



Future Skills as New Currency for the World of Tomorrow

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Abstract

In a rapidly changing world, the discussion on Future Skills is one of the most topical in educational research. The discussion on Future Skills has been going on for a long time (starting with studies on graduate attributes), is often intangible due to conceptual ambiguity about what skills actually are, and often only refers to digital Future Skills in a reduced way. The research presented here is based on a sound empirical approach, the multi-method, and multi-part NextSkills studies. The intention of the project is to explore the demand for specific Future Skills in more detail and then, in a second step, to substantiate them in terms of educational theory. These Future Skills are classified by the “Future Skills Triple Helix-Model of Capacity to Act in Emergent Practical Contexts.” More specifically, these are skills such as ambiguity competence, ethical competence, self-competence, and others.

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Keywords

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Future Skills: Guiding Principles of a New Educational Concept for Higher Education Institutions

In this chapter, we define Future Skills as competences that enable individuals to solve complex problems in a self-organized manner and to act (successfully) in highly emergent contexts. They are based on cognitive, motivational, volitional, and social resources, are value-based, and can be acquired in a learning process. In the public discussion on higher education concepts, they have meanwhile contributed to a decisive change, which we refer to here as the Future Skills Turn (Ehlers, 2020a, b). It is the subject of the research presented here to address and grasp its implications for the conception of future higher education. As a concept, Future Skills has gained an influence similar to that which emanated from concepts such as equal opportunities or science orientation in the 1970s. Such leading brands do not appear as precisely tailored and empirically operationalized concepts, but rather as conceptual condensations of broadly diversified bundles of arguments and objectives (Placke & Schleiermacher, 2018; Ehlers, 2020a, b).

The starting point for the enormous career of the concept of Future Skills is the diagnosis that current concepts of higher education do not confront the pressing challenges of our societies with convincing concepts for the future (Hippler, 2016; Kummert, 2017) – neither the sustainable design of our environment nor the related social or economic challenges. While societal problem situations are exacerbated by a constantly accelerating globalization process and ever faster digital progress, it is precisely here that we find the forces of enabling a multitude of new options for human development. In this situation of digital acceleration, the characteristic feature is that of uncertainty and the inescapable necessity is that of creative responsibility. For the future is unpredictable and we cannot forecast it, but we must be prepared to shape it.

Children who enter primary schools next year will go on to vocational training or higher education in 10–12 years and in 15 years will be the ones who begin to shape our society as young professionals. We know little about this future. In 2060–2065 they will in all likelihood stop working. We know nothing about this future. Our schools must prepare them for jobs that do not exist today, for technologies, apps, and applications that have not been invented today, for living in a society whose structures we cannot foresee today, and for dealing with challenges that are not yet apparent today. It is the responsibility of all of us to make the best of the possibilities and to find ways to deal with this uncertain future. This is about nothing more and nothing less than the preservation of our planet and our livelihoods.

Solving societal problems such as those associated with climate change, the challenges of migration that will increase in the future, the conflicts that arise from

populist concepts of society and politics, and the associated question of the future of democracy – all of this require the ability to develop new and previously unknown approaches, to take new paths and to relate previously unconnected things to each other in new ways. In education and science, this will only succeed if we work in the best sense of inter- and transdisciplinary ways to bring together, critically reflect on, and relate to each other the solution contributions of each discipline and science. Higher education institutions find it difficult to do this – because they all share a common handicap: the history of science, research, and thus also of higher education is a history of differentiation, specialization, and delimitation of disciplines. The almost 18,000 degree programs offered at German higher education institutions bear witness to this (Hachmeister, 2017). The institution of higher education is faced with the challenge of reinventing itself – at a time when it is undergoing an enormous growth process and a rate of 70 percent higher education students of one age cohort or more is predicted worldwide by the year 2050. That's a bit like having to change pilots in a car race, in the middle of a steep curve and during a dangerous overtaking maneuver. Higher education institutions must address the question of what Future Skills the graduates of tomorrow will need and how they can support them in acquiring them. To do this, it is first necessary to describe these Future Skills in terms of educational theory – and this can be done using the Future Skills Triple Helix Model, which was developed within the framework of the Next Skills Studies (www.nextskills.org) (Ehlers, 2020a, b).

