL) and start-ups (e.g. TeachNext), the competitive intensity in the multimedia and ICT market has significantly increased over the last few years. These companies provide teachers with multimedia tools (hardware and software) that help blend constructivist pedagogy, innovative learning techniques, and advanced information for effective teaching. The multimedia and online formats are being used to augment or substitute traditional classrooms.

The current market size for digital classrooms in India is estimated at US\$ 1bn, out of which the ICT market for private schools is estimated at US\$ 266mn and that of government schools is approximately US\$ 740mn. The market is expected to grow at a CAGR of 13% over the period 2016-2020.



5.1.2. Online tutoring:

Online tutoring is another segment in K-12 education that has emerged in the last 5-6 years. In India, online tutoring is operated via two business models - online tutoring model, where the firms recruit teachers who provide online classes to the students on the firms' online platform, and agency model, where the firms collect information of different teachers, add it to their database and students can choose the teachers

for face to face/online tutoring.

The Online Tutoring is currently a US \$3.5 mn market growing with a CAGR of 30% over the period 2016-20. Some of the key players in the segment are



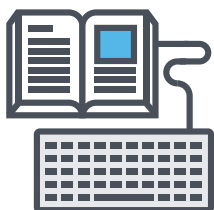
This company is a major player in the online education space and claims to democratize the education system by putting the student at the center of all learning process. It offers one to one, one to many and InstaLearn to its students from class 6 to 12 in math and science subjects and various entrance examinations.



My Private Tutor's website provides a wide range of courses for students and a handsome earning for teachers. Teachers can teach using online tutoring or by working at their center across major cities. Students can request a trial class anytime and after finding the teacher suitable they can continue to study further.



Started in 2007 in India, EduWizards has 100,000 registered students and provides a home tuition option in Delhi and Bangalore and online tuition all over India and in USA. Registration for tutoring is free and company charges some percentage of tutor's income as transaction fee.



5.1.3. Assessment:

Assessment for K-12 involves testing modules for skills learned in different subjects. It stresses more on application of knowledge rather than plain knowledge. These tests focus on reasoning, thinking, and interpretation of data. The students are able to identify their academic strengths and weaknesses and can compare their year-on-year achievement with other students. Similarly, schools can monitor and compare students' performance within the school, region and depending on the test, inter-

nationally. The reports are generally accompanied with an instructional supplement suggesting the future course of action for both students as well as teachers.

This segment is estimated at US\$ 28 mn with a growth rate of 20%.

International Assessment for Indian Schools, NTSE, Olympiad, and ASSET are a few examples of assessment tests conducted in India.



5.1.4. Tablet learning solutions

The Tablet Learning Solution industry in India is still in its nascent stage but is emerging rapidly. Tablet Learning Solutions offer multiple benefits over book learning by enabling the delivery of textbooks in an enriched manner. It expands the learning beyond the classroom walls and allows the teacher to engage with students at home.

The tablet-based learning solutions not only lighten schoolbags but also empower teachers to analyze and monitor students' performance on a daily basis. Homework, assignments, specific content modules can be given on the tablets. With the help of built-in analytics, the teacher can get insights into every student's learning patterns and gaps. It can also provide regular reports to parents, which would help them keep a track on the child's progress.

Edutor, Sharpedge Learning, Classteacher Learning Solutions, Prazas Learning (Tabor), Iprof, Robomate (MT Educare) and Penta T-Pad are some of the key players in the tablet learning solutions industry. The government has also made several efforts to promote tablet usage in Indian schools. Datawind launched the world's cheapest tablet "Aakash" with the MHRD, priced at just INR 1,900. In 2014, a cloud-based tablet solution for school students from class 1 to 12 called 'e-tutor tablet' was launched, which was priced at INR 7,500. With increased spending on education, this market is set to grow at a rapid pace in the future.

CASE STUDY



Started in the year 2009, Meritnation is India's largest online learning portal for school children. They have over 80 lakh users in India and they cater to the needs of students from grade 1- 12 studying in all the leading educational boards. With estimated revenue of US \$5.6 mn, and an employee base of 700+ in India, Meritnation boasts of being the market leader in its segment.

Meritnation provides textbook solutions to all leading author books for students in grade 1-12. They provide study material and summaries of topics to students. In addition to that, they provide innovative activities and practice questions on topics chosen by students.

Recently, Meritnation incorporated live online tutoring to their wide array of services. In this form of coaching, students can opt for batches convenient to their schedule and join batches to take live tuitions. They have regular tests after every class to ensure excellence. Sessions to clear doubts, recorded sessions, and other facilities are a part of this great digital learning experience.

This digital learning portal goes beyond its reach to entrance exams post 12th grade in India and provides coaching for the same on their own platform. They have established a course structure that will help a student crack the toughest entrance exams in India.

Apart from these curriculum-based learning methods, Meritnation also looks at students holistically and intends to help students build their career in a field of their own choice. For this very reason, Meritnation has aptitude tests, personality tests, career guidance sessions, and interest tests among other such services.

5.2. Working professionals reskilling for career advancement

As per industry reports, the online professional education market globally is expected to exceed US\$9bn by 2020, growing at compound annual growth (CAGR) of 14% from 2016 – 2020.

Professionals are seeking expertise through online courses being offered by various companies which bodes well for their career graphs. In a competitive market, for example, IT, the need for expertise surpasses generic education by leaps and bounds. Thus, these online certifications in key areas benefit the wider audience and help them seek better job opportunities and gain knowledge. Developments in various fields aimed at raising awareness about such certifications are helping the global and Indian scenario of online professional education.

Employability is a major factor that is considered by learners seeking online professional education. Market leaders like Simplilearn, AnalytixLabs, Jigsaw Academy, NIIT, Cisco Systems, and Edureka have been providing world-class education in over 150 countries and have redefined the concept of professional education by helping out millions of students, professionals, and educators.

