



Future Skills

The future of learning
and higher education

Ulf-Daniel Ehlers

The Future Skills Report

International Delphi Survey of the *NextSkills Project*

2019

Disclaimer

The Future Skills Report presents information and data that were compiled and/ or collected through a research team from Baden-Wurtemberg Cooperative State University in Karlsruhe, Germany. Data in this report is subject to change without notice. The Future Skills project is ongoing. For further information please contact us!

This work is published under the responsibility of
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Report history

03/2019 – First report version published

05/2019 – Updated report, small corrections, corrected statistical model

Information about the NextSkills Project

This Delphi Survey is part of the Research Initiative NextSkills on “Future Skills – Future Learning and Future Higher Education”, which started in 2015. It includes research on learning and change on organizations pathways to the future, their conceptions of the future workplace and the definitions of futures skills and involves data- and methodological triangulation in three separate modules building on each other.

Module A: Analysis of future organizations competence and skill development concepts through expert ratings from a sample from more than 120 business and public organizations in order to identify advanced future organizations (2015-2017).

Module B: In-depth interview series with more than 20 HR-, change- and business experts as well as students on future skills, future learning and future higher education from 17 different future organizations (2017-2018).

Module C: Delphi Survey on future skills, and drivers and scenarios for future learning and future higher education (2018-2019).

Get more information on the projects here:

www.next-education.org – Information on the research group and related projects

www.nextskills.org – Information about the NextSkills Project

Please cite this publication as:

Ehlers, Ulf. -D., Kellermann, Sarah A. (2019): Future Skills. The future of Learning and Higher education. Results of the International Future Skills Delphi Survey. Karlsruhe



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Key Findings

Research on future skills is the current hot topic of the day with fundamental changes in the job market due to a number of powerful drivers. While many studies focus on the changes brought through digital technologies, they relate future skills directly to digital skills, which - as important as they are - only represent one side of the future skill coin. The results presented from this Delphi survey are taking a broader approach and go beyond digital skill demands. The approach elaborates on an experts' informed vision of future higher education (HE), taking into account the demand for future skills, outlines the four signposts of change which will shape the learning revolution in higher education and presents a first model of future skills for future graduates.

It is part of an overarching research project on "next skills" (www.nextskills.org) and collates opinions from an international experts' panel of almost 50 experts from higher education and business. Experts were asked both, the degree of relevance, as well as the timeframe of adoption for future skills, future higher education scenarios and the driving pillars of change.

I. Future Skills

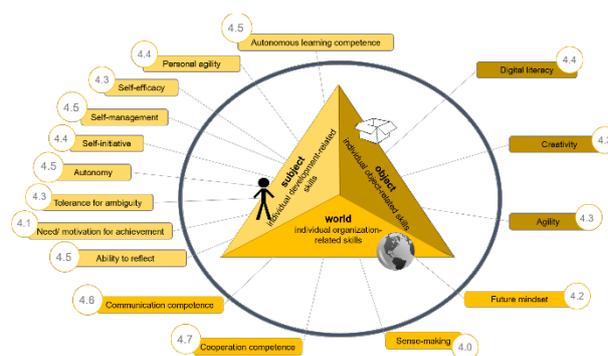
The term "future skills" is defined as the 'ability to act successful on a complex problem in a future unknown context of action'. It refers to an individuals' *disposition* to act in a self-organized way, visible to the outside as performance.

The future skills model divides future skills into three interrelated dimensions: The first Future Skill dimension is the *subjective dimension* of futures skills profiles. It is relating to an individuals' subjective, personal abilities to learn, adapt and develop in order to improve their opportunities to productively participate in the workforce of tomorrow, actively shape the future working environment and involve themselves into forming societies to cope with future challenges. It contains seven future skill profiles.

The second Future Skill Dimension is relating to an individual's ability to act self-organized in relation to an object (*object dimension*), a task or a certain subject matter related issue. It is emphasizing a new approach which is rooted into the current understanding of knowledge but is suggesting to take knowledge several steps up the ladder, connect

it to motivation, values and purpose and impregnate it with the disposition to act self-organized in the knowledge domain in question. It is not just a quest for more knowledge but for dealing with knowledge in a different way which is resulting into professionalism and not into knowledge expertise.

The third Future Skill Dimension is relating to an individual's ability to act self-organized in relation to its social environment (social-dimension), the society and organizational environment. It is emphasizing the individuals dual role as the curator of its social portfolio of membership in several organizational spheres and at the same time having the role of rethinking organizational spaces and creating organizational structures anew to make it future proof. It contains an array of five skill profiles.



Within these three dimensions, sixteen skill profiles have been defined. A skill profile is an array containing further subskills.

A. Subject-development related skills: (1) Autonomy (self-determination), (2) Self-initiative (initiative and performance competence), (3) Self-management (decision competence) (4) Need/motivation for achievement (initiative and performance competence), (5) Personal agility (self-competence), (6) Autonomous learning competence (learning literacy), (7) Self-efficacy, (8) Tolerance for ambiguity (ambiguity competence), (9) Ability to reflect (reflective competence)

B. Object-related skills (Instrumental skills): (10) Agility (systems competence), (11) Creativity (innovation competence), (12) Digital literacy

