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Future-Oriented Education

Making Children Fit for the Future in Family, Childcare and School

Abstract

Raising and educating children is always about their future. We want to give them the knowledge and skills they need to be successful in the world of work, build positive relationships with other people and find personal happiness.

To achieve this goal, we must ask ourselves: How will today's children live in 20 or 40 years? What kind of world will they have to cope with? What challenges will they be confronted with? What knowledge will they need? How can we make children „fit for the future"?

These questions are answered in this book. The first part describes how futurologists imagine the world in 20 or 30 years. After each chapter, relevant skills are listed that individuals need to cope with the respective future trends. The skills and qualifications needed are summarized in the second part of the book. In the third, fourth and fifth part it is discussed how families, daycare centers and schools can make children „fit for the future".

Contents

Introduction

The upbringing and education of children is always about their future. We want to give them the knowledge and the skills they need, so that they can later be successful in the world of work, build positive relationships with other people and find personal happiness.

To achieve this goal, we should ask ourselves questions like the following: How will today's children live in 20 or 40 years? What kind of world will they have to cope with? What challenges will they face? How can we make our children „fit for the future"? What knowledge and key qualifications will they need to be successful in their professional and private lives in 10 or 20 years?

But the fact is: Although these questions are logical, they are not asked! Strangely, people tend to think backwards. Parents ask: How was I raised as a child? Do I want to raise my children in the same way – or what do I want to change? Educators ask: How can I implement the curriculum developed for my crèche, kindergarten or preschool? Are all children acquiring the skills mentioned there? Teachers ask: How do I realize the goals and contents of the school curriculum in my lessons? Have my children learned in the last few days what they should have learned? And when asking these questions, neither educators nor teachers consider that the educational goals and curriculums are not only several years old, but that they were created or updated with the present in mind: What additional knowledge and skills do children need today?

But we do not want to educate and raise our children for a life in the past, but for a life in the future! Then they have to prove themselves. That's why we urgently need to rethink, i.e. consider how living and working conditions will develop in the coming years and decades, what qualifications our children will need then and how we can lay the foundations for their future success now.

This is the goal of future-oriented education. In this text future developments are analyzed that are expected to occur in the coming decades – up to around 2050. From this, skills are derived that today's children need in order to be successful in their future careers, to build positive relationships with other people and to find personal happiness. Afterwards it is described how families, daycare centers and schools can make children „fit for the future".

Future trends and the skills needed in the coming years can only be predicted with a high degree of uncertainty, since it is ultimately unclear how the future will develop. It is also difficult to teach skills that will probably be needed in the future but are not mastered by today's parents, educators and teachers. Children and young people should therefore develop learning abilities, creativity and flexibility so that as adults they can acquire the skills they need themselves. But the values and attitudes conveyed to children and young people will also play a major role in the future, as they help determine how the next generation of adults will deal with major challenges such as climate change, environmental pollution, population aging, immigration, knowledge explosion, technological innovations, etc.

This text does not contain quotations or references. Sources and additional information on future trends and other topics addressed here can easily be found on the Internet.

Future Trends: What Skills Will Our Children Need for the World of Tomorrow?

How will the world order, the environment, technology, economy, society, family and childhood change in the next 20 or 30 years? What skills do children need today in order to be successful and happy as adults? These questions will be addressed in the following text.

The World of Tomorrow

My paternal grandfather lived from 1882 to 1954. It is unthinkable that at the time of his birth a scientist would have given a lecture in which he predicted that during my grandfather's lifetime, for example, the car (1885), the dirigible airship (1900), the airplane (1903: first motor flight), radio (1923), television (1929), nylon fibers (1938), the V2 long-range rocket (1942), the nuclear reactor (1942), and the atomic bomb (1945) would be invented. As far as I know, one predicted in 1882 that over the next 70 years science and industry would experience an incredible boom, more and more people would move to the cities, streets would be paved and equipped with lights, empires and kingdoms would be replaced by democracies, two world wars would break out and the communists would come to power in Russia, China and other countries.

Today the situation is somewhat different. Futurology has become an interdisciplinary field of work, in which primarily scientists and managers are active. There are only a few chairs for futurology at universities, but many scientists deal with

future forecasts in their field of work – be it climatology, economics, biology, oceanography or architecture, for example. State departments, statistical offices, corporations, banks, management consultancies and supranational organizations such as the UN, the European Commission and the OECD predict future developments. It is now possible to extrapolate trends into the future, taking into account, for example, that technological developments are accelerating.

Nevertheless, major uncertainties remain. Natural disasters in particular are largely unpredictable, even if we know that at some point California and the region around Tokyo will be hit by major earthquakes or that volcanoes under Naples and Yellowstone National Park are about to erupt. Also major political upheavals cannot be predicted. For example, the economic miracle in East and South Asia would come to a rapid end, if a new cultural revolution would occur in China or if hundreds of millions of people – who have hardly benefited from economic growth so far – would revolt in India.

The forecasts presented on this website neither contain any quotations or references in order not to disrupt the flow of thought. Nor is this a complete overview of future developments or a detailed discussion of individual trends. For the purpose of this website it is irrelevant, for example, whether the population of Germany in 2040 will be 81 or 85 million people. Likewise, there is no need to discuss different forecasts of climate change – whether, for example, the global temperature will increase by 4 or 6 degrees till 2100 or perhaps even more. The only thing that matters is that such trends exist

and that today's children will have to cope with the associated challenges as adults.

It should also be noted that this website does not want to convey a pessimistic attitude towards the future or even instill fear of the future. Just looking back at the last 150 years shows that almost every generation has mastered great challenges – just think of the First and Second World Wars, the global economic crisis that began in 1929, the Third Reich, the Vietnam and Iraq wars, the banking crises that started in 2007 or the Covid pandemic. Technological changes were certainly more radical for my grandfather (see above) than for the children of today who grew up with them. Which child shies away from new technology as many adults do? The next generation will certainly adapt to future developments and cope with the respective requirements. But they will find this easier if we prepare them…

The International Context

By 2050, the world population will increase from 8 to around 9.7 billion people. Population growth is mainly taking place in regions that already have problems with water shortages, inadequate agricultural production and poverty. Therefore, more migration and ethnic tensions can to be expected in the future. At the same time, the average age of the world population will rise from 31 to 36 years in 2050. Then more senior citizens will have to be cared for, which could lead to new social crises in poorer countries without pension insurances.

Since 2008, more than half of humanity has lived in cities. Their share will continue to increase in the coming decades – by 2050 it will be almost three quarters. More and more people will live in megacities with more than 10 million inhabitants. In many towns environmental problems (air pollution, no or unclean water, mountains of garbage, inadequate sewage treatment) and poverty will increase. The number of slum dwellers will continue to rise.