Research Design

The research project NextSkills aims to analyze which skills are needed for a productive and proactive design of future work contexts in order to derive requirements for higher education institutions. To this end, Future Skills profiles were identified in a multi-step research process:

1. Identification of Future Organizations: In a first step, organizations were identified that already had explicit experience in the implementation of competence models, ideas about Future Skills, and a high degree of maturity in the design of future work contexts. For this purpose, so-called Future Organizations were identified as an empirical field, which had developed suitable contexts for the identification of Future Skills. The selection process took place in 2015 as part of a competition in which more than 8500 partner organizations of the Baden-Wuerttemberg Cooperative State University were contacted and given the opportunity to submit their human resources development concepts and, in particular, their concepts for the supervision and support of students. 124 organizations took part in the competition. All submitted concepts were evaluated in a criteria-based expert rating. The resulting ranking was then discursively validated in a discussion by 15 experts and 20 organizations and their competence concepts were selected for a shortlist. All 20 organizations were invited to participate in the next step of the NextSkills study, 17 responded positively and were included in the

interview study. The interviews took place between December 2016 and June 2017.

2. Interview study: Guiding questions were developed for the interview study, which were used for orientation within the framework of an open, semi-structured, problem-based in-depth interviews. Participants of the interviews were the HR managers of the organizations and partly also the students who studied there in the context of (dual) study programs. A total of 17 in-depth interviews were conducted, in which 20 people participated and which resulted in about 700 minutes of qualitative interview material. The interviews were transcribed verbatim and independently coded by two researchers using the inductive coding technique (Mayring, 1996; Thomas, 2006) using MaxQDA software (VERBI Software, 2017). Constructs were extracted from the interview data to reconstruct contexts, values as well as processes, and dependencies for skills considered important in the future for individuals.
3. International Delphi study: In order to further refine and validate the qualitatively acquired results, a Delphi study was conducted with an international panel of experts. The Delphi study (for Delphi methodology see Dalkey and Helmer, 1963) entitled “Future Skills – Future Learning and Future Higher Education” (Ehlers & Kellermann, 2019) comprised two rounds of interviews. Fifty-three international experts from different organizations and institutions were invited to participate in the study (ibid.).

Future Skills for the World of Tomorrow

The higher education of the future must be oriented toward teaching Future Skills. This is shown by the results of the NextSkills study. Based on the in-depth interviews and the assessment of the experts surveyed worldwide, 17 skill profiles were constructed that are important for future higher education graduates. Each skill profile consists of a bundle of individual competences, so-called reference competences. Skill profiles are clusters of future-relevant skills. They are in turn divided into three so-called fields of competence.

At the same time, the study forms the empirical basis on which the Future Skills Triple Helix Model of Capacity to Act in Emergent Practice Contexts was constructed. Future Skills are part of the competence turn, the Future Skills Turn, which is necessary at the higher education institutions of the future. They mark a turn toward higher education that no longer focuses on the function of preparing students through knowledge transfer, but rather supports them in developing Future Skills, i.e., dispositions and readiness to act in dealing with complex, unknown problem situations through reflection, values, and attitudes. Future Skills are defined as follows:

Definition *Future Skills are competences that allow individuals to solve complex problems in highly emergent contexts of action in a self-organized way and enable*

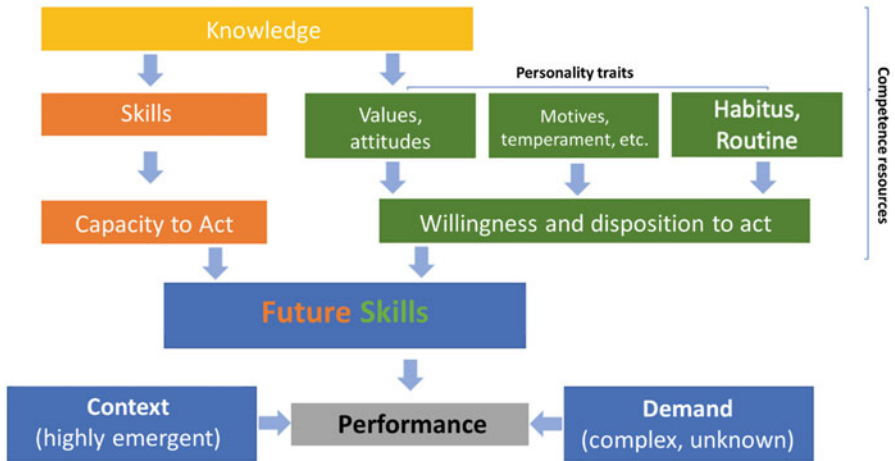


Fig. 1 The Future Skills concept from a competence perspective © Ehlers

them to act (successfully). They are based on cognitive, motivational, volitional, and social resources, are value-based, and can be acquired in a learning process.

If we formulate Future Skills in terms of competence theory, it becomes clear that they are competence constructs with a special content profile (Fig. 1). They enable individuals to act in highly emergent contexts. From a competence-theoretical perspective, the ability to act (fed by knowledge and further developed into skills) comes together with dispositions and willingness to act, which is primarily fed by values and motivational and habitual factors – i.e., personality traits.