Professionals are constantly looking to upskill and build competencies in the latest technologies and domains. Some of the most sought after categories for upskilling are :



Big Data:

According to Mckinsey, 1.5 Million Big Data managers will be needed by 2018. Big Data is the top skill that companies are looking for. Robert Half Technology, the IT staffing firm, has said that companies want professionals with two distinct skills—the ability to interpret vast amounts of data, and a knack for bringing data to life, visually.



Project Management:

More spending in the information tech industry is driving bigger, more complex projects, which means better qualified project managers to manage those projects. CIOs like Ken Grady of IDEXX Laboratories have said that while project management is not a new skill, it's changed a lot over the years, and it's extremely valuable because people who've mastered it are able to handle fast iteration. It involves coordination between teams and precise expectation management.

According to PMP's talent gap report, 41.5 Million Project Management jobs are expected to be created by 2020.



Mobile App development:

According to market research portal Statista, global spending on mobile apps is set to cross \$35 billion in 2016. Users want crisp, fluid experiences across all their products and companies want to win the attention of consumers. Companies are looking to upskill their employees in prevalent technologies like Android OS and UI, Javascript and MySQL. IAMAI predicts that 20 million app developers will be required by 2020.



Cloud Computing and Salesforce:

Organizations need in-house cloud specialists to handle all their accounts and derive the maximum impact from their systems. Spending on cloud services will grow to more than \$127 billion by 2018, according to an IDC forecast report. Facility with Salesforce, Microsoft Azure, and AWS are the most sought-after skills in this space, but the overall ecosystem is also booming.



Digital Marketing:

Digital Marketing isn't new but is constantly evolving. For any organization, it is imperative to have skilled employees in Digital Marketing who can drive business growth through various avenues like Search engines, Social Networks, Blogs, Content and Emailing.

5.3. Enterprise training

Corporate training can be classified under two broad heads:



Technical Training:

It is related to job in hand and the objective is to impart the technical skills required to successfully complete an assigned task. It may also include updating an employee's skill so as to handle larger responsibilities.



Professional & Management Development:

This may include training in language, business communication and etiquette, cross-functional skills, leadership development, etc.

Currently, corporate training is seen as an essential catalyst that not only enhances the skill-set of an employee but also enables the corporate to understand their psychology. Organizations like Skillsoft work with corporates on a global scale.

In India, organisations like Hughes Global Education are providing Interactive Online Platforms for working executives to pursue executive MBA. Hughes collaborates with reputed institutions in India such as the IITs, IIMs, MICA and NLU to offer online education and training programs on a large scale. Organisations such as British Council offer general and business English courses and communication skill training. Also, organisations like Simplilearn which provide short-term certification courses in a variety of topics ranging from PMP to Big Data and Analytics and Digital Marketing.

If there's one takeaway from the global technology boom in recent years, it's that it's important to keep upskilling employees, or risk falling behind. Change happens at lightning pace and skills that were the window to the future a year ago are now obsolete.



Simplilearn helps Eric Mower spread Digital competency across 7 locations.

One of the best examples of global online enterprise training providers with popular training methodologies is Simplilearn. They have helped organizations across the globe with training and building competencies among their employees.

With a change in top management, Eric Mower, a fully integrated marketing agency based out of US, was looking to choose and drive a successful digital training program across their seven offices.

The agency assembled a senior training team to choose and lead a successful digital training program for their seven offices. The goal was to expand digital competency outside the core group of practitioners and equip everyone to succeed in the digital arena.

When Jonathan Brown was brought on as Director of Digital Strategy, he recommended Market Motive, Simplilearn's US subsidiary, based on his previous experience. After sampling multiple vendors, Market Motive was chosen because of its online accessibility, manager's dashboard, and structured courses designed for a complete start-to-finish training experience.

Roll out : Simplilearn designed and rolled out a custom training program

The custom program consisted of fundamentals, display advertising, content marketing, and email marketing. The first round of training was designated mainly for the account teams and the senior staff - the partners, VP, and higher.

Led by HR Director Michael Slade, the training team put together a presentation about the digital training program. Jonathan gave this presentation at each location, where he also explained how the training was a significant part of participants' upcoming individual performance reviews, and that incompleteness would reflect poorly. He also emphasized the benefits of the training as a career builder and an investment.

“ We positioned it in a way that it really was about them and their ability to do work at our agency, but it really was about them.”

– **Michael Slade**

After the roll-out, the senior team met at least monthly to check-in about what was going well and what could be improved to ensure compliance with the training. Office heads were aware of the objectives and were responsible for helping their teams complete the training, using the manager tools to monitor their teams' progress. They thought outside of the box, and a creative team developed internal campaigns of banners and videos to motivate everyone through the training.

“ There's a lot of work that went into it, both for the administration and the people in it. . . but it's been extremely well received by the people who got through it, and it has absolutely changed the dynamic in meetings. It had an immediate impact.”

Impact : Internal and client facing meetings changed immediately

The changes were immediate. In internal creative reviews - where the account teams meet with the creative teams - the members who had gone through the trainings started asking results-based questions about CTAs, KPIs, and measurement. Jonathan pointed out that prior to the training, these topics were often not raised unless a practitioner was in the room.

Previously, account teams were not as comfortable with talking about recommending digital solutions - now they are some of the first solutions presented. “We now recommend smarter digital strategies for our clients to impact their bottom line,” shared Michael Slade.

“ The biggest impact is the comfort level and the confidence when in meetings with clients. . . They are much more willing to talk about digital marketing topics like , search , display, or design of emails and web sites. This can make a difference in making a client feel comfortable and confident with you and want to do more business with EMA. I think that's really the biggest impact. I know it's not a measurable one, but it's the one I think came out pretty strongly.”