Two thirds of the global economic output and four fifths of technological innovations are generated in the 40 largest metropolitan areas worldwide, although only a small proportion of the world's population lives here. Most of the flow of goods runs between these centers or between them and the surrounding areas. Most corporations are based in the metropolitan areas. Most people living there think and live increasingly globally. They are being joined by more and more academics and skilled workers who previously lived in developing countries because they have better career opportunities and earn more in OECD or newly industrialized countries. These people „live" globalization, but only form a small minority: Around 90% of the world's population only knows their home country – and often only the region around their place of birth.

Globalization has led to companies shifting many jobs to „cheaper" countries. In more developed countries, the unemployment rate has risen and workers' incomes have stagnated. In addition, working conditions have deteriorated in many newly industrialized and developing countries. Moreover, environmental protection has been neglected

because governments either want to keep jobs in their country or undercut „more expensive“ ones. The shift of jobs from more developed to less developed countries will only end when robots can produce more cheaply than workers in developing countries or when transport costs become too high due to rising energy prices. Jobs in the service sector, in public administration, as well as in research and development are less affected by this trend.

Financial and debt crises will shape world events in the coming years. They began in the spring of 2007 with the US real estate crisis leading to losses and bankruptcies among companies in the financial sector (particularly banks), some of which were only able to continue to exist thanks to government injections of capital. In many countries, the financial crisis expanded into an economic crisis, which governments attempted to counteract with economic stimulus programs and central banks by radically reducing interest rates. Since then we see ever increasing debts of states, companies, banks and private households, so that new debt crises can be expected in the future. These crises will shake people’s confidence in the capitalist economic system – but also in politics, as many citizens are not happy with the reactions of politicians, which always lag behind events on the financial markets, and have the impression that companies are being rescued at their own expense (taxes) or at the expense of future generations (public debt). Particularly if financial crises lead to long-lasting recessions or high inflation, there could be strong protest movements and government overthrows.

In addition, further crises are looming in the next 30 years:

- Climate change: Global warming will lead to droughts, severe storms and floods all over the world. Many people will have to leave their settlements. The UN Refugee Agency expects there to be around 250 million climate refugees by 2050.
- Food crisis: Global population growth, the more resource-intensive diet of the increasing number of middle-class people in newly industrialized and developing countries (e.g. more meat and milk consumption), the loss of previously agricultural land due to urbanization, the decreasing fertility of the arable land in many places, water shortages, erosion and desertification will lead to a shortage of food. In addition, more and more crops will be used to produce biofuels. The gradual decline in global food production will lead to further increases in food prices. Then the number of people going hungry – people who cannot afford these costs – will rise.
- Energy and raw materials crisis: On the one hand, the need for energy sources such as oil, natural gas and coal as well as for other raw materials (especially in newly industrialized countries) is increasing rapidly. On the other hand, the known reserves are shrinking and will at some point be depleted. Raw materials will therefore become scarcer and more expensive during the next decades.

Global population growth, climate change and food, energy and raw materials crises will increasingly force humanity to encounter the „limits to growth“ that the Club of Rome proclaimed in the early 1970s. The capitalist system, the wasteful use of natural resources, mass consumption and the „throw-away“ society may no longer have a future. However, the window of opportunity for countermeasures is much smaller today than it was 50 years ago. In addition, the aforementioned financial and economic crises have diverted attention from these much larger problems – and at the same time reduced the financial resources available for countermeasures. The mounting costs for pensions, medical services and nursing care caused by the ageing of the population in developed countries will decrease the financial resources even more.

The lack of political will to take drastic measures (e.g. to reduce greenhouse gas emissions or to control births) makes it increasingly likely that mankind will lose the race against time. Accordingly, pessimism about the future is increasing in many countries.

Required Skills

For all future trends presented on this website, the basic rule is that children and young people – especially those of school age – should learn about these developments so that they know what will happen to them in the coming decades. This includes dealing with global trends such as population growth in developing and newly industrialized countries, urbanization, globalization, impending bottlenecks in the supply of raw

materials and food, as well as current financial and economic crises. However, since forecasts are only of limited reliability, they must also learn to live with uncertainty.

Children and young people should neither develop fear of the future nor a feeling of hopelessness („I can't change that!"). Rather, it is important to develop relevant attitudes and behavioral tendencies based on a realistic knowledge of the future: In particular, young people and adolescents should accept the limits of growth, i.e. prepare themselves for the fact that the (global) economy cannot continue to grow through wasting resources, polluting the environment and increasing debt, and that the governments can no longer distribute benefits at the expense of future generations and must reduce public debts. Developed and newly industrialized countries have achieved prosperity and a relatively high standard of living, which can probably be secured through fairer tax policies, a better distribution of corporate profits and the transformation of a „throw-away" society into a „recycling" society, but can hardly be expanded any further.

Since most children and young people grow up without material worries and as a large part of their consumer desires are fulfilled, they may find it difficult to save or forego something later on. They should therefore be prepared as early as possible for possible cutbacks of their standard of living that could occur in the coming decades. The quality of life should be more important to them than pure consumption or the accumulation of possessions. This does not have to affect their subjective well-being. Happiness research has shown that

factors other than purely material ones become more important for life satisfaction as soon as the basic needs are met.

When young people and adolescents develop realistic expectations of the future, disappointments and the associated dangers (e.g. radicalization) are prevented. Moreover, they will rely more on themselves and their social network than on the state. They will forego something for the benefit of other people (e.g. in their own country: seniors and those in need of care; in developing countries: the poor and starving) and strive for an energy-saving and resource-conserving lifestyle.

The New World Order

While the USA as the largest world power currently dominates political events, the coming decades are expected to see the emergence of a multipolar world: China and India will play an increasingly important role in world politics. Europe will probably remain an important economic power, but will not become an influential global player, as national interests will continue to make a common foreign and security policy difficult. In addition, the EU countries will be increasingly limited by the decline in the working population and the sharp rise in social spending due to an aging population.

The situation in developing countries that do not catch up with the newly industrialized countries will worsen due to high population growth and climate change (floods, droughts, desertification, soil erosion). Hundreds of millions of people will barely be able to earn a living. Due to high levels of debt, governments' financial flexibility will be limited. Moreover,

foreign investments in developing countries will stay low (except for the exploitation of natural resources or raw materials); the vast majority of direct investments will go to OECD and newly industrialized countries.

In addition to people displaced by (civil) wars, there will be an increasing number of climate refugees. Better qualified individuals, who earn little in their home country, are discriminated against or see no future prospects, will seek refuge in migration. This brain drain will slow down economic and social development in the countries affected.

Required Skills

The greater the importance of countries such as China and India, the more important it becomes to broaden a perspective limited to the Western world and to think more globally. Children and adolescents must learn about countries that will play a greater role on the world market and in world political events in the coming decades. Of course, this does not mean that North American or European countries can be neglected – but the balance must be shifted.

