How to Use this Map
The Future of Learning research intends to prepare you for disruptive changes at the intersections of learning, technology, and human behavior emerging over the next decade. Use this map as a big picture “first look” at the research. Look for connections across the forecasts. Highlight the stories and signals of most interest to your organization, processes, and challenges. The foresight presented on this map is designed to inspire insights that will help you identify action steps to prepare you and your organization for the future.

FUTURE STORIES
This map is organized around six emerging themes. These are big stories that will define the landscape of learning in the coming decade. Each theme is comprised of three or four forecast clusters—important shifts, currently in their early stages, that will grow in the coming years.

DILEMMAS
With new tools, structures, and skills come new dilemmas—tensions within the learning ecology that won’t be easily resolved. Dilemmas require strategies and leadership that go beyond “either-or” thinking.

SIGNS
Around each cluster are smaller signals: the details that add up to the big stories and forecasts. These are the early indicators, tools, technologies, and processes that together point to major shifts for the future of learning.

WORK SKILLS
The future stories and forecasts are situated within a new work environment that calls for new skills and competencies. More information on these skills can be found in IFTF’s Future Work Skills 2020 report.

EMBEDDED AND EMBODIED LEARNING

SOCIAL STRUCTURED WORK

CONTENT COMPARISONS

NEW FOUNDATIONS

EMPOWERMENT

FOUNDATIONS

How does this map work?
A combination of drivers is breaking learning—and education overall—out of traditional institutional environments and embedding it in everyday settings and interacting distributed across a wide range of platforms and tools.

As connective and mobile technologies spread, content proliferates and becomes increasingly available through open sources, and new modes of value creation emerge, we are moving away from the model where learning is organized around stable, usually hierarchical institutions (schools, colleges, universities) that foster but for worse have served as main gateways to education and social mobility. Replacing that model is a new environment in which learning is best conceived of as a flow, where learning resources are not scarce but widely available, opportunities for learning are abundant, and learners increasingly have the ability to autonomously dip in and out of continuous learning flows.

The transformation from educational institutions to learning flows is profound and disruptive, and no existing institutions have the luxury of remaining unchanged. Such transformation requires us to rethink all of the assumptions, structures, and principles that have worked thus far. It also raises a new set of questions and challenges: what do educational institutions, learners, and our society as a whole have to grapple with?

This map is a synthesis of key components of the emerging learning ecology. Using IFTF’s forecasting methodologies such as expert workshops, interviews, data, and signals analysis, we have created this map to highlight important future stories that will be shaping the world of learning over the next ten years.

“...and those who cannot learn, unlearn, and relearn”
—Alvin Toffler
The emergence of new environments is leading to a number of shifts that learners, educational institutions, accreditation agencies, and policymakers will need to navigate.

**From episodic to continuous learning**

In an era of learning flows, opportunities for learning are potentially embedded into every activity and encounter. You can learn about plants, history, or architecture while walking down the street, or by taking an online course while at a coffee shop. The myth that learning only takes place in a particular setting (classroom) at a particular time (during a school day) and is delivered by a few specialized people (teachers), will increasingly come undone as mobile devices, content commons, and collaborative platforms make learning possible anywhere at any time.

**From assigning to enticing with content**

With information and knowledge resources becoming ubiquitous, the challenge for educators shifts from conveying resources to attracting learners to partake in all the resources at their disposal. What incentives and techniques will we employ to entice people to want to use resources, to navigate the new learning ecology, or to complete that online course? In the world of learning flows, the prospects of a growing cognitive divide looms large: those who are self-directed and driven to learn can find many more ways to satisfy their desire to learn, while those who lack the necessary social and other incentives may fall increasingly behind.

**From content conveyors to content curators**

As the amount of available information continues to increase, the signal-to-noise ratio will often become too small to be useful. In this environment, curation—the ability to find, consolidate, and deliver needed information and learning resources at the right time and in the right context—gains paramount importance. When a great lecture can reach millions of people, and many such lectures and other learning modules and resources are widely available, the need for tools and platforms to guide the learner to the right learning opportunities grows in importance.