Jonathan Brown, Digital Director, Eric Mower

The round-one participants were extremely interactive with the training, sending emails about it, talking about it, and using it in meetings and with clients. As a result, other team members began asking for the training as well.

End Result : Eric Mower finished with over 95% completion and certification

The end of round one was a race to the finish, but the successful program wrapped up with an over 95% certification rate, and all of those who completed on time were surprised and rewarded with a gift certificate.

“ For some companies, if they say they don't need digital training, then they're probably being silly . . . I just can't imagine anyone not getting something out of it. So I would say that if you don't believe it, then you should try it with a few people and make up your mind after that. I would not ignore it - it can make a huge difference for employees and how good they are.”

Round two is already in motion, giving access to the creative teams and others across the seven locations. The senior training team is meeting about how to best leverage their team members' certifications, OMCP recognition, and newly enhanced distinction as an agency.

5.4. Popular modes of training

Content is one of the most important aspects of any educational platform. However, the method of delivery of that content can make a world of difference in terms of knowledge acquisition and retention. There are a number of new trends that are creating new opportunities for education providers and learners so that information can be effectively accessed by the end-users.

From a global perspective, digital learning can be categorized into three parts on the basis of the implementation of the course:

5.4.1. Self-paced e-Learning:

Self-paced learning is a form of learning that moves at a pace set by the student. The student can start and complete learning targets at any time. S/he isn't required to be online at the same time as the instructor and pre-recorded sessions can be viewed at any time that is convenient to the learner. In some cases, an instructor may not even be necessary. Self-paced learning offers convenience that enables more people to attend training programs and helps in reducing the drop out ratio.

The worldwide market for Self-paced eLearning reached US \$46.9 bn in 2015. The five-year compounded annual growth rate is flat at 0.4%, and revenues will reach US \$47.9 bn by 2020.

5.4.2. Live online learning:

Live online learning takes place at a scheduled time. The students and the instructor are online at the same time. A pivotal role is played by the instructor in the entire learning process. During these classes, it is the instructor who generally sets the pace of the session, distributes the information, and provides instructions to the students.

Benefits of e-learning

Self-paced e-learning	Live e-learning
Learners are able to schedule the program according to their needs and set their own pace	Promotes critical thinking, retention, and rapid learning
Ideal for working professionals who need to maintain a balance between work and studies	Promotes engagement and offers immediate feedback
Permanent content such as company policies can be disseminated efficiently	Efficient for providing real-time data or content that changes regularly

5.4.3. Flexible online learning

Flexible online learning combines the best features of self-paced learning and live online learning. In live online learning, the classes are scheduled by the tutor and the students have to attend the classes at the fixed time. However, in flexible online learning, students can set up live sessions and online classes at a date and time convenient to them. Students get to reap in the benefits of live learning at a pace fixed by them. This model is most prevalent in the online tutoring industry.





Prevalent Business Models

6.1. MOOCs

Since 2012, Massive Open Online Courses (MOOCs) have revolutionized online education, making elite education accessible and affordable to millions across the globe, and have received massive investment and support from corporates and from elite educational institutes such as Stanford, Harvard, and MIT.

An MOOC is an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials such as filmed lectures, readings, and problem sets, many MOOCs provide interactive user forums to support community interactions among students, professors, and teaching assistants.

Most of the online educational delivery models of the past decade or so in higher education such as hybrid/flipped classrooms have suffered from the problems of scale and access. However, in a MOOC, the course itself is scaled to enable an essentially unlimited number of students to take the course from the faculty members, who design and lead the course, leveraging the natural scaling power of online tools.

Development of MOOCs:

cMOOCs :

In 2008, George Siemens of Athabasca University and Stephen Downes of the National Research Council offered the first connectivity MOOC (cMOOC)-Connectivism and Connective Knowledge (CCK08)- with an enrolment of 2200 students. cMOOCs are based on principles from connectivist pedagogy and the instructional design approaches attempt to connect learners to each other to answer questions and/or collaborate on joint projects. cMOOCs are not proscriptive, and participants set their own learning goals and type of engagement, making it tougher to assess/certify participants.

xMOOCs:

xMOOCs were first established at Stanford University with Sebastian Thrun and Peter Norvig's "Introduction to Artificial Intelligence" course in 2011. After the professors offered the course free to anyone in the world, 160,000 people worldwide enrolled. In this type of MOOC, the educational technology is used to replicate a typical face-to-face classroom experience online, at scale. The Stanford branch of MOOCs includes a course web home, typically on a home-grown customized learning management system (LMS), hosting course lectures, homework, and assessments. The centre of the course is the instructor-guided lesson. Each student's trajectory through the course is linear and based on the absorption and understanding of fixed competencies. Learning is seen as something that can be tested and certified. Certifications to establish educational and professional credentials are the main focus of such courses, providing a potential revenue stream for these offerings.

xMOOCs have emerged as the dominant format for imparting online education, with companies such as Coursera, Udacity, and edX, founded by academics, receiving extensive funding from venture capital as well as educational institutions.

COOCs:

COOC stands for Corporate Open Online Course. They are large scale training modules that companies are using to train their employees. Companies generally have great in-house expertise, and COOCs make it possible to take advantage of that knowledge on a larger scale. COOCs are fairly recent and companies seek to capture these new channels to master the intricacies of online training of employees.

The two uses of COOCs are in marketing for branding and other training. They promote a healthy rivalry between the participants and allow closer monitoring of the workers.