On the one hand, children and adolescents need knowledge about the most important regions and countries in our world. This includes knowledge of geography, history, population, religion, culture, economy, society and politics. On the other hand, children and young people should develop intercultural skills for dealing with people from other countries – be they migrants or tourists or people they meet on holiday trips. But

such skills are also of great importance for later study or work stays abroad or for business contacts.

Children and young people must therefore learn to tolerate the attitudes, values and religious beliefs of persons from other countries, to adapt to their customs, lifestyles and eating habits, and to communicate and work with them. Good English skills are indispensable in the future; if necessary, however, languages such as Mandarin, Hindi or Spanish must also be mastered. With English and (standard) Chinese, you can already communicate with half of the world's population.

Furthermore, children and young people should learn about developing countries, especially about their problems. They should develop an understanding of poor and starving people as well as economic and climate refugees and be motivated to help them (later) as much as they can.

Environmental and Climate Changes

In the coming decades, nature will be increasingly stressed by overpopulation and urbanization. Due to climate change, monocultures and the cultivation of plants that are in demand on the world market but only grow locally thanks to the ruthless exploitation of soil and water resources, more and more land will become infertile. Currently, a third of the world's arable land is affected by erosion, while more and more pastureland is being lost due to overgrazing by cattle, sheep and goats. Furthermore, virgin forests are cut or burned down – with devastating consequences for the climate, as tropical rainforests produce 40% of the world's oxygen.

The destruction of nature is leading to a sharp decline in biodiversity. By 2050, around 30% of amphibians, 23% of mammals and 12% of birds could be extinct or threatened with extinction, in addition to many plant species; around 70% of all coral reefs are likely to be destroyed. And if overfishing is not stopped, there will be no more commercial fishing by 2050, according to the UN. This would deprive 1 billion people of their only source of protein.

While environmental pollution has been reduced in OECD countries, it is increasing in newly industrialized and developing countries due to rapid industrialization. In addition, the reduction of non-tariff trade barriers (e.g. import quotas or production standards) promoted by the World Trade Organization (WTO) has led to many countries „watering down“ environmental and consumer protection laws. This also has a negative impact on people’s health.

The future of humanity is also affected by climate change. Since industrialization, a man-made global temperature increase has been observed, which is accelerating. It is associated with an increase in natural disasters and a spread of diseases such as malaria, cholera and dengue fever towards the north.

The temperature increase is largely caused by carbon dioxide emissions – which have not yet been curbed despite 29 world climate summits (2024). In fact, even greater carbon dioxide emissions are expected due to the continuing increase in the world population, consumption orientation in the highly developed countries and rapid economic growth in the newly

industrialized countries. In China alone, more coal is now burned than in the USA, the EU and Japan combined.

Due to higher temperatures and the associated increased evaporation, precipitation has increased by around 7% over the last 100 years. However, there are significant regional differences: while precipitation has increased sharply in the tropics and in the high latitudes of the Northern Hemisphere, it has decreased in semi-arid regions such as the Sahel zone. In southern Europe, the southwestern USA and Australia, dry periods will determine the regional climate and lead to an increasing number of forest fires.

According to UNESCO, almost half of the world's population already lives in areas where there is a lack of water for at least one month per year. In 2050, more than 5 billion people will suffer from water shortages. Political and social tensions could increase over the distribution of available water.

Due to the melting of glaciers and ice in the Arctic and Antarctic, sea levels are rising by 3.4 mm per year. By the turn of the century, they could be 1 m higher than today. Then the homes of the 150 to 200 million people will be flooded.

Required Skills

On the one hand, children and young people should acquire knowledge about the importance of natural resources and biodiversity as well as about environmental destruction, pollution and climate change, and on the other hand, develop environmental awareness and love of nature. However, alienation from nature has increased in recent years due to

urbanization and domestication – there is even talk of a „nature deficit disorder“ (Richard Louv).

Therefore children should have more experiences of nature, because one is only willing to protect what one loves. Then, as adolescents and adults, they will engage in environmental protection, for example, trying to keep their „ecological footprint“ (Mathis Wackernagel/ William E. Rees) as small as possible. At the same time, they will be prepared to do whatever they can to protect the environment worldwide. If they know that the Western world has largely caused global warming and is still contributing to it, they will also support climate refugees and possibly welcome them to their home country.

Exponential Growth of Knowledge and Technological Change

In the centuries leading up to the invention of the printing press, human knowledge increased very slowly – and over the centuries it often decreased (e.g. in Europe during the „Dark“ Middle Ages). Since books and magazines made it possible to spread knowledge, and especially since the beginning of the Industrial Revolution, knowledge has increased exponentially: Every year more and more knowledge is produced by an ever-increasing number of scientists, engineers and other specialists, which can be spread ever more quickly thanks to new media (e.g. Internet, e-books, e-journals).

We are currently in a transition phase from a service society to a knowledge society. Just as more and more jobs for

agricultural and factory workers have disappeared due to technological advances, in the future more and more services will be automated or taken over by robots. An increasing number of people – scientists, engineers, technicians, teachers, trainers – will be involved in the production and dissemination of knowledge. Due to the accelerating increase of knowledge, they will have to specialize more and more, as this is the only way they can stay up to date in their (shrinking) specialist field. The competitiveness of a country will also depend more and more on how much (new) knowledge it has generated or is available.

The exponential growth of knowledge is associated with a corresponding acceleration of technological development. In contrast to the last century, it is not only happening faster, but also in more and more areas simultaneously. While in the 19th and early 20th centuries the steam engine and then the combustion engine dominated technological development, today there are no longer any dominant technologies: artificial intelligence, information, communication, bio- and nanotechnology, medical, genetic, vehicle, aerospace technology, mechanical engineering and robotics are developing at a rapid pace. Great progress is also being made in the use of renewable energies, in batteries and in the production of biofuels.

The exponential increase in knowledge and the accelerating technological development are incomprehensible to many people and frighten them. They feel overwhelmed by all the new developments. Human ethologists explain this by saying that mankind’s genetic makeup and ancestral history only

prepare for small, linear changes. Many politicians and other social forces are also having difficulty coping with the exponential growth of knowledge and rapid technological change, as well as with the associated increasing complexity of economic and financial systems. It is more and more difficult for them to intervene effectively when necessary (such as in financial or economic crises).

In the coming decades, people will be surrounded by more and more technology at their workplaces, in their homes and in public areas. For example, heating, air conditioning, refrigerators and other household appliances will form a network so that they can be controlled by smartphone or computer. Cars will work with new technologies and safety systems; soon they will be able to drive fully automatically. Computers will become much more powerful and smaller. They already understand the spoken word and can answer questions verbally. Computers will not only store data, but also understand its meaning (semantic web).

Due to the flood of information, it will become increasingly difficult to keep track of things and to separate the important from the unimportant. This is why computer programs for the management and analysis of „big data“ will become increasingly important. They will also process information that has been generated by machines, is needed to control them or is intended for other machines. Billions of devices are already networked with each other. More and more systems will be controlled fully automatically – from nuclear power plants to factories and communication systems.