In terms and concept, Future Skills can be distinguished from those competences that are not particularly future-oriented. The concept of emergence is used as a differentiating dimension between current or previous competence requirements and those that are future-relevant: In particular, those contexts of action that show highly emergent developments of life, work, organizational and business processes require Future Skills to cope with the requirements. Emergence thus defines the dividing line that separates previous or traditional areas of work from future areas of work. Since this boundary is not clearly schematic but fluid, and many organizations are in transformation processes in which weakly emergent work contexts evolve into highly emergent work contexts, the need for Future Skills is also an evolving field and not a binary state of either-or.

Emergence versus submergence is therefore an important basic distinction for explaining the significance of Future Skills. The NextSkills study shows that low-emergent (stable) professional contexts of action change often, quickly and with high intensity toward high-emergent contexts of action. We speak here of the drift-to-self organization. This change corresponds to a change in the systemic state of organizations. It is triggered by changes in macro-, meso-, and micro-systems and reinforced by their interdependent entanglement. In the resulting new system state,

the system elements cannot be causally or linearly traced back to their previous state. The system condition of irreducibility and unpredictability applies.

The Future Skills profiles reconstructed in the NextSkills study on the basis of in-depth interviews are summarized in Table 1. Future Skills profiles consist of bundles of individual related so-called reference skills. A total of 17 such competence profiles can be reconstructed from the qualitative data (see Fig. 2), which are presented and described below. They are divided into the three competence fields of the Triple Helix model.

The division into three fields of competence follows the systematics of the Triple Helix Model for Future Skills. It is based on the idea that the skills necessary to cope with action requirements can be structured on the basis of three interacting dimensions, which are designated with specific terms in the Triple Helix Model:

1. Subject-development-related Future Skills, which refer to the ability to develop oneself, here called individual-development-related competences
2. Those Future Skills that relate to dealing with specific objects, work tasks, and problems, referred to here as object-related competences
3. Those Future Skills that relate to dealing with the social, organizational, and institutional environment, referred to here as organization-related competences

The individual Future Skills mentioned by the interviewees can be conceptually located within this three-dimensional space of action.

Future Skill Profiles of the NextSkills Study

Table 1 provides an overview of the individual Future Skill profiles, the corresponding reference competences, and the descriptions of the competence fields.

The Future Skills Triple Helix Model

Future skills can be further subdivided in terms of their internal structure. It must first be noted that skill is a term that always expresses a relation between a (requirement) context on the one hand and an action on the other. Ehlers (2020a, b) explains that not one, but three such relations can be reconstructed in the empirical data of the Future Skills study: An acting person can develop Future Skills in relation to him/herself, can develop them in relation to the handling of a task, a topic or an object he/she is working on, or in relation to the organizational environment, i.e., the social system (for a detailed description of the underlying epistemological position, see also Ehlers (2020a, b)). In the reconstruction of the data, we name these three relations as subject, object, and (social/organizational) world reference. A three-pole relation emerges, where each pole is in relation to the other. In relation to actions in highly emergent contexts, all three poles and their relationship to each other are thus always determining in any action. Because of the close interconnectedness of all

Table 1 Future Skills: Competence clusters and profiles

ID	Competence cluster/ Future Skill profile/reference competences	Definition
I	Subject development-related Competences	Subject development-related competences entail the ability to be able to act from within oneself and engage in self-directed learning and development activities within a professional context. Autonomy, self-competence, self-efficacy as well as performance competence play an important role in this context.
1	Learning literacy	Learning literacy is the ability and willingness to learn in a self-directed and self-initiated fashion. It entails metacognitive skills as well.
2	Self-efficacy	Self-efficacy as a Future Skills Profile refers to the belief and one's (self-)confidence to be able to master the tasks at hand relying on one's own abilities and taking over responsibility for one's decisions.
3	Self-determination	Self-determination as a Future Skill describes an individual's ability to act productively within the field of tension between external structure and self-organization, and to create room for self-development and autonomy, so that they can meet their own needs in freedom and self-organization.
4	Self-competence	Self-competence as a Future Skill is the ability to develop one's own personal and professional capabilities largely independently of external influences. This includes other skills such as independent self-motivation and planning. But also, the ability to set goals, time management, organization, learning aptitude and success control through feedback. In addition, cognitive load management and a high degree of personal responsibility.
5	Reflective competence	Reflective competence as a Future Skill includes the willingness and ability to reflect, i.e., the ability to question oneself and others for the purpose of constructive further development, as well as to recognize underlying systems of behavior, thought, and values and to assess their consequences for actions and decisions holistically.
6	Decision competence	Decision competence is the ability to seize decisions and to evaluate different alternatives against each other, as well as making a final decision and taking over the responsibility for it.
7	Initiative and performance competence	Initiative and performance competence refers to an individual's ability to motivate him-/herself as well as to his/her wish of contributing to achievement. Persistence and goal-orientation form the motivational basis for performance. A positive self-concept also plays an important role as it serves to attribute success and failure in such a way that the performance motivation does not decrease.