SPOCs:

SPOC stands for Small Private Open Course. Contrary to MOOC and COOC, SPOC is aimed to address a small group of people and offer them a tailor made course. SPOCs generally support blended learning and flipped classroom learning. They can include video lectures, assessments, interactive labs, and discussion forums such as those used in MOOCs. SPOCs cut down on the manpower needed to manage an open online course. Not only are there less people who attend, manpower can also be shaved off of parts like application and assessment.

6.2. The Khan Academy/Udemy model

Khan Academy was established in 2006, and while operating in a different format from current MOOCs, it laid the foundation for the development of MOOCs.

Khan Academy provides micro-lectures (largely focusing on K12 topics) on public platforms like YouTube, and makes these lectures, exercises, and resources free to learners and instructors around the world. The establishment of this format has led to an increase in 'flipped classrooms', where instructors use the online lectures for imparting basic knowledge and course material to learners while reserving face-to-face interactions for discussions, application, and problem solving.

This delivery system eschews the scheduled courses and the assessment centric format of MOOCs. Exercises are present to bring about a 'gamification of learning' rather than for assessment and certification purposes.

6.3. Short term, outcome based training model

This model works extensively for working professionals who cannot afford to carve out time separately to attend trainings and upskill giving up their jobs. Simplilearn is the market leader in this segment with short term courses designed to meet this need.

While the previous models provided learning with longer learning cycles with no specific end objective in mind, a new field which is coming up is online training with clearly defined end goals delivered via short term certification courses.

Simplilearn happens to be the market leader in this sunrise sector. The training methodology involves outcome based learning which results in career advancement of its learners delivered through promotions, pay raises or better quality of work.

This model has moved to a combination of Online Live learning and online content of late and professionals usually attend online classes from their home or office on the weekends, thus working around their jobs. Leading training providers like Simplilearn provide the flexibility to attend multiple batches over a specified time period, so that if a participant misses classes, they have the chance to attend another batch later on hence making sure that the learning does not suffer due to personal commitments.

These are usually short courses spanning 2-3 months, post which the participant clears an exam and gets certified thus gaining a valuable add on to his profile in addition to the learning.



Key Global Players

coursera

Coursera is a for-profit company set-up by Stanford professors having 15 million users spread over 190 countries and nearly 1,100 courses on offer from leading universities around the world. It has raised US \$150 mn from venture capital and private equity. Coursera offers its courses for free, but charges a small fee for a 'Course Certificate', a Coursera verified certification that can be used to attract employers or be counted towards college credit. The value of this revenue stream is estimated at US \$1 mn per month (from 2015 onwards).

UDACITY

Udacity is a for-profit educational company that was founded by Sebastian Thrun, after the success of his Stanford Online course on artificial intelligence, the first xMOOC. It has 4 million users and has raised US \$160 mn in funding. Apart from university partnerships, Udacity focuses on engaging with corporates and offers tech-centric 'nanodegree' programs. It is seeking to monetize its offerings by establishing a proctored exam for a fee to provide a certified credential to students.

simplilearn

Simplilearn is the world's largest provider of short-term certification courses for working professionals offering multiple modes of training - Self-Paced Online Training and Instructor-Led Online Classroom Training. Simplilearn has trained more than 500,000 professionals, and has over 2000 Qualified Trainers, with over 400 courses and 40 Global accreditations. It has been ranked the 8th most influential education brand by LinkedIn and has acquired Market Motive in the US to extend its presence both geographically and demographically to professionals. It has raised US \$28 mn in funding till date and had annual revenues of US \$30 mn in 2015.

The company has also launched a new Learning Management System (LMS), called Paper Clip, which has the industry's best course completion rate of 80%.



PLURALSIGHT

Pluralsight is an online education company that offers a variety of video training courses for software development, IT administrators and creative professionals. It was founded in 2004 and is based out of New Mexico, United States.



Skillsoft is an American educational technology company that produces learning management system software and content. It was founded in 1989 and is based out of New Hampshire, United States.



edX is a non-profit enterprise established by MIT and Harvard. It partners with several academic institutions to offer more than 700 courses to 7 million users utilizing open source software. edX obtained funding primarily from MIT and Harvard each of which contributed US \$30 mn while other partners contributed US \$10 to \$20 mn.

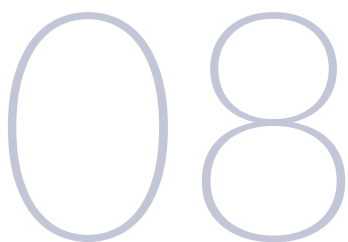
SKILLSHARE

Classes at Skillshare are taught by industry experts and focus on experiential learning. The courses, which are not accredited, accept anyone who wants to learn. The majority of courses focus more on interaction than lecturing, with the primary goal of learning by completing a project. The main categories of learning are creative arts, design, entrepreneurship, lifestyle, and technology. It has raised US \$22.5 mn in funding, and moved to a membership revenue model, featuring access to all courses for a small fee.



Lynda.com is a leading online learning company that helps anyone learn business, software, technology, and creative skills to achieve personal and professional goals. Through individual, corporate, academic, and government subscriptions, members have access to the lynda.com video library of engaging, top-quality courses taught by recognized industry experts. It had more than 2 million subscribers and US \$100 mn in revenue and was acquired by LinkedIn for US \$1.5 bn in 2015.





Key Indian Players



Open and Distance Learning Universities: Distance learning initiatives by Indian universities involve online education dissemination. IGNOU (Indira Gandhi National Open University) offers the largest number of certificate courses at affordable rates. It has started the Virtual Classes Initiative (VCI) in collaboration with Edexcel in the UK and the Government of India's Ministry of Information Technology. Sikkim Manipal University also offers executive education programs under the Open and Distance Learning (ODL) mode, along with Symbiosis Center for Distance Learning and several other universities.