Moreover, technical processes are increasingly controlled by artificial intelligence. AI also plays a major role in robotics. While the USA, for example, is developing mainly exploration and military robots for warfare, Japan is concentrating on developing service robots that can care for the growing number of elderly people and fill the jobs left vacant by the decline in the number of working-age adults. Industrial robots have long been used in factories in highly developed countries. But there are now also robots that look like people, assist the elderly or disabled, perform household chores, play musical instruments, act as receptionists or as tour guides.

Robots are taking over more and more work in industry, commerce, agriculture and the service sector. In some sectors, they could replace between a third and a half of the workers currently employed. This will be less of a problem for countries with low birth rates, as the number of people of working age is declining there. The low cost and high productivity of robots will also make it easier to support the growing number of retirees. In other countries, however, this development could lead to rapidly increasing unemployment, especially since highly developed countries are likely to relocate factories if production by robots is cheaper than by „cheap labor."

After 2030, (humanoid) robots will probably be more intelligent than humans and also have a kind of consciousness. They will be highly capable of learning and adapting. They will also be able to produce new robots independently, with each „generation" likely to be more intelligent and powerful

than the previous one. Robots will thus become more and more autonomous.

But mankind will also continue to develop. Medicine will be able to cure more and more diseases, which should lead to a major leap in life expectancy (to 100 years and more). However, the rapid increase in antibiotic-resistant pathogens could also lead to more people dying from infectious diseases. In the future, biosensors will monitor the most important body functions and detect diseases at an early stage. Diagnostics will also be improved by microarrays – molecular biological examination systems – which can be used to analyze human cells at the biochemical level, including DNA. Nanorobots the size of a blood cell will be used to locate and destroy pathogens, plaque or cancer cells, for example. In addition, organs, veins, bones and skin will soon be produced from the body's own cells using bioprinters. Furthermore, physical and sensory disabilities can be compensated more and more easily using technical aids and implants – provided that their occurrence has not been prevented by gene therapy.

Findings from medicine, brain and genetic research will also be used to make people more efficient. This could happen, for example, in embryos by intervening in the genetic material, or in children, adolescents and adults by using psychotropic drugs that make learning easier or stimulate the growth of new brain cells. Some futurologists also expect that brain implants will help people communicate non-verbally or will transfer information and knowledge from a computer to the brain (and vice versa). Human limbs might also be replaced with artificial ones, so that these cyborgs would perform better in sports, for

example. Otherwise, physical strength can already be increased using exoskeletons.

In addition to ethical problems, one might also problematize that only rich people or highly industrialized countries will be able to afford such improvements in physical and mental abilities. This could further increase the existing differences between the wealthy and the poorer, or between rich and poor countries. Dictators or criminals could also use these means to increase their power.

In any case, it is to be expected that around the year 2040 autonomous, learning and intelligent robots and people who have been „improved“ through medical, genetic and technological means will coexist. The further development of mankind, however, will be limited by biology – but the robots will not...

Required Skills

In the emerging knowledge society, children and young people must acquire a general knowledge as broad as possible on the one hand and increasingly specific professional knowledge on the other. It is particularly positive when they develop an interest in MINT subjects (mathematics, informatics, natural sciences and technology), law, economics, medicine or brain research, as these disciplines are of particular importance in the future.

As knowledge is increasing at an ever faster pace and as once acquired knowledge becomes outdated quickly, learning method skills are also becoming more and more important:

children and young people must learn where to find relevant information efficiently, how to assess its value and reliability and how to integrate it into existing knowledge – they must learn to learn. This also includes being able to use AI as well as computer programs for data management and analysis.

Young people must also learn to use and communicate the knowledge they have acquired: As their own area of expertise is becoming smaller, in most fields of work they will increasingly have to cooperate with specialists with other areas of expertise. They must contribute their own knowledge in such a way that their colleagues can understand it – only by interacting and linking different specialist knowledge will the respective team be able to fulfill its task.

In addition to learning methods, communication and cooperation skills also basic attitudes are important: curiosity, motivation to learn, desire to research, joy in experimentation, ability to concentrate, perseverance, etc. The willingness to engage in lifelong learning and the development of reflection, evaluation and problem-solving skills are also considered to be particularly important.

The faster technological change takes place and the more areas of technology are affected at the same time, the more important the adaptability of the individual becomes: Children and young people must not be afraid of new technologies and devices, but should approach them with curiosity and a willingness to experiment. This also applies to working with robots, which must not be viewed as competitors or enemies, even if they

have become more efficient than humans thanks to artificial intelligence and sophisticated technical skills.

If we consider that raw materials and energy sources will become increasingly scarce in the coming years and that environmental destruction and pollution will continue to increase (see above), a critical attitude towards new technical achievements is also necessary. Even children and young people should be able to judge whether they always need the latest smartphone or the most powerful games console, for example. Only then will they, as adults, first evaluate technological leaps before buying new devices. Such a critical attitude will also be useful when it comes to the use of medication, human genetic procedures, implants or artificial limbs to improve one's own performance, or when technical achievements are associated with risks.

Economy and Labor Market

The extent to which a country can assert itself on the future global market will depend on whether the economy succeeds in the transition from a service to a knowledge society and whether it remains competitive in future technologies and industries. Social commerce, i.e. enabling social interactions when shopping on the Internet, will play an increasingly important role. Furthermore, more products and services must be developed for senior citizens as their number grows in all countries. Finally, the economy must be able to bring new products to market more quickly, as product life cycles are becoming shorter.

In the coming years, many employees will retire in the developed countries as they belong to the baby boomer generation. There is already a shortage of skilled workers, and the unmet demand will increase in the coming years. Competition from employers for the ever-decreasing number of young people entering the workforce due to the decline in birth rates will increase, which will probably have an impact on starting wages and salaries and lead to a reduction in the gap to final income. In addition, many persons entering the workforce in developed countries will have a migrant background – and their educational qualifications are often low.

As a result of population development the workforce will become increasingly older. The age range of employees in some companies and authorities will be 55 years or even more. Contrary to the fears of many employers, this does not mean that innovation and productivity will suffer. Scientific studies show that companies with a higher proportion of older employees are not per se less productive.

The aging of the workforce will force employers to change their previously youth-focused personnel policies. The more the average age of employees increases, the more important continuing education and training will become for maintaining professional ability and work performance. Workplaces will also increasingly be designed to be age-appropriate, for example through ergonomic innovations, technical support systems and more creative working time models.

In the coming years, the world of work will become increasingly „feminized“. The number of housewives is

shrinking more and more – but so is the length of career breaks due to childbirth, as small children are attending day care facilities earlier and for longer and older children are attending all-day schools more and more often. In addition, more women have to work because they are single, because their (married) partner's income is not enough or because they want to build up their own pension in the face of generally declining pension entitlements. And more and more women want to work because they have acquired good vocational training or completed a degree, because they want to remain independent through their own income, or because they are looking for self-fulfillment and recognition in their career.