**From working at one scale to working up and down the scale**

Many institutions are built to work at one particular scale. Large lecture halls can accommodate hundreds of students; small discussion groups serve few students in intimate settings. Large universities are geared to serve tens of thousands of students; small liberal arts colleges cater to much smaller numbers. The new generation of connective technologies, however, provide opportunities for us to rethink scale. From a relatively small university and a classroom geared to a small number of students, Sebastian Thrun and his colleagues at Stanford University offered a course in artificial intelligence to 150,000 online students. This is the age in which many organizations will need to learn to work at such extreme scales—making it possible to offer highly personalized courses, yet having the capacity to reach hundreds of thousands and millions of people.

**From degrees to reputation metrics**

The number of platforms built for people to express their opinions, share views, and review products, services, and other people, is rapidly growing. These platforms are becoming new avenues for providing feedback and assessment of an individual’s skills. In recent years, an increasing number of people, in many countries, are now using these platforms to rate and rank the quality of the courses they have attended. As a result, the concept of a flipped classroom, in which students view lectures as homework and come to school to receive help with areas of confusion or trouble, or to do collaborative work, is moving the way in which feedback is provided to learners and how they are assessed.

**From lecture halls to collaborative spaces**

As lecture halls lose their appeal and dominance as the premier spaces for learning, the need for spaces for collaborative project work, and one-on-one mentoring and coaching will grow. Already the concept of a flipped classroom, in which students view lectures as homework and come to school to receive help with areas of confusion or trouble, or to do collaborative work, is moving the way in which feedback is provided to learners and how they are assessed.

**Human-Software Symbiosis**

Affective Computing: Affective computing is used to measure human emotions with scoring and dashboards.

Noldink: A learning platform using feedback loops for grammar and writing skill development.


Mepedia: Personal branding and networking platform for young talent.

Livemocha: Online language learning system that uses instruction materials and native speakers.

Mozilla Open Badges: Digital badges that recognize achievements and skills of an learner described by an issuer.
Key Shifts to Watch

The emergence of new environments is leading to a number of shifts that learners, educational institutions, accreditation agencies, and policymakers will need to navigate.

From episodic to continuous learning

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From assigning to engaging with content

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From degrees to reputation metrics

The number of platforms built for people to express their opinions, share ideas, and review products, services, and other people, is rapidly growing. These platforms are becoming new avenues for providing feedback and assessment of an individual’s skills. In a recent survey asking people who hire contractors through sites like Upwork to rank the criteria for making their hiring decisions, the list included the number of countries in which students view lectures, and the need for feedback and recognition. Feedback and trust are growing in importance. Alternative learning spaces are also beginning to grow—launching hackathons and maker spaces—that are open to members communities or the public.

From learning flows to learning institutions

The foresight presented on this map is to help with areas of confusion or trouble, or to consolidate, and deliver needed information and learning resources at the right time and in the right context. When a great lecture can reach 150,000 online students. This is the age in which many organizations will need to learn to work at such extreme scales—making it possible to offer highly personalized courses, yet have the capacity to reach hundreds of thousands and more worldwide.

Signals

Signals are the early indicators—tools, technologies, and processes—that together point to the larger stories on the map.

How to Use this Map

Look for connections across the landscape of learning in the coming themes. These are big stories that will define the forecasts. Highlight the stories and signals of most interest to your audience.
embedded and embodied learning

The movement of information into the real world from restricted physical settings—classrooms and desktops—embeds learning into the flow of everyday experiences, making it something we do continuously while walking, riding a bus, or sitting at home or in a park.

content commons

A tidal wave of open digital materials—text, simulations, video and audio recordings, photographs, and learning tools—is becoming available to people around the world via the internet.

socialstructured work

In place of stable 9-to-5 jobs in large companies, new forms of socialstructured value creation emerge, based on microcontributions from large networks of people utilizing social tools and technologies to create a new kind of wealth. This work necessitates a careful rethinking of the kinds of skills people will need in order to live productive and fulfilling lives.

human-software symbiosis

Smart machines and software enter almost every domain of our lives, assisting doctors during surgery and teachers in the classroom. They extend human capabilities, enabling us to do things in new ways and accomplish previously unimaginable tasks.

Global learning arbitrage

A new generation of players enters the field of learning services provision. These players include global tutors and mentors, but also institutions—unencumbered by legacy systems—that can create new pathways for obtaining a college degree (or its equivalent), certification, and accreditation.

computational thinking

The ability to think computationally allows us to quickly tackle a task, allowing workers to distribute previously individual jobs and packages free for use and reformatting or “forking”.

Virtual collaboration

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