NIIT Limited offers learning management and training delivery solutions to corporations, institutions, and individuals in 40 countries. From 2006, NIIT Limited focused on Corporate Training, Vocational Training for Services Sectors, and Education and Training in schools. It had revenues of US \$57 mn in 2014-15.



Educomp is the largest Education Company in India and the only company spread across the entire education ecosystem. Educomp has reached over 30 million learners and educators across 65,000 schools since 1994. It is a leader in digital content solutions for the K-12 segment. Its flagship product, the Educomp Smart Class is a teacher-led educational content solution using VSAT (Very Small Aperture Terminal) and focusing on K-12 and test preparation. It claims to have improved educational outcomes in private schools. It had revenues of US \$91 mn in 2015-16.



It started delivering VSAT-enabled education in India in 2004, and by June 2011, had over 8 million students at 10,139 learning centers across 27 states. The company provides a blend of traditional and digitalized content to schools, colleges, and retail segments. Everonn's strategy has helped in offering quality education to students even in the most remote parts of India. It had revenues of US \$4.26 mn in 2015.



Intellipaate, started in 2011, provides online training to IT professionals through corporate training and self-paced courses and offers over 80 technological courses across different domains. The company is witnessing almost a 1,000% increment in terms of growth and has more than 2,000 users. The company caters to corporates like Genpact, Ericsson, Sony, CISCO, TCS, Wipro, and Tata Communications among others.



LearnSocial works on an aggregator model and offers live instructor-led online courses on a wide range of topics including technology, languages, business management, robotics, arts such as music, editing, and many others. The platform supports very low internet speeds thus extending its reach to remote areas. It has partnered with over 200 experienced industry experts. It has more than 200,000 users and had raised US \$5 mn in Series A funding.

Online coaching and test prep:



Byju's Classes: Byju's has become India's largest Education Technology (Learning) company by reinventing the way students learn, through its learning app, with over 3.5 million students on its platform. The Learning App makes use of original content, watch-and-learn videos, rich animations and interactive simulations. Byju's has raised US \$75 mn from Sequoia Capital and Sofina in the largest fund raise by an EdTech start-up in India.



Meritnation: Meritnation is an online education portal that provides interactive study material for K-12 students. The website has crossed 10 million users and claims to be adding 8000 new K-12 students everyday, from which over 60% join from mobile. Additionally, 30% of its users come from Tier 2 cities and below. Meritnation reported revenues of US \$3.2 mn for 2014-15.

Traditional test preparation institutes: Traditional test preparation institutes like Aakash Institute, T.I.M.E, Mahindra, Paramount, etc. have also started providing e-packages to students to prepare for competitive exams. These packages include series of online video lectures and test series.



Opportunities & Challenges for digital learning Service Providers



Strengths

- High level of internet penetration
- Volume/Market Size
- Large Population of Digital Natives
- Large Scale Adoption of new Technologies
- World's second largest MOOC enrolment
- Low developmental costs



Weaknesses

- Low Price Points
- Ambiguous Regulatory Framework
- Credibility of Online Qualification
- Low acceptability at job interviews
- Lack of awareness
- Lack of Content in vernacular
- Low retention



Opportunities

- Demand for Quality Global Education
- Embedded Soft-skill modules
- Co-branded Certification
- Govt. target of training 500 million by 2022
- Large Private sector presence in e-learning
- Increasing preference for online certification



Threats

- Lack of infrastructure
- Faculty resistance to adoption
- Unchecked proliferation of low quality e-learning programs and providers
- Degree/diploma mills

Strengths and opportunities:

Internet and digital penetration:

India currently has 462 million internet users with a penetration of 35%. This growth is being driven by the adoption of mobile internet with 65% of internet traffic originating from mobile devices. With programmes such as the Digital India Initiative, digital literacy and penetration is projected to increase significantly in the next few years, further increasing the market opportunities for digital learning players.

MOOC Enrolment

The democratization brought about by affordable and accessible MOOCs has helped in addressing the quantity and quality education gaps in India, by supporting and replacing traditional classrooms. India has the second largest MOOC user base after the US and its rapid expansion means that an increasing number of course enrolments have a majority of people from India.

Government Support

The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. Recently, 22 new initiatives have been launched to widen the scope of the Digital India Programme to include projects in the areas of digital infrastructure, digital empowerment, on-demand government services and promotion of industry with the aims of universal digital literacy and universally accessible digital resources. The government is supporting the adoption of digital and multimedia technology in schools through the ICT@Schools program under the RMSA and SSA schemes. The estimated expenditure on the program in 2016 was US \$600 bn by the various state governments.

Private Sector

Companies like Educomp are using multimedia platforms such as 'Smart Class' to replace and augment traditional classrooms. The Supplementary Education System (SES) consisting of private coaching is a major component of the growth in online education. The use of VSAT technology as well as mobile applications is allowing companies like Everonn to reach remote areas of the country. Companies such as Simplilearn and LearnSocial are focusing on skill-based professional workforce training.

Current challenges:

Lack of digital infrastructure

A major proportion of the Indian population still does not have the required internet bandwidth and many are illiterate in digital terminologies and devices.

Creation of 'Digital Divide'

Almost 85% of the Indian population does not speak or write English. Therefore, in a country like India, digital education can lead to creation of a 'Digital Divide'. In order to prevent it, the government needs put in effort to make Digital education more inclusive for all. By creating apps in Hindi and local languages, it can tap the rural market potential.

Reluctance among teachers

Teachers and faculty in India are not ready to adopt new technology at a mass level and products like Smart Class are locked and kept for sporadic use. Products like curriculum management and LMS require a lot of administrative work, and hence teachers prefer sticking to their traditional teaching methods.