Since many young women now obtain good school, vocational and university qualifications, since many remain childless, and since starting a family is less likely to be a career obstacle than in the past (due to full-time childcare), they will increasingly move into management positions. According to futurologist Horst W. Opaschowski, the economy will say goodbye to the „patriarchal" system and favor a more „feminine" leadership style: According to him women think more pragmatically and work more efficiently, plan for the long term, lead meetings more tightly, avoid risky investments and handle money better. At the same time, career opportunities for men will decrease. In addition, traditionally male characteristics such as physical labor, aggressiveness and willingness to take risks are less in demand in the knowledge society than more female characteristics such as communication skills, social skills, information and time management.

In the coming years, more and more work processes in factories will be taken over by robots. This means that fewer people will be employed as workers. The service sector, on the other hand, will become more important, although simple tasks will be increasingly automated. Even relatively simple jobs will require a wide range of knowledge. For example, car mechanics already have to be able to use computers and electronics.

Competition for lower-skilled jobs will therefore increase – which will probably lead to lower pay. On the other hand, highly qualified people will earn more and more – also due to the growing shortage of skilled workers and increasing competition between employers. However, they will have to deliver and will therefore be under enormous pressure to perform. They will be more likely to work as self-employed people, sometimes with performance-related pay.

More and more employees will have to take on part-time jobs or temporary positions, work freelance for a time or switch between different types of employment, sometimes earning more, sometimes less. This will not only apply to low-skilled workers, but also to many academics with university degrees in low demand.

Despite the population decline and the shortage of skilled workers, there will still be a high unemployment rate in the foreseeable future. Unskilled and semi-skilled workers and those without usable qualifications will find it even more difficult to find employment than today. Since the government will probably only be able to provide very limited benefits for

the long-term unemployed due to the high expenditure on senior citizens and the sick, their standard of living will be low. However, some low-skilled people will find a living in self-help networks or additional income in the shadow economy.

Required Skills

If children and young people acquire cognitive, learning, communicative and cooperative skills as well as general and (later) specialist knowledge (see above), they will be able to hold their own in the job market of the future. They should therefore strive for the highest possible qualifications – and of course for those that are in demand by potential employers.

But creativity, innovativeness and productivity are also important skills for the future, as new products must be developed ever more quickly. As production cycles are becoming ever shorter, organizational skills are important when planning them. Entrepreneurial skills are needed to bring new products or services onto the market as quickly and as effectively as possible.

Since the age range between employees in companies, authorities and organizations will continue to grow, and since more and more people with very different migration backgrounds will have to work together, intergenerational and intercultural skills will play a greater role in the future. Young people must develop the willingness to accept employees of a different gender, origin or age group as superiors, colleagues or subordinates without prejudice. Young men should also develop more „feminine“ skills such as communication skills,

social skills and time management, because these are highly relevant in the cooperative working world of tomorrow. The longer older employees have to remain employed, the more important lifelong learning becomes, as well as the further development of creative and innovative skills. They must also attach great importance to maintaining their health.

Especially when young people become self-employed or freelancers, they are expected to be highly flexible and mobile, as their clients will keep changing. They will also have to develop skills in „self-marketing“ by, for example, using all the possibilities offered by the social web. Like other young people, they should develop a high level of motivation and be prepared to work in the evenings or at home. They must also learn to cope with high pressure to perform and high levels of stress without burning out.

The „More Varied“ Working Life

The „classic“ biography with the phases of training, full-time employment (in the same place) and retirement will be less and less common in the future. Many employees will retrain once or more in the future – so there will be more frequent periods of training or even (new) studies between jobs. Loyalty to the respective employer will decrease because employment relationships are increasingly perceived as being limited in time. Employees will also frequently change their place of residence – either because they are taking up a different job or because they have been transferred by their employer. This mobility will lead to more isolation and a larger number of weekend marriages. In multinational companies, the new job

will often be abroad, so that (spouses) and children will either have to stay in their home country or also have to move – with all the associated problems.

„Classic“ jobs with working hours between 8 a.m. and 5 p.m. will become increasingly rare. In the future, even more employees will have to work shifts, in the evenings, at night and on weekends. However, a large proportion of employees will also have flexible working hours. Knowledge and creative workers in particular will increasingly be able to organize their working day freely and even work at night or at home if this is expected to increase productivity. Many self-employed people will have complete location and time sovereignty, as they can be reached anywhere and at any time thanks to smartphones and the Internet.

Employees and self-employed people will continue to work in offices over the next 40 years. However, many will also work occasionally or even regularly from home or from abroad. Employees will be interrupted more and more often at work, e.g. by incoming emails or by checking their smartphones. This will affect their performance – according to a study by Microsoft Research it takes about a quarter of an hour after an interruption to fully concentrate on the task at hand again. Due to the constant increase in productivity, fewer and fewer employees will have to produce more and more. Highly qualified employees in particular will bring work home more often and do it in the evenings or at weekends.

As innovation cycles follow one another at breakneck speed, work will continue to accelerate. Knowledge and skills will

quickly become outdated – nothing will work without lifelong learning. The continuing education and training sector will therefore expand in the coming years: Working people will increasingly acquire knowledge and skills in in-house and external courses, at private institutes, through multimedia teaching and training programs, via the Internet, abroad or directly at the workplace under the guidance of experienced colleagues. There will also be more modular courses offered by colleges, universities and private providers. This means that people will continue to acquire new degrees and certificates over the course of their lives.

In companies, an increasing proportion of continuing education and training will take place online, especially since this often leads to better learning outcomes than with traditional training programs. In the future, there will be more and more learning communities on the Internet in which specialists with similar areas of expertise can discuss with each other, learn from each other, advise each other and, if desired, take on the role of a mentor. Online courses, learning circles on specific topics and joint projects will also be offered more frequently by companies.

As already mentioned, employees will have to specialize more, as they can only keep up to date in very small areas. They will have to deal with information more and more intensively in order to gain a knowledge advantage over the competition. Due to the increasing information overload, they will also need more time for knowledge management.

Due to the high level of specialization, employees will only be able to complete most tasks in cooperation with others. The workplace will become a place for exchanging ideas and mutual stimulation, as many ideas are generated in meetings. Employees will increasingly work on time-limited projects, whereby the composition of the team can change with each project. In more and more projects employees from several companies will cooperate with customers, freelancers and scientists from research institutions, as this is the only way to develop new goods and services efficiently. Accordingly, people with very different qualifications will work together in teams – e.g. engineers, scientists, mathematicians, computer scientists, designers, marketing and advertising experts.

Project work will demand more flexibility from employees: They will repeatedly have to work together in different places and with different people. However, video conferences will also be used more often. Companies will thus become networks whose geographically dispersed members exchange information regardless of place and time. Employees in developed countries will be required to be more and more creative, since at least in the near future the production of many goods or their components will take place in other countries.