(continued)

Table 1 (continued)

ID	Competence cluster/ Future Skill profile/reference competences	Definition
8	Ambiguity competence	Ambiguity competence refers to an individual's ability to recognize, understand, and finally productively handle ambiguity, heterogeneity, and uncertainty, as well as to act in different roles.
9	Ethical competence	Ethical competence comprises the ability to perceive a situation or situation as ethically relevant, including its conceptual, empirical, and contextual consideration (perceive), the ability to formulate relevant prescriptive premises together with the evaluation of their relevance, their weight, their justification, their binding nature and their conditions of application (evaluate) and the ability to form judgments and check their logical consistency, their conditions of use and their alternatives (judge).
II	Object-related competences	Individual object-related competences group together competences that refer to interacting with certain objects, topics, and tasks in a creative, agile, analytic fashion, and with a high degree of understanding of the system – also in highly uncertain and/or unknown environments.
10	Design-thinking competence	The Future Skill Profile Design Thinking competence comprises the ability to use concrete methods to carry out creative development processes open-endedly with regard to given problems and topics and to involve all stakeholders in a joint problem and solution design process.
11	Innovation competence	Innovation competence as a Future Skill Profile includes the willingness to promote innovation as an integral part of any organizational object, topic, and process and the ability to contribute to the organization as an innovation ecosystem.
12	Systems competence	Systems competence as a Future Skill is the ability to recognize and understand complex personal-psychological, social, and technical (organizational) systems as well as their mutual influences and to be able to design and/or accompany coordinated planning and implementation processes for new initiatives in the system.
13	Digital literacy	Digital literacy is the ability and disposition to use digital media, to develop them in a productive and creative way, the capacity to critically reflect on its usage and the impact media have on society and work, both for private and professional contexts, as well as the understanding of the potentials and limits of digital media and their effects.
III	Organization-related competences	A third group of Future Skills Profiles entails all those competences that refer to interaction of an individual with his/her social, organizational, and institutional environment. Among them are sensemaking and value-orientation, the ability to actively design future environments, collaborate and cooperate with others, be able to communicate in a certain way, and be open to criticism as well as to finding consensus.

(continued)

Table 1 (continued)

ID	Competence cluster/ Future Skill profile/reference competences	Definition
14	Sensemaking	The Future Skill Profile Sensemaking comprises the willingness and ability to construct meaning and understanding from the rapidly changing structures of meaning within future work and life contexts, to further develop existing structures of meaning or to promote the creation of new ones where they have been lost.
15	Future and design competence	Future and design competence is the ability to master the current situation with courage for the new, willingness to change and forward thinking. To develop situations into other, new and previously unknown visions of the future and to approach these creatively.
16	Cooperation competence	Cooperation competence is the ability to cooperate and collaborate in (intercultural) teams either in face-to-face or digitally aided interactions within or between organizations with the purpose of transforming differences into commonalities. Social intelligence, openness, and advisory skills play a key role in this competence.
17	Communication competence	Communication competence as a Future Skill entails not only language skills, but also discourse, dialogue, and strategic communication aspects, which – taken together – serve the individual to communicate successfully and in accordance with the respective situation and context, in view and empathy of her/his own and others’ needs.

three poles and their interrelated integration, we refer to this concept as the Future Skills Triple Helix Model. The resulting concept is suitable for the formal description of actions in highly emergent contexts. In answer to the question of whether it is rather a subjective ability related to oneself (e.g., self-directed learning, self-competence), an ability related to an object or a task, or an ability related to the social, organizational environment, the future skill constructs can be divided into three areas and internally differentiated. The classification criterion is the goal of the relation – whether it is related to a subject (individual to him/herself), object (individual to a specific object, for example a task) or the environment (individual to the social environment):

1. Relationship of an individual to him/herself in the present, past, or future (subject or time dimension)
2. Relationship of an individual to a particular object (object dimension)
3. Relationship of an individual to a person or a group in the world (social dimension)