Overregulated & under-governed

Segments such as online test preparation are highly regulated. It reduces the autonomy with the private players, thereby causing major operational challenges. Furthermore, any issues encountered are not dealt with promptly, making it difficult for the players to ensure smooth functioning.

High dependency on private tuitions

In most of the cases, school children are being spoon-fed and have become dependent on tuitions. This makes it difficult for self-paced digital learning products to create inroads into this market.

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Increased Preference for Online Certification

A large number of people are taking up online courses and certification programs to improve their skill-set and brighten their career prospects.

According to a study conducted by Simplilearn to understand the consumer behaviour towards online courses, the short term career goal across all groups is to switch companies due to the scope for higher pay hikes and better designation while long term aspirations are a mix of wanting to start their own company to reaching a higher managerial position.

Now-a-days, it's not enough to just be at a high designation and a good pay. People want to have their own identity in the organization and be looked at with respect. In this fast-paced and competitive world, it is commonly felt by these individuals that if they do not keep themselves upgraded they will lose out to those who do. They do not want to get stuck because of failing to get timely re-skilled and up-skilled.

There is a feeling across groups that regularly up-skilling in a practical and hands on manner is a key factor that helps you progress in your career. Pro-actively getting relevant and timely training and certification is a way of taking control of their careers.

It was found out that 21% of the respondents got a salary hike and another 21% got a new role after completing an online learning course. Furthermore, 28% of the people interviewed have already used online learning courses and 24% have taken up certification programs.

The flexibility of attending classes at a convenient time and location are two major factors that have given a major boost to the online certification segment.

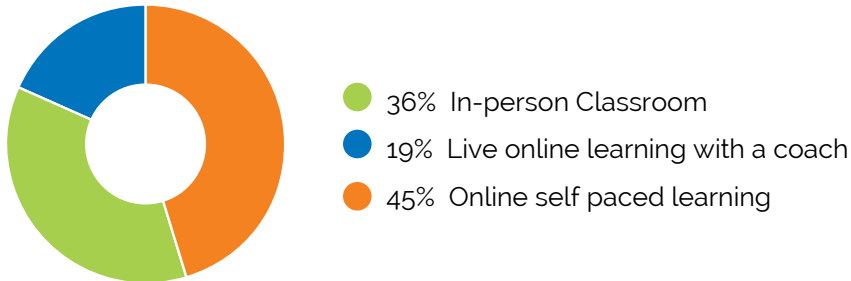
“ We don't have the time or patience to travel somewhere at a fixed slot to attend classes ”

- 23-28-36, IT Professionals

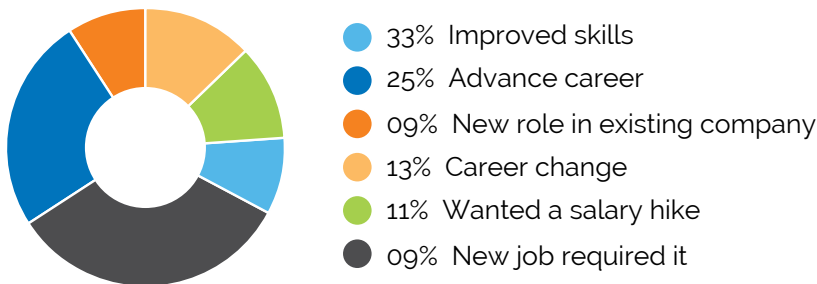
“ Classrooms are for freshers who want to learn the basics. We already have a strong foundation on our domain so online training is more suitable ”

-30-36, IT Professionals.

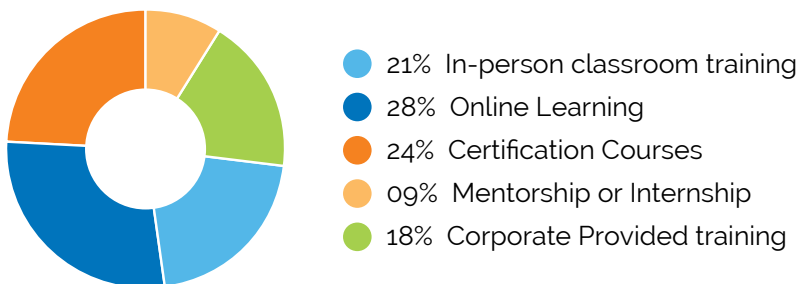
Preferred Method of Learning



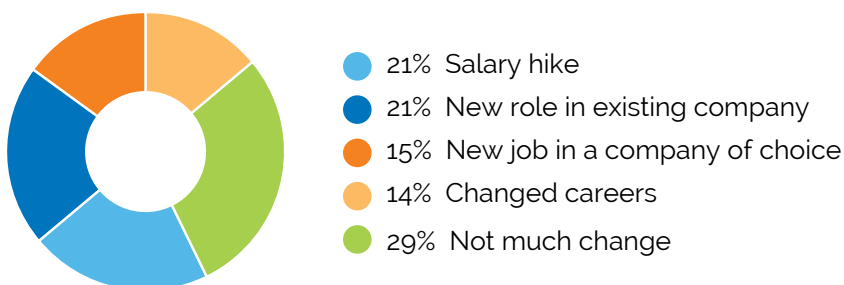
Reasons for taking Online Courses

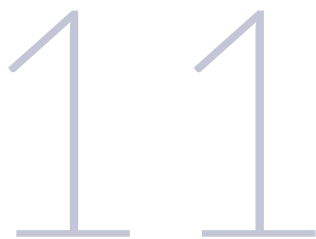


Steps Taken to Improve Skill Set



Changes Experienced after Completing Online Courses





Emerging Trends and Forecast

11.1. Gamification of learning and training

Gamification applies game design techniques and mechanics to digital learning courses. These strategies can help organisations motivate reluctant workers and increase learner engagement and achievements. Forbes estimates that 75% of the workforce are casual gamers and though the ROI on gamification is tough to estimate and can vary wildly, the incorporation of game design techniques such as badges and leader boards can increase engagement and achievement because of the social and competitive aspects of games.