Required Skills

Young people must prepare for a working life in which flexibility and (global) mobility will be of great importance: On the one hand, they will change employers, jobs and places of residence more often than today's employees. But working hours will also become even more varied. They need to be

willing to learn throughout their lives and also have the motivation to start all over again (e.g. with a totally different job or another course of study). On the other hand, young people as future employees will increasingly have to cooperate with other people – often in different locations – who will often include colleagues with a migrant background or employees from other countries. Then they will need foreign language and intercultural skills.

Young people should be prepared for the fact that as employees they will have to continuously train and educate themselves – even in their free time. They must be motivated to keep acquiring additional qualifications. As working life will become more hectic, children and young people should learn how to control the flood of information, how to switch off external disruptions (e.g. from incoming WhatsApp messages or emails) and how to concentrate fully on the task at hand.

As future employees will increasingly work in teams and on projects, communicative, interpersonal and cooperative skills are of great importance. Self-confidence, self-assurance and assertiveness are also important so that young people can make their voices heard in a working group and contribute their specialist knowledge.

But new leadership skills will also be in demand: Supervisors and managers will no longer have employees with similar knowledge and skills as those they largely possess themselves. Instead they will have to lead team members who each have special knowledge and skills that the managers do not have. In addition, employees often will not be „subordinates“ because

they have been sent from other departments, suppliers, universities or customers to work in the respective team for the duration of a project. So supervisors will be in demand who do not lead and order in the classic sense, but who can unleash the creativity of team members, stimulate productive interactions, promote cooperation, settle conflicts and provide the necessary resources. Such skills can be developed to some extent as early as childhood and adolescence.

Demographic Development

In developed and newly industrialized countries the population will no longer grow much or might even shrink. At the same time it will age – and the increasing number of retired people (who grow older and older) will be a heavy burden on the working population. It is therefore inevitable that in the coming decades people will work well beyond their 65th year and will have to reckon with decreasing pension entitlements. Health insurance will become more expensive as the number of old people with chronic illnesses or in need of care will grow so that higher costs have to be covered. Many seniors in need of care will be dependent on public support, as partners or adult children, who previously took on the care, will increasingly be missing (due to divorce or childlessness) or will live far away. Accordingly, more geriatric departments in hospitals, more senior and nursing homes, more day and short-term care places, and more outpatient nursing, domestic and meal services will be needed.

In the coming years, great social tensions are to be expected, which could lead to a „war between the generations“. On the

one hand, there will be people of working age who do not want to – and cannot – pay ever-increasing social security contributions and taxes. They will be supported by the business sector. On the other hand, there will be senior citizens who will fight to maintain pension, health and long-term care insurance benefits. They will gain more and more political power simply because of their increasing numbers. In addition, voter turnout among senior citizens is significantly higher than in all other age groups. Politicians must therefore pay more and more attention to the needs of older people.

Required Skills

Young people not only need knowledge of demographic developments, but must also be prepared to live with the inevitable consequences. As they will have to pay higher social security contributions and taxes, they will have less money for consumption, long-lasting purchases, building up assets or purchasing a home. However, they will only accept these disadvantages compared to previous generations if they see that seniors are accepting cuts in pension, health and long-term care insurance benefits. They should also be aware that they will inherit more than previous generations, as they are less likely to have to share with (several) siblings. In addition, young people should know the needs and requirements of seniors, the disabled and those in need of care. Through frequent personal contact they can learn how to deal with these people appropriately.

Changes in Society

It is not surprising that people are increasingly afraid in a society that is changing rapidly and is ignoring many problems to be expected in the near future. Some fear that the austerity measures that are looming in health and nursing insurance will mean that good medical care can no longer be guaranteed for everyone and that necessary operations and treatments – especially for older people – will no longer be carried out. They expect that at some point it will be determined how long the life of a very old person is allowed to be extended and in which cases euthanasia is indicated.

The financial and economic crises of recent years have contributing to the fear that people will be less prosperous in the future. The society is also aware of the high level of national debt, which will increasingly limit the scope for action of the federal, state and local governments in the coming years. Moreover, in most counties also the levels of household and company debts are growing. At some point, lenders will insist that this money is repaid – e.g. because insurance companies have to pay out more and more life insurance policies or because retired people want to liquidate their assets in order to secure their standard of living or pay for services not covered by health insurance.

In recent years, the number of rich people has increased in many countries – but also the number of poor households. This means that the middle class is shrinking and many members fear that they (or their children) may lose their status. Many people are also suffering from rising rents in metropolitan

areas. Therefore social tensions could increase in the coming years.

In terms of how they organize their own lives, individuals will have even greater freedom in the future than today; traditional ways of life or patterns of thinking and orientation will become less important. Individuals will increasingly have to build social structures through their own efforts and develop individual values and ways of thinking. This can lead to fears and disorientation – but also to becoming more conservative. Other individuals will be cosmopolitan: They will travel a lot, work abroad and immerse themselves in other cultures. They might even develop „multicultural“ personalities.

Especially in Europe, the Christian churches will lose more and more members – and influence. Due to migration the number of Muslims will increase. Most of them are and will be (very) religious. In Africa and Asia more and more individuals will become Muslims – even radical ones. In North and South America, however, the influence of the Catholic and Protestant churches will stay high.

Many people will continue to define themselves through their consumption – the clothes they wear, the cars they drive and the food they eat. In addition, according to social scientist Zygmunt Bauman, they will increasingly see themselves as „goods“ that need to be „sold“: with the help of the most positive self-presentation possible on social websites. On the Internet, attention has become a new „currency“ that is reflected in the number of „friends“ in one’s account.

People will continue to shop in supermarkets, but increasingly without cash – and at self-service checkouts. Internet communities, in which members rate products, will become increasingly important for purchasing decisions. People will act more confidently as customers because thanks to the Internet they are well informed about the prices and quality of the products and services they are interested in.

People will continue to use traditional print media such as books. However, in most countries the number of newspapers and magazines is shrinking as there are less and less buyers and subscribers. Books will face increasing competition from cheaper and sometimes even free e-books. People will rarely read for longer periods of time, but rather in breaks or in „bites“.

The amount of information that is absorbed by individuals via traditional and new media, smartphones and tablets will probably become even greater in coming years. Multitasking is contributing to this development: For example, by using a television set and a smartphone at the same time, more information can be taken in. At the same time, it will become increasingly difficult for a person to filter out data that is important or to assess its quality and reliability. More and more people will feel overwhelmed by the flood of information and distracted from what they consider to be more meaningful activities. Some will concentrate on sensational news, while others will withdraw and flee to worlds that provide safety (e.g. sects or radical political groups). In addition, most people will ignore the opportunities for self-education offered by the Internet and only use it for entertainment.