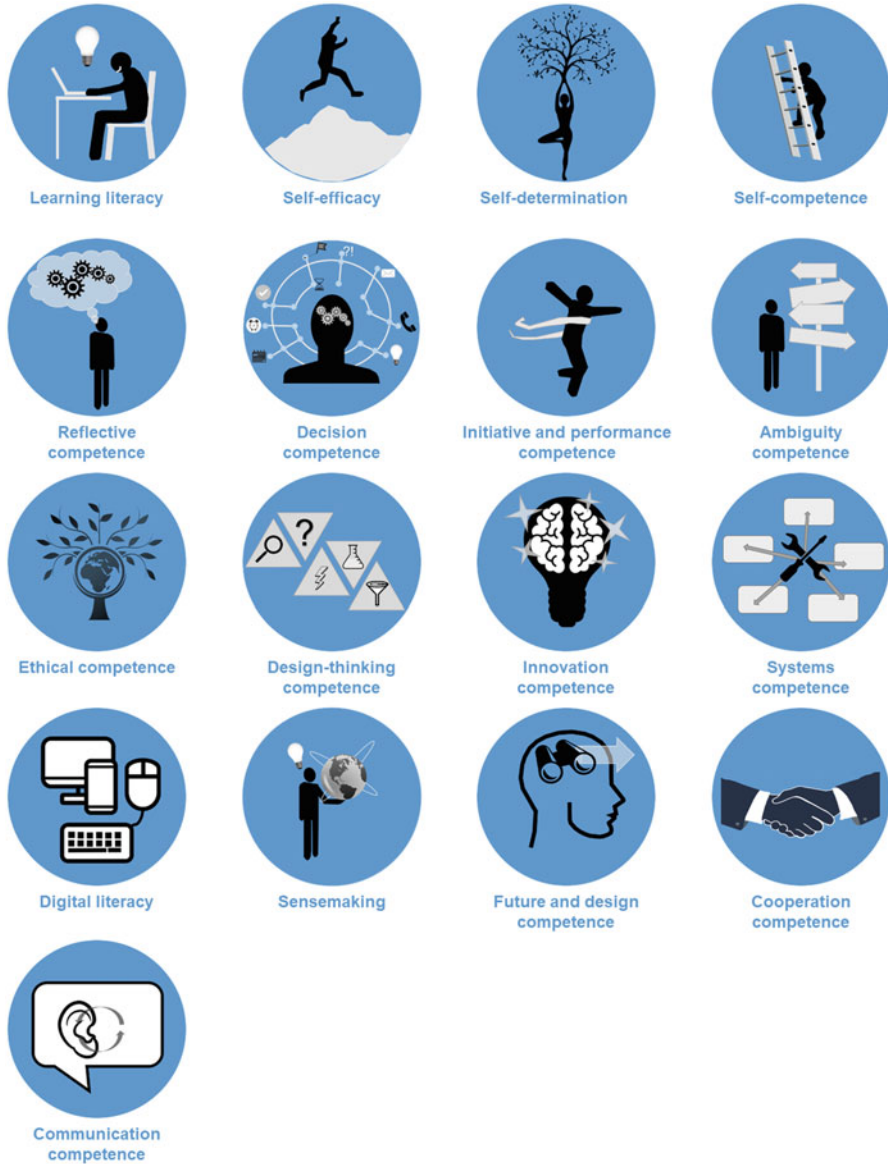


Fig. 2 Overview of Future Skills Profiles © Ehlers

This tripartite division is deeply rooted in the philosophy of educational science (e.g., Dewey and Bentley in their essay *Knowing the Known* (Dewey & Bentley, 1949)), but goes back significantly to Meder (2007; also Roth, 1971), who establishes a fundamental, constitutive structure for education as a structural tripartite relationship. For the Future Skills concept, this results in a three-dimensional

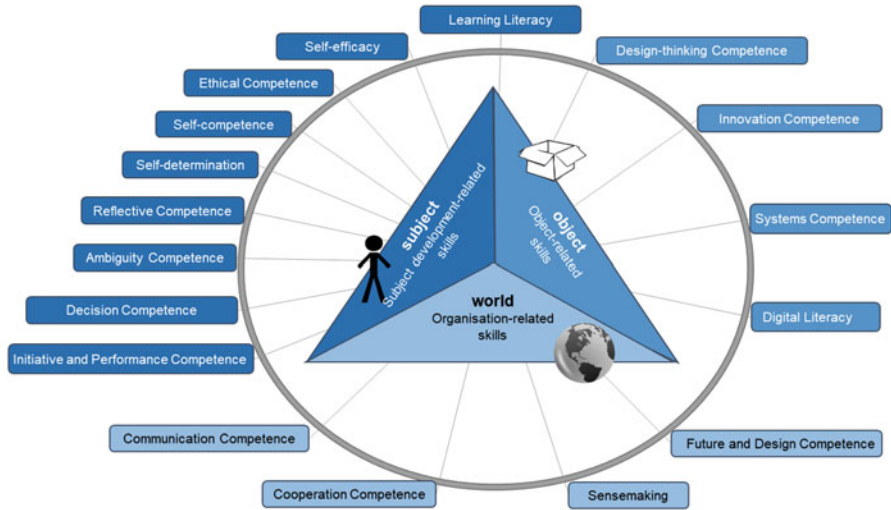


Fig. 3 Future Skills overview – allocation to three dimensions © Ehlers

breakdown: Future skills thus refer (1) according to the time or subject dimension either to individually development-related aspects of the acting subject (e.g., the ability to self-reflect in relation to something experienced in the past or ethical competence) or refer (2) to dealing with a subject, an object, such as a topic or a task (e.g., design thinking skills), or else (3) to the social environment or the organization in which the individual acts (e.g., cooperation or communication skills). Subject, object, or world/organizational reference thus span the competence fields in which Future Skills can be located. Figure 3 shows the breakdown of Future Skills into the different fields of competence.

