LEARNING TO THRIVE IN A COMPLEX WORLD: FUTURE SKILLS & EDUCATIONAL ECOSYSTEMS

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UNICON 2019 Directors Conference
April 24-26, 2019
Our work: not futurology but future awareness & future-making

Skills Foresight 2030 & Atlas of Emerging Jobs: vision of future of jobs from ca. 30 economic sectors, largest international compendium of “jobs of tomorrow”, projects in Russia, South Africa, Argentina, Armenia, Vietnam, Tunisia, Tanzania, etc.

Global Education Futures: created in 2008, since 2014 it has become a global vision building initiative that involved 5,000+ top world educational experts from 50+ countries. Catalyzed two global movements and several global initiatives focused on transforming education for the future.

Vision-driven growth of economic “sectors of tomorrow” and nation-wide educational and social prototypes comes from some of the world-largest work on “labs of the future” such as Foresight Fleet (since 2012)

Some of our global partners include world’s leading think and do tanks on future of skills and learning
Fundamental institutions of our civilization, including education, are on the brink of - or in the whirlpool of - transformation
Tapping the potential of education

Our system of education is trapped in an unspoken irony: the institution with the greatest potential impact on the future is arguably the one most shaped by taken for granted ideas from the past.

One of the defining features of the modern age is the gap between our impact and our commitment: while our impacts on the natural and social world are without precedent, if anything we are more and more focused on the short term and on self-benefit versus benefit for others and life more broadly.

Of all society's core institutions, education broadly conceived has the greatest potential to close this gap.

– Peter Senge, Systems Scientist and Senior Lecturer MIT
Excerpt from Foreword to Global Education Futures report “Educational Ecosystems for Societal Transformation”
Some fundamental drivers that re-shape the demand

Our analysis of key drivers of change in 30+ sectors of economy identified seven most frequently mentioned trends
Accelerated technological change becomes “permanent technological revolution”
Globalization is first of all and foremost about the intense planetary scale cooperation

Mass user complex technological product requires technological cooperation between hundreds of manufacturers from Asia, Europe, and North America. E.g. Apple iPhone is a product of the ecosystem of 400+ independent hi tech companies (US, China, Japan, South Korea, Malaysia, Viet Nam, etc.)

Modern research mega-project implies the continuous collaboration and integration of many independent researcher groups. E.g. Brain mapping project: 120+ research groups from EU countries and partner countries cluster around 10 key research areas, integrated in a unified digital platform
Interconnectivity brews global turbulence
We have entered the age of strategic choice about our collective futures

As a species, we have crossed 5 of 9 planetary boundaries beyond sustainability, and 3 out of 9 are in “red” zone. None of these most critical factors are discussed beyond the sustainability expert society!
VUCAH world: strategic uncertainty is unavoidable
New systems of governance that “absorb” complexity

Emerging complex network based civilization requires new systems of governance that are adequately complex

Source: Yaneer Bar-Yam (1997)
One of the biggest uncertainties: massive extinction of jobs?

Over 2 billion existing jobs may be rendered *technically* obsolete by automation before 2030.

Source: (Frey, Osborn, 2013)
… or “upgrade”: not displacement but collaboration between humans & smart tech
Transforming the world of jobs / professions

Technological lifecycle vs human life cycle

Professional “trajectory”

Specialization perspective

In 20th century

Technology life cycle =
Several human generations

Single career, often a “professional dynasty”

23 70+

I-specialist
Profession = identity

T-specialist

In 21st century

Human life cycle =
Several generations of technologies

Extended life allows to go through multiple professional careers

23 90+

m-specialist
Bundled competencies
Massive uniqueness

Source: GEF research
Evolving (global) labor market structure: shifts towards “massive uniqueness”

Source: GEF Future Skills
At least five sectors where new jobs are emerging through “upgrading”

Creative economy

Cybereconomy + virtualized economy

Human-oriented services

Taking care of the environment (regenerative economy)

New tech sector

Source: GEF Future Skills
Emergent organizational models

- Flat hierarchies, learning organizations
  - (Global) small teams ("two pizza rule") / flat hierarchies
  - Intrapreneurship + holocracy
  - Omnipresent innovation (+ continuous improvement) culture
  - Learning everywhere
  - Collective intelligence

- ICT intense
  - Distributed workforce + process in cloud
  - AI to support decision making + self-organized knowledge depositories
  - New fintech solutions for organizational models (UBER, DAO, …)
  - Hybrid (synthetic) intelligence

- Worker- and society-centered
  - Collective wellbeing AND profit
  - More women leadership
  - Workers motivated by “want”, not by “need” (joy of work)
  - Gamified working processes

Source: Future of Work community, Global Education Futures
Shifting motivation of employees

Next possible shift is towards the “society of massive self-actualization” / “massive uniqueness”: creativity, learning, experiment, freedom

“Information society” addresses the needs of belonginess and status: social media, communities, gaming etc.

“Consumer society” addressed the basic needs: food & beverages, housing, healthcare, availability of work places, social security etc.

Automation of mass-scale manufacturing and intellectual work “liberates” many people from sectors that serve basic human needs.