Information found on the Internet will increasingly be automatically selected according to a person's preferences. On the one hand, there are programs that, for example, compile news according to the user's specifications. On the other hand, the user's previous behavior is taken into account when offering new contents. Over time, Internet programs learn what interests, needs, attitudes and habits a person has. This filter also decides what advertisements are offered to the respective user.

The more information about a person can be found on the Internet and the more data from other sources it can be combined with, the more a person's privacy will shrink, the more transparent he will become, and the more often third parties will make decisions on this basis. For example, in the USA, banks are already rejecting loan applications because data analysis has shown that friends of the applicant named on social websites have fallen behind on their loan repayments. And the American armed forces are specifically trying to recruit young adults who, according to the Internet, are friends of soldiers.

In addition, more and more smartphones, cars and cameras have GPS, so that their location can be determined by third parties. Thanks to appropriate software, it is already possible to assign faces recorded by cameras in public places to people. This would allow people to be monitored almost constantly.

If a person's current location is known, advertising messages from nearby shops, restaurants and banks can be sent to their smartphone. If information about their previous purchasing

behavior, preferences and interests is available – which is collected by companies specializing in this, but also by search engines and social websites – it is even possible to target them with very specific advertising (e.g. about special offers that are of interest to them, movies from their favorite genre showing in the next cinema or nearby restaurants serving their favorite cuisine). Customers will thus become increasingly „transparent“ – companies will know, for example, where they are at the moment, what their consumption behavior is, whether they have a lot or little money, whether they live alone or have a family.

In the meanwhile, the Internet has become the number one entertainment medium. More and more people watch films and texts from websites on their television or laptop screen as well as on their smartphone or tablet. The number of television channels, videos and computer games on the Internet will continue to grow. Many people will feel at home in virtual worlds and communities. More and more places and institutions will be visited via the Internet – more than half of people already visit virtual rather than physical museums.

Even social life will increasingly be determined by the Internet: Instead of meeting relatives and friends and communicating with them directly, contact with an increasing number of individuals is maintained via the Internet, which can be very time-consuming. This leaves less time for conversations – during which the smartphone is always in sight. As a consequence children and young people might not develop sufficient social skills. However, some experts believe that interpersonal and communication skills can also be tried out

and acquired on social websites and in virtual worlds. In addition, people could feel „anchored“ in Internet networks as they find their partners there – and friends with whom they meet later on. Moreover, relatives and friends who live far away from each other can better maintain contact via the Internet than through phone calls (when using programs where you can see the person you are talking to), which would strengthen family ties.

The new communication technologies also influence language skills: On the one hand, people are reading worse and more superficially. This is because they are reading less printed texts – and texts on the Internet are usually short and simply written. Moreover they are only skimmed – the average time spent on a website is around 0.6 minutes. On the other hand, written communication now largely takes place via email, WhatsApp, Twitter, etc., where short statements and abbreviations are the norm and feelings are expressed using emoticons. This means that written language, with its many adjectives and adverbs, with multi-syllabic words and terms with multiple meanings, with complex sentences and grammatical structures, is used less and less. The more search engines and other computer programs are used which react to colloquial language and respond verbally, and when dictation programs achieve almost 100 percent accuracy, reading and writing will be practiced even less often.

The more children and young people read short texts only, the more video clips they watch, the more they rely on the spell checker of word processing programs, the more often they save data such as telephone numbers in smartphones, the less they

have to concentrate. John Ratey of Harvard Medical School uses the term „acquired attention deficit disorder“ for people who can no longer concentrate due to intensive use of mobile devices and the Internet. Fewer and fewer young people are able to sit quietly for long periods of time and think intensively about something. Thus the ability to think analytically is increasingly lost.

Many individuals will develop „e-personalities“ in the future, i.e. they will present themselves on social websites differently than they really are. The lack of social control associated with a false identity will also make some people cruel, as shown by the increasing cases of „cyber-bullying“. Avatars, representatives of a real person on the Internet or in virtual worlds, will play an increasingly important role. Regardless of whether the avatar is a human or a fantasy creature, if the respective role is played for many hours a week over months and years, the person will identify with it. In addition, they will develop feelings such as love, hate and jealousy for other avatars repeatedly interacting with their avatar. Moreover, technologies are developed that allow people to physically react to virtual partners. The boundaries between real and virtual identities will become increasingly blurred, and many people will have „multiple personalities“ – which could lead to feelings of confusion.

Required Skills

Fear of the future might be prevented if children and young people gain a realistic picture of the future. If they are aware that trends such as the aging of the society, growing public and

company debts or shortages of raw materials and energy make it unlikely that prosperity will continue to increase, they will be more likely to accept future restrictions on their standard of living or on social security benefits. At the same time, they should – especially as adults – stand up for social justice and show solidarity with poor and disadvantaged groups.

In order not to lose their bearings in a world in which many different values compete with one another and are constantly changing, children and young people should develop their own value system that gives them meaning in life and security. Many will feel rooted in a (sub-) culture with particular religious, literary, musical and artistic forms of expression, into which they were either born or which they chose themselves.

A strong personality, character strengths, a positive self-image and resilience protect against negative influences. Support and security are also provided by being embedded in functioning social networks. However, these must first be found by children and young people, as traditional communities such as relatives and neighbors have lost importance due to mobility, urbanization and a lack of public meeting places. To do this, young people need communicative and interpersonal skills. If they have found or created a good social network, they will not only be able to satisfy their needs for belonging, sociability, recognition and friendship, but will also receive emotional support and practical help if necessary. Many studies have shown that integration into a functioning network has positive effects on physical and mental health, self-image and well-being, makes it easier to cope with stress, everyday pressures

and critical life events, leads to more self-confidence and contributes to a more optimistic attitude.

Considering that due to climate change, environmental destruction, resource scarcity and energy crisis individuals must reduce their ecological footprint, children and young people should also learn to question their consumer needs and shop more consciously. Under no circumstances should they continue to define themselves by their consumption, but should develop their self-image and self-esteem on a different basis (e.g. their own performance at school and work or their integration into a social network). Since health insurance benefits are likely to be reduced, they should also place more value on a healthy diet and regular physical activity.

Finally, it is important that children and young people develop media competence. On the one hand, they must learn how to use old and new media. On the other hand, they should be able to deal with problems and dangers – e.g. the flood of information, the increase in „fake news“, the disappearing privacy, the risk of addiction through online games and Internet casinos, the replacement of real social contacts with virtual ones, the deterioration of reading and contemplation skills, the impoverishment of written language as well as acquired attention disorders and multiple personalities.

Family and Childhood

In the coming years there will be fewer „traditional“ families (a married couple with biological children), but more non-marital partnerships, single parents and stepfamilies, and probably

more rainbow families (with same-sex parents) and families with partners from different cultures. The size of the family will hardly change: parents will continue to have only one or two children.