All three dimensions are in turn interrelated and mutually influence each other. For example, the competence of self-reflection not only affects the subjective development of an acting individual, but also the ability to communicate and cooperate (social or organizational dimension) and in turn the system competence of an individual (object dimension). In this respect, different Future Skills are equally involved in every action. The three dimensions thus form the Future Skill Triple Helix DNA, in which the three skill dimensions interact in concrete actions (see Fig. 4). They enable a better understanding of the factors that define future action skills.

Changing Contexts of Life and Work

Tracing Future Skills back to three constitutive components also allows us to clarify the causes that make Future Skills so significant. The empirical analyses of the interview data show that processes of change – referred to as shifts in the following – and movements are taking place in each of the three dimensions. It becomes clear

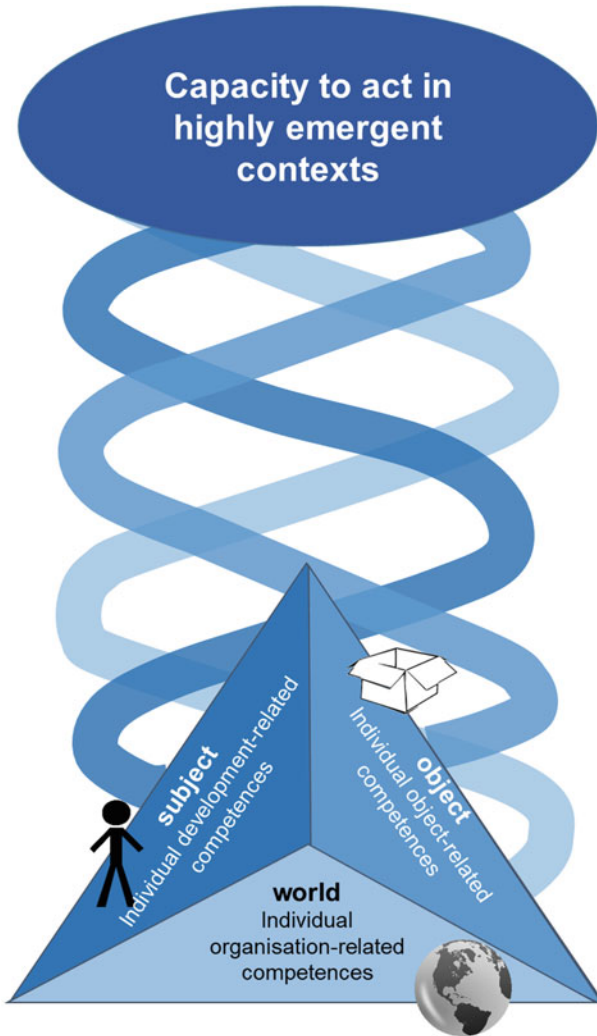


Fig. 4 The Triple Helix Model of Future Skills © Ehlers

that a clear change is emerging with regard to the nature of those skills that are significant for individuals and their ability to act in future work and life contexts. Future skill requirements can therefore be clearly distinguished from those of the past and also, to some extent, from those of the present.

Shift 1: From Standardization to Self-organization

The theses of Voss and Pongratz (1998) on the labor force entrepreneur, of Hitzler and Honer on the craft biography (1994), and also of Ulrich Beck (1986) on the risk society suggest an ever-decreasing standardization of employment biographies. This results in a stronger self-control of the individual with regard to his or her employment biography. This self-control of navigating from one job to the next, but also from one position within an occupation to the next or from one occupation to the next is also evident in the Future Skills data at a micro level. At this level, skills can be reconstructed for the internal demands within work processes, suggesting that there is a change that requires less prescribed work structures and more self-organization. This emphasis on self-competences is expressed in the reconstruction of the data, in which the interviewees emphasize that contexts of action in organizations are changing ever faster, both structurally (in the organization) and in terms of content (in the task area) and socially (in the environment). It becomes clear that individuals have to make ever greater individual adaptations to new contexts of action. These often arise in the context of emergent processes and are difficult to plan or predict. The necessary skills, which are demanded of the respondents as Future Skills, have the task of enabling this adaptive performance. It becomes clear that a productive-anticipatory approach to changing contexts of action is becoming increasingly important, so that the focus is not on compensatory measures that aim to restore the capacity to act in the event of a loss of capacity to act due to changing contexts of action. Rather, it is about enabling actors to productively shape new contexts of action already in the course of change processes. Future Skills have the task of enabling actors to be able to act in a self-organized way. So-called self-competences such as self-efficacy, self-determination, self-competence, reflection competence, and self-directed learning enable individuals to productively carry out the necessary adaptation processes in highly emergent contexts.