Source: GEF research
Challenge of digital work: “unnatural” pressures

Attention Deficit Hyperactivity Disorder

Nature Deficit Disorder
Skills of “managing the complexity”

Collective intelligence

Sensemaking over structure

AI-enhanced real-time management

Fluid adaptive organizations

Source: GEF research
Preparing ourselves for dynamic futures ahead: shift towards “existential skills” for LLL

Source: GEF Future Skills
Preparing ourselves for these futures: “zooming in”

Person that is “future-ready” is
• Mindful
• Resilient
• Empowered / courageous
• Creative
• Open-minded & growth oriented
• Compassionate / empathic

Preparing for anticipated & desirable futures, we need to be
• Digitally literate
• Ecologically minded
• Collaboration-oriented
• Globally (cross-culturally) aware

Source: GEF Future Skills
Preparing ourselves: new requirements for learning environments

REQUIRE LEARNING ENVIRONMENTS & EXPERIENCES CREATED WITH THESE QUALITIES / PRINCIPLES

REQUIRE LEARNING EXPERIENCES IN MULTIPLE CONTEXTS

STUDENT SELF-REFLECTIVE AGENCY AT THE CORE OF ALL PROCESSES

Source: GEF research
Many formats supporting learner-centered lifelong education

- **GLOBALLY ORIENTED**
  - Global learning platforms: best of the available knowledge & skills, global content (‘billion student universities’)

- **PERSONALIZED TECH INTENSE**
  - Ed tech tools that help create personalized trajectories in learning, career, well-being etc.

- **SELF-GUIDED LEARNERS & LEARNING COMMUNITIES:**
  - natural lifelong learning everywhere all the time

- **LOCALLY SITUATED**
  - Local learning ecosystems: existing (schools / colleges / universities) + new formats helping to serve learner needs

- **COLLECTIVE FACE-TO-FACE**
  - Communities of practice that provide peer support / guidance

**Skills of the future in curriculum**

**GLOBALLY ORIENTED PERSONALIZED TECH INTENSE COLLECTIVE FACE-TO-FACE**

Source: GEF Educational Ecosystems
Glocal learning ecosystems for lifelong learning

Online platforms providing to many local ecosystems

Evolving learner needs across lifecycle

Existing institutions
Emerging (future) institutions
Integration tools

Source: GEF Educational Ecosystems
Learning ecosystems: transition from learning institution to whole city scale
Composite structure of ecosystems at every stage of learning

From pre-school to adult and senior education, learning ecosystems are networks of learning providers and milieu that cater to variety of learner needs

Learning ecosystem is shaped by a network of influencers (2nd line actors)

Learning ecosystem is an evolving (connected) network of learning providers (1st line actors)

Source: GEF research
When do we really need learning ecosystems

*It takes a village to raise a child – it takes an ecosystem to raise a leader*

**Ecosystems that serve economy & society of the future**
- Ecosystems for technological sectors: producing teams (entrepreneurs + technology experts + ...)
- Ecosystems for dynamic job markets: “skills of the future” + fast response to growing demand (e.g. blockchain)
- Ecosystems that produce cultural and social innovations

**Ecosystems that help overcome (local / global) challenges**
- Ecosystems for sustainability: environmental literacities + sustainable / regenerative practices + prototyping new technologies & ways of living
- Ecosystems to empower / overcome inequality (e.g. empowering women in Islamic countries)

Source: GEF research
Integrated adult leadership education for co-created futures

Rapid Foresight: tools of collective exploration / vision creation of future (open source principles)

Foresight Fleet: cultivation of communities that co-create the future

“Boiling Point” paces for communication & prototyping (1 in 2013, 20 in 2018, 100 by 2019)

University 20.35: scaling up technological and social projects and team competencies (nation-wide platform, nation wide leadership “bootcamp” for 1500 leaders, 70 partner universities & 10 pilot ecosystemic regions in 2019)
Why ecosystems

Global challenges

- VUCA
- Sustainability / planetary boundaries
- Automation / smart machines
- Governing complex society

New human capacity

- Granulated competence (massive uniqueness)
- STEM + A + E + …
- Existential competencies
- Knowledge construction
- Diversity
- Community building & peace making

New learning models

- Flexible & evolving
- Personalized / learner-centered
- Collaboration driven
- Experiential
- Holistic
- Multi-/trans-disciplinary
- Empowering

Ecosystem as an integrating model
Ecosystemic transition: learning institutions for the complex & evolving society as “hubs” or integrators

Employability
- Integration hub of educational ecosystem for lifelong learning (blended, rebundled)
- Great diversity of learner types (incl. multiple ages) with variety of life experiences

Personalization (focused on lifelong career building)

Competence-based education (modular programs, skill not degree)

Community of Communities of Practice

INSTITUTION

STUDENT(S)

Innovativeness
- Incubation of future sectoral ecosystems / networks / platforms
- “Opening up” to the society: hub of technological & socio-cultural innovations

Innovativeness
- Team-based education (project & play-based learning)
- Passion-driven education

Source: GEF Educational Ecosystems
When learning institutions become learning ecosystem “integrators”

**Internal ecosystem:**
- Variety of learning trajectories – no single centralized curriculum for class / cohort / school
- Variety of learner cohorts (by age, experience, etc.)
- Variety of providers catering to cohorts in learning spaces hosted by a learning institution
- Decentralized governance: teachers, providers and students participate in the governance process

**External ecosystem:**
- Partnership with employers / business
- Partnership with research / thinktanks
- Partnership with civil communities / movements
- Partnership with change agents at the city / regional / national / global level
Ecosystems rise to address glocal challenges

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Improvements in sustainability & collective wellbeing

Individual & collective capability to address societal challenges

Ecosystem for 21C experience based learning that empowers everyone to address glocal challenges
For your further consideration

These and other materials available at www.globaledufutures.org

GEF Educational Ecosystems for Societal Transformation

Skills of the Future: How to Thrive in a Complex New World

Map of Global Education 2035

GEF EdTech Agenda