C. Social world/ organization-related skills: (13) Sense-making, (14) Future mindset (future and

design competence), (15) Cooperation competence, (16) Communication competence

II. Future Learning

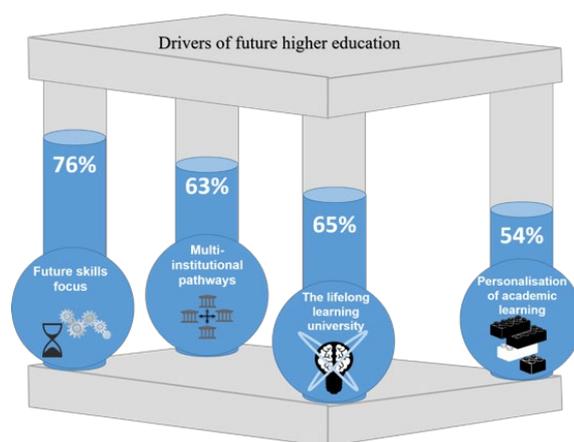
The Delphi resulted into hallmark indications on the shift from academic education and teaching to active learning of choice and autonomy. Higher education institutions in the future will provide a learning experience which is fundamentally different than the model of today. Timeframe for the time of adoption vary but for many aspects a close or mid-term timeframe has been estimated through the Delphi experts. The dimensions of future learning in higher education will comprise (1) **structural aspects**, i.e. academic learning as episodic process between biographical phases professional and private episodes throughout life, learning as institutional patchwork instead of the current widest-spread one-institution-model of today, supported through more elaborated credit transfer structures, micro-qualifications and microcredentials, as well as aspect of (2) **pedagogical design of academic learning**, i.e. changing practices of assessment, also peer-validation, learning communities, focus on future skills with knowledge playing an enabling role in interactive socio-constructive learning environments). In general experts estimate structure changes to become relevant much later than changes related to academic learning design.

III. Drivers of Change in Higher Education

Four key drivers in the higher education market can be described. Each driver has a radical change potential for higher education institutions and together they mutually influence each other and span the room in which higher education likely will develop.

There are 2 content and curriculum related drivers (i.e. (1) personalized higher education and (2) future skill focus) and 2 organization-structure related drivers (i.e. (1) multi-institutional study pathways, (2) Lifelong Higher Learning)

The profile, shape and nature of higher education in the future will be most probably a certain pattern of configuration along the impact each of the four key drivers, called “pillars of change” has, and will influence the development of higher education strategies.



1 - An emerging focus on future skills radically changes the current definition of graduate attributes in higher education: The focus on a “next mode” of studying (focus on future skills: autonomous learning, self-organization, applying and reflecting knowledge, creativity and innovation, etc.) gradually replaces a reduced/narrow focus on academic and valid knowledge acquisition as a means to provide correct answers for known questions based on a curriculum which is focused on defined skills for fixed professions.

2 - Higher education increasingly becomes a multi-institutional study experience: The provision of higher education increasingly moves from a ‘one-institution’ model to a ‘multi-institution’ model in which higher education is provided through alliances of several institutions.

3 - Students build their own personalized curriculum: The elements of choice in academic programs enlarge. The curriculum of academic programs moves from a fully predefined and ‘up-front’ given structure to a more flexible, personalized and participatory model in which students actively cooperate with professors/ teachers/ advisors in curriculum building of higher education programs.

4 - Higher education institutions turn towards providing offerings for lifelong higher learning services: The current model of higher education, to prepare students (up front) for a future profession, is equally complimented with higher lifelong learning offerings.

IV. Four Scenarios for Future HE

The Delphi survey made a point to view future higher education from a students’ perspective and

envisioned future learning experiences. Four scenarios for future higher education can be described as gravitation centers of organizational development: (1) the future skill university scenario, (2) the networked multi-institutional study scenario, (3) the my-university scenario, (4) the lifelong higher learning scenario.

Three out of four scenarios score with a time of adoption of more than 10 years from today with the majority experts. Only the lifelong higher learning scenario scored for a time for adoption within the next 5 years with the majority of experts.

1 - The 'future skill' university: The 'future skill' scenario suggests that higher education institutions would leave the current model that focusses on knowledge acquisition. Instead, new profiles would be developed that emphasize graduates' future skill development. In this scenario, HE would mainly be organized around one key objective: to enable the development of graduates' future skills, i.e. complex problem solving, dealing with uncertainty or developing a sense of responsibility, etc. This would not replace but go beyond the current emphasis of knowledge acquisition and studying based on defined curricula for fixed professions.

2 - The networked, university: This scenario views higher education as a networked study experience. It will not be down to a single institution providing a student with a certain program, but that this role would be split among multiple institutions. This means that 'digital import' and 'digital export' of parts of the curriculum would play a significant role. The standard HE study structure and experience would shift from a "one-institution" model to a "multi-institutional" model.

3 - The "My-University" scenario: This scenario describes HEIs as spaces where the elements of choices enlarge, and students can build their own curricula based on their personal interests. The curriculum of academic programs in this scenario would move from a fully predefined and 'up-front' given structure to a more flexible, personalized and participatory model in which students actively

cooperate with professors/ teachers/ advisors in curriculum building of HE programs.

4 - The lifelong higher learning scenario: In this scenario, seamless lifelong higher learning would be as important as initial higher education. Learners in the workplace would be the main type of student, choosing their portfolio of modules according to their personal skill needs and competence demands with high autonomy throughout their lifetime. Institutions thus would offer micro-credentials, which students assemble individually based on their own interests. Recognition of prior study achievements and practical experience would enable permeable shifting between different providers, which offer to bundle prior learning experience into larger certifications.

V. Recommendations for leaders

Throughout the Delphi, survey the international expert panel was asked to comment on the strategies needed to change higher education. Leadership has been marked as crucial. A list of nine recommendations has been collected, which ranges from culture change within higher education institutions to communication, collaboration alliances, resource management and creating digital awareness.