Shift 2: From Knowledge to Competence

A second shift that emerges from the interview data is the change from the originally high importance of specialized knowledge to a more generic capacity to act. Following Erpenbeck (2012), we define capacity to act as the disposition to act in a goal-oriented manner in complex and unknown problem situations. Following Baake's (1991) dimensions of competence, which he in turn develops from the concept of communicative competence based on Chomsky (1981) and which he elaborates for the area of media competence, four dimensions are central, which can well illustrate the shift described here. The competence dimensions originally developed for the area of media competence and dealing with media (based on Baake, quoted from Vollbrecht, 2001, p. 56) are generally referred to the capacity to act in emergent contexts, as they can also be used to illustrate the shift in the understanding of competence:

- The knowledge dimension with an informative and an instrumental qualification dimension
- The dimension of usage with a more receptive and a more interactive component
- The design of something new with an innovative and a creative component
- The ability to criticize a knowledge base with an analytical, a reflexive (here self-referential), and an ethical component

Beyond the realization that Future Skills rather require the capacity to act and that pure technical knowledge is no longer sufficient, the model allows for a much more precise reconstruction of which dimensions of competence are pronounced in the Future Skills model. In the interviews, it is clearly pointed out that Future Skills primarily require the development of the creative and critical dimensions of competence. In the past, individuals could limit themselves to applying knowledge, methods, and tools; in the future, however, it will become increasingly important to develop new knowledge, methods, and tools in an original and creative way.

Shift 3: From Hierarchical to Networked Organizations

A third change refers to a generally changing organizational environment from hierarchical process organizations to networked and agile organizations. The change taking place here is clearly described in the interview data: While organizations in the past were organized in clear structures and management processes, the organizations of the future will be organized in more fluid structures that are subject to faster and more fundamental changes. In this context, competing poles face each other, where the previous structures and processes of clearly defined management structures are more likely to be replaced by agile processes and enabling management in the future. In the future, process organization will be characterized by networked structures in which clearly defined processes evolve more frequently and organizational charts and responsibilities change more quickly. Relationship management will become an increasingly important factor in this. The whole area of informal initiative is an important component of organizational success and an essential future skill without which the management of organizations will become inefficient in the future. The interviewees express that in future organizations central control approaches are less and less effective and instead participation-oriented goal-setting processes are becoming more and more important.

Conclusion

With regard to Future Skills, the following points can be summarized:

1. Future Skills can be analyzed and described using a profile set that categorizes the 17 skills into three dimensions. Each of these dimensions contains a set of Future Skill profiles.

2. These skills can be described by two cornerstone characteristics: a strong, transversal, and well-developed capacity for self-organization, accompanied by the capacity to act in unpredictable contexts. These two elements thus advance to key components for professionalism – regardless of the respective professional field.
3. Future Skills can be described with a model that categorizes the 17 skills according to three dimensions: subjective – individual development-related skills, objective – task and topic-related skills, social – world/organizational skills. All three dimensions are interrelated and should therefore not be thought of as mere expressions of isolated skill fields.
4. The future skill approach as presented here goes beyond a static model of pure skill enumeration and definition. Moreover, while the model assumes that digital or technical skills will undoubtedly be an important Future Skills ingredient in the future, it does not see these skills as sufficient on their own. The real value of these skills, therefore, lies primarily in the personal development of dispositions that can enable the individual to act in a self-organized way in a defined domain.