Khan Academy has been leading the gamification of learning in online formats since its inception in 2006 and now the strategies are being adopted by corporations such as Deloitte which has brought about gamification of leadership training through its Deloitte Leadership Academy (DLA), Cisco (social media training), and Google (expense submission and compliance) among others.

Educational learning companies such as Brainscape, which boasts of 7 million users of its virtual flashcard program for information retention, and ClassDojo, a cloud-based classroom management tool that helps teachers incentivize good behaviour through gamification, are utilizing game design techniques to get improved results. Brainscape claims its students master new information 5 times faster than traditional methods.

The increasing focus on gamification of training is expected to make it a US \$10 bn global industry by 2020. With the gamification digital learning industry predicted to be worth US \$2.8 bn in 2016 itself.

11.2. Simulation and Virtual Reality in Education

Simulation can be defined as imitation of the operation of a real-world process or system over time. There are distinct pedagogical differences between Simulation-based learning and Game-based learning. Simulation based learning can be broadly classified in four categories: Physical Object and Environmental, Process, Procedural, and Situational. Physical Object and Environmental simulation and Process are a part of "learning about something", whereas Procedural and Situational can be categorized as "learning to do something".

The Global Market Size of Simulation-based learning is US \$4,465 mn. With a share of 0.25%, the Simulation learning market in India is estimated to be US \$13 mn in FY 2015. It is expected to grow at a CAGR of 100% over the next 4-5 years.

Some of the apps pushing augmented reality in India are:

- **Sakaar**- Indian Space Research Organization's first augmented reality app for android devices. This app is one of the most precise app India has on this genre.
- **Fetch! Lunch Rush**- This app uses virtual reality to improve mathematics skills where numbers comes to life.
- **Geo Google**- This app brings geography alive in the classrooms. This app helps calculate the altitude and the latitude.
- **EON Reality's Virtual 3D Learning solutions**- This app has universities like Carnegie Mellon University among its top customers. It is used by university students and is a more complex one, helping them to solve calculus and equations.
- **Kompanions**- India's first 3D knowledge cube helps a kid to discover himself.

According to the global research firm MarketsandMarkets, the international VR technology market is expected to reach US \$15.89 bn by 2020.

It has a huge potential in the digital learning market. For example, by assuming a virtual identity, each student can attend classes, go on field trips (to say, ancient Rome) and perform experiments in labs, all in the virtual domains. A number of new inventions are coming up. For example, Plopi is a game for kids (ages 4-8), designed to teach Mathematics without numbers.

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Conclusion

Although education is increasingly becoming technology-driven, it is important to note that such digitization is commonplace only in urban areas, primarily in metros, mini-metros, and Tier 1 and 2 cities. There are significant challenges in the mass adoption of education-oriented, technology-based products and services which are restricting further innovation in this space.

Policymakers are making strides in the right direction by taking a proactive stance on mass adoption of digital learning. One such example is the launch of Indian MOOCs platform - "Swayam". The All India Council for Technical Education, or AICTE, announced that it may permit up to 15% of the credits of a degree to be obtained through MOOCs.

While there are positive trends regarding the adoption of digital learning in pan-India, poor internet connectivity in smaller towns and semi-urban areas forms the primary impediment towards widespread adoption of this technology-driven learning. The massive potential of learning tools such as gamification, video based learning, competency training, etc. can only be realised once these issues are circumvented. It is expected that in the coming decade, India will see a far-reaching transformation which will be driven by digital learning players truly taking technology-driven education to a pan-Indian level.



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About Technopak

Technopak is a leading management consulting firm which has built and enhanced business capabilities with integrated strategy, performance enhancement, due diligence and process improvement solutions for leading Indian and international companies.

Technopak has over 24 years' experience in providing concept to commissioning services to its clients across the sectors of Retail, Consumer Products & E-tailing, Fashion – Textile & Apparel, Food Services & Agriculture and Education.

The team currently consists of 100+ skilled professionals from leading Indian and international institutes. Most of the consultants have hands-on industry experience in their fields of specialization and represent a wide variety of functional backgrounds. This enormous knowledge and talent pool enables Technopak to create special customized teams for each project depending upon the client's requirements.

BUSINESS STRATEGY:

Assistance in developing value creating strategies based on consumer insights, competition mapping, international benchmarking, and client capabilities

- Entry strategy for setting up education venture
- Organic and Inorganic Growth Strategy
- Financial and operational modeling
- Marketing strategya

PARTNERSHIPS:

Identification & creation of national and international academic partnerships across segments of Education

- Partnership structuring
- Due diligence of partners
- Negotiations for NS and management contracts

IMPLEMENTATION:

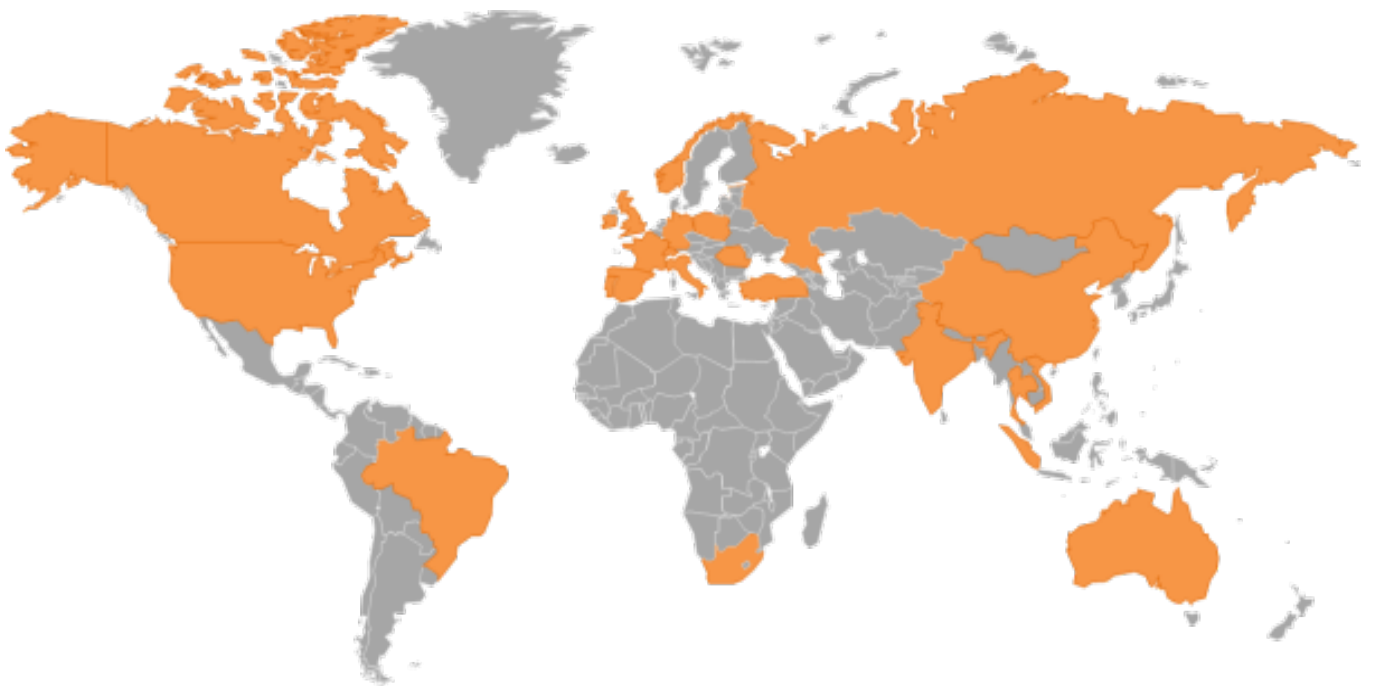
Leveraging operations and industry expertise to 'commission' the 'concept' on a turnkey Project Management basis

- Project Management & Program Co-ordination
- Support for setting up the infrastructure
- Support for kick starting business operations

IMPACT ASSESSMENT:

Assessment & audit of running education programs

- Assessment of schemes and policies, to increase effectiveness
- Audit of projects. Advisory on course to meet objectives



Technopak is a member of the Ebeltoft Group, a network of International Experts with presence in 24 countries. The Ebeltoft Group has provided a gamut of services to the retail sector players, including strategic planning, retail concept innovation, store design, product management etc. in its 24 years of existence.

The worldwide presence of its members allows the Ebeltoft Group to tap into each member's regional expertise, which is an asset to other members in their global endeavours. The Group's long experience is reflected in the range of the services it offers in the retail consultancy domain.



About Simplilearn

Simplilearn is a pioneer in online education for professionals - creating course programs, projects and hand-holding them through the entire process of upgrading their skills and providing certifications on successful completion of the course.

Simplilearn is one of the world's largest professional certification company having trained over 500,000 professionals across 100+ countries. The brand's value proposition is uniquely differentiated from the rest of the MOOC players by the fact that it offers short term, outcome-based certification programs with a clearly defined end goal - career advancement for its learners. The company provides courses in the following popular categories - Big Data & Data Sciences, Digital Marketing, Project Management, Android & IOS programming, IT Services & Architecture, and IT Security amongst others.

It was started in 2009 by Krishna Kumar, an engineer who was in the process of working on a transfer of his first startup - TechUnified when he realized he could utilise his free time and blog about his project management and delivery operations experience and called it Simplilearn.com

The Bangalore based leader in the Tech-Ed space is one of the few Indian B2C product companies to have made it globally. It has turned the notion of India being a KPO hub on its head by providing knowledge-as-a-service to learners from over 100 countries across the world. A perfect amalgamation of digital learning, and live virtual training with an intuitive user interface makes Simplilearn the first choice of a wide global audience seeking professional certification.

Simplilearn has an elite, handpicked team of industry experts who deliver the training to its learners across all popular categories.

Simplilearn has over 2000 Qualified Trainers, with 400+ courses, and 40+ Global accreditations. It has been ranked the 8th most influential education brand by LinkedIn.

Simplilearn aspires to help professionals build fulfilling careers, cultivate and mentor the next generation of dynamic leaders, and make learning a habit for everyone.

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Glossary

API

Application Programming Interface is set of functions and procedures that allow the creation of applications which access the features or data of an operating system, application, or other service.

BigData

They are extremely large data sets that may be analysed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions.

Flipped Classrooms

The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. Short video lectures are viewed by students at home before the class session, while in-class time is devoted to exercises, projects, or discussions.

ICT

Information and Communication Technology

Nano Degree

It is an online certification that you can earn in 6-12 months (10-20 hours/week). It aims to teach basic programming skills that will qualify you for entry-level programming and analyst positions.

PMP

Project Management Professional

RMSA scheme

Rashtriya Madhyamik Shiksha is a centrally sponsored scheme of the Ministry of Human Resource Development, Government of India, for the development of secondary education in public schools throughout India.

SSA scheme

Sarva Shiksha Abhiyan is an Indian Government programme aimed at the universalisation of elementary education "in a time bound manner", as mandated by the 86th Amendment to the Constitution of India making free and compulsory education to children between the ages of 6 to 14 a fundamental right.



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