References

- Baacke, D., Frank, G., & Radde, M. (1991). *Medienwelten – Medienorte: Jugend und Medien in Nordrhein-Westfalen*. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Beck, U. (1986). *Die Risikogesellschaft*. Frankfurt a. M.: Suhrkamp.
- Beck, U., & Beck-Gernsheim, E. (Eds.). (1994). *Riskante Freiheiten. Individualisierung in modernen Gesellschaften*. Frankfurt a. M.: Suhrkamp.
- Brown, J. (2018). *How these humanities graduates are finding jobs in Silicon Valley*. PBS. <https://www.pbs.org/newshour/show/how-these-humanities-graduates-are-finding-jobs-in-silicon-valley#transcript>. Accessed: 21 Oct 2020.
- Chomsky, N. (1981). *Regeln und Repräsentationen*. Frankfurt a. M.: Suhrkamp.
- Dewey, J., & Bentley, A. (1949). *Knowing and the known*. Boston: Beacon Press.
- Ehlers, U.-D. (2020a). *NextSkills. Future skills – The future of learning and higher education*. <https://nextskills.org/>. Accessed: 21 Oct 2020.
- Ehlers, U.-D. (2020b). *Future skills: Lernen der Zukunft – Hochschule der Zukunft*. Wiesbaden: Springer VS.
- Ehlers, U.-D., & Kellermann, S. A. (2019). *Future skills. The future of learning and higher education. Results of the international future skills Delphi survey*. <https://nextskills.org/library/future-skills-study/>. Accessed: 21 Oct 2020.
- Ehlers, U.-D., & Meertens, S. A. (Eds.). (2020). *Studium der Zukunft – Absolvent(inn)en der Zukunft*. Wiesbaden: Springer VS.
- Erpenbeck, J. (2012). Führungskompetenz. In W. G. Faix (Ed.), *Kompetenz. Festschrift Prof. Dr. John Erpenbeck zum 70. Geburtstag, Band 4* (pp. 109–142). Stuttgart: Steinbeis-Edition.
- Faix, W. G. (Ed.). (2012). *Kompetenz. Festschrift Prof. Dr. John Erpenbeck zum 70. Geburtstag, Band 4*. Stuttgart: Steinbeis-Edition.
- Hachmeister, C.-D. (2017). *Die Vielfalt der Studiengänge. Entwicklung des Studienangebotes in Deutschland zwischen 2014 und 2017*. Centrum für Hochschulentwicklung. https://www.che.de/wp-content/uploads/upload/Im_Blickpunkt_Die_Vielfalt_der_Studiengaenge_2017.pdf. Accessed: 21 Oct 2020.
- Hartley, S. (2016). The fuzzy and the techie. Why the Liberal arts will rule the digital world. *Financial Times*. <https://www.ft.com/content/e25235dc-aa8a-11e6-9cb3-bb8207902122>. Accessed: 21 Oct 2020.

- Hippler, H. (2016). Wozu (noch) Geisteswissenschaften? *Rotary Magazin*. <https://rotary.de/bildung/wozu-noch-geisteswissenschaften-a-8984.html>. Accessed: 21 Oct 2020.
- Hitzler, R., & Honer, A. (1994). Bastelexistenz. Über subjektive Konsequenzen der Individualisierung. In U. Beck & E. Beck-Gernsheim (Eds.), *Riskante Freiheiten. Individualisierung in modernen Gesellschaften* (pp. 307–314). Frankfurt a. M.: Suhrkamp.
- Kummert, T. (2017). *Endlich einer, der nicht nur Formeln anwenden kann*. Süddeutsche Zeitung. <http://www.sueddeutsche.de/karriere/arbeitsmarkt-endlich-einer-der-nicht-nur-formeln-anwenden-kann-1.3623308>. Accessed: 21 Oct 2020.
- Meder, N. (2007). Der Lernprozess als performante Korrelation von Einzelnem und kultureller Welt. Eine bildungstheoretische Explikation des Begriffs. *Spektrum Freizeit, 07, I & II* (pp. 119–135). https://duepublico.uni-duisburg-essen.de/servlets/DerivateServlet/Derivate-34931/21_Meder.pdf. Accessed: 21 Oct 2020.
- Nachtwey, O. (2016). *Die Abstiegs-gesellschaft – Über das Aufbegehren in der Regressiven Moderne*. Berlin: Suhrkamp.
- Olejarz, J. M. (2017). Liberal arts in the data age. *Havard Business Review*. <https://hbr.org/2017/07/liberal-arts-in-the-data-age>. Accessed: 21 Oct 2020.
- Placke, B., & Schleiermacher, T. (2018). Anforderungen der digitalen Arbeitswelt. Studie der IWConsult im Auftrag des Bundesverbandes der Personalmanager e. V. https://www.iwkoeln.de/fileadmin/user_upload/Studien/Gutachten/PDF/2018/Gutachten_Anforderungen_Digitale_Arbeitswelt.pdf. Accessed: 21 Oct 2020.
- Roth, H. (1971). *Pädagogische Anthropologie. Bd. 2: Entwicklung und Erziehung*. Hannover: Hermann Schroedel Verlag.
- Vollbrecht, R. (2001). *Einführung in die Medienpädagogik*. Weinheim: Beltz.
- Voß, G., & Pongratz, H. (1998). Der Arbeitskraftunternehmer. Eine neue Grundform der Ware Arbeitskraft? *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 50*, 131–158.

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