Due to the changes in the economy and the world of work described above, the demands of the job will become greater. More and more parents will work in the evenings or on weekends. They will also have to work more overtime or take work home with them – where, thanks to the Internet and smartphones, they can be reached by their superiors and colleagues at any time. Working parents will therefore have less time to maintain their relationship, engage in leisure activities together and relax. Alienation, stress, conflicts and problems in coordinating life plans will make many relationships relatively unstable.

Parents will have less and less time for their children and their upbringing due to longer working hours. In the future, not only fathers will be at work longer due to professional demands, but also mothers – and the trend will continue that mothers are returning to work earlier after the birth of a child and are increasingly working full-time. In addition, there is often a long journey to work – not only for commuters, but also for people in large cities and metropolitan areas (e.g. due to lots of traffic jams). Therefore children's needs will often be neglected due to a lack of time. Accordingly, the number of children with psychological problems and behavioral problems is likely to increase.

In the coming years, young children will be cared for in day care facilities earlier and for longer periods of time. Childcare options for children under three will be expanded, there will be more full-day places, and more daycare centers will be open in the evenings or on weekends, particularly in larger cities. Accordingly, the time spent with the family will decrease; the importance of childrearing will decline.

If parents and children spend less and less time (together) at home – and often in different rooms – family relationships will become looser. Since family members come home at different times, they will rarely eat together (and have table conversations), but will mostly look after themselves. Since children are becoming independent at an increasingly early age, they are often out with friends after school. Thus on many days communication with parents will only take place via smartphone.

Parents' expectations of their children's school performance will probably continue to rise. On the one hand, this is due to the increasing fear of job loss or social decline: Parents want to offer their children the best development opportunities so that they can later meet the ever-increasing performance expectations of the global knowledge society and earn a good income. On the other hand, they are considering the findings of brain research, learning and developmental psychology that are widely disseminated by the media.

However, many parents will also experience problems in implementing their educational goals in the coming years. This is caused, for example, by many young adults not having the

opportunity to gain experience with babies and (young) children before having their own children and as they will continue to be confronted with contradictory parenting concepts and advice from the media. The risk that parents will experience parenting difficulties or develop problematic parenting styles will remain high.

Housework will become less important in the coming years – not only because cooking for the whole family will become less frequent, but also because more and more tasks will be taken over by devices and robots. In addition, many housework tasks will be „outsourced“, for example by ordering pizzas and other food from delivery services. Fewer women will be housewives; family work will become less and less important for women compared to employment.

Required Skills

Young people must develop skills that enable them to shape relationships positively and raise their own children successfully. These include, for example, communication and social skills, a partnership attitude towards the opposite sex and the ability to be intimate. Moreover, young people should recognize that relationships between couples and parent-child relationships must be „nurtured“ and that enough time is needed for this. They should attach such great importance to starting a family that they are not deterred later by their income situation, the high cost of living with children, career aspirations or fears about the future. If they strive to have children as early as possible, the probability is higher that they

will have as many children as planned and will not have to rely on reproductive medical treatments.

Moreover, young people should acquire basic knowledge of developmental psychology and childrearing. For example, they should learn about the needs of babies and toddlers, about infant care and nutrition as well as about the most important parenting styles and techniques. Cleaning, handicrafts and cooking, on the other hand, will be less important, as the household function of families is becoming less important and the mechanization of housework will continue to advance.

Young people should learn about the characteristics of today's childhood and reflect how they want to shape their own children's childhood. For example, they can discuss the compatibility of one's family and professional life, the time needed for children, the importance of parent-child bonds, parenting goals and performance expectations. In this way, they can develop attitudes that could later prevent negative parenting styles.

Making Children Fit for the Future: Required Skills

Children and young people want to be happy and successful both in the present and in the future. They need skills to be able to develop positively in their current family and life situation. This includes, for example, coping with life in different family types and (migrant) environments, with the limited time of their parents (even to the point of neglect), with the separation or divorce of their parents, with being conceived as a „test tube baby“ or by a father they do not know, with wealth, poverty or migration status. Children and young people will have to become independent at an ever earlier age and take on more and more responsibility for their school performance and their leisure activities (including their media consumption). As they will spend less time with peers outside of educational institutions (i.e. in their neighborhood, in apartments, in youth groups, etc.), they need to find friends primarily in daycare centers or all-day schools. Children and young people must learn to respond positively to the educational opportunities in daycare centers and schools.

Moreover, children and young people need skills for the world of tomorrow – how they can be acquired will be discussed on this website. These skills were already derived from future trends, they now only need to be summarized. This is done in the following table, where they are systematized according to skill areas.

Competencies for the World of Tomorrow	
Areas of Expertise	*Competencies*
Personal and Emotional Skills	• individual personality, character strengths, diverse interests • positive self-image, self-confidence, self-assurance, courage, optimism • physical and mental hygiene: healthy lifestyle, physical activity, self-management, self-discipline, meaningful leisure activities, hobbies, media skills • flexibility, mobility • ability to endure stress and high pressure to perform, ability to relax • resilience, ability to cope with everyday stress and critical life events, willingness to help oneself, perseverance • individual value system (e.g., derived from one's religion), meaning in life, willingness to take responsibility, positive attitude to partnership and family • ability to reconcile family and career • acceptance of the limits of growth, willingness to make sacrifices and to adopt an energy-saving and resource-conserving lifestyle, quality of life considered to be more important than more consumption/possessions • love of nature, environmental awareness, ability to protect the environment in practice
Social and Communicative Skills	• communication skills (clear and understandable language, large vocabulary, complex sentence structure if necessary, ability to listen), mastery of written language • being able to perceive other people correctly, sensitivity, empathy • team and cooperation skills, willingness to integrate others and to adapt to them, assertiveness, conflict resolution skills, leadership skills (especially for leading teams with very different compositions)

	• appropriate (professional) interaction with (much) older and younger colleagues, superiors and subordinates, with those of the opposite sex or from other cultures, with specialists in other countries • competence in „self-marketing“ • ability to build functioning networks (circle of friends, sociability, mutual emotional support and practical help) • positive couple and parent-child relationships, educational skills • appropriate (private) interaction with old and disabled persons and people in need of care, with migrants and refugees, with people in other countries
Cognitive and Learning Method Skills	• ability to reflect, judgment, critical attitude, problem-solving skills, systems thinking • curiosity, enthusiasm for experimentation, creativity, productivity • ability to concentrate, perseverance • motivation to learn and to achieve, willingness to engage in lifelong learning, relearning and retraining • learning how to learn, effective and efficient processing of information • use artificial intelligence and relevant computer programs, use the Internet sensibly, be able to handle technology • entrepreneurial and organizational skills, time management

In addition to these skills, children and young people also need to acquire knowledge:

- a broad general knowledge (mathematics, natural sciences, technology, economics, law, geography, humanities, music, art, environmental sciences, demography, politics, psychology, pedagogy, etc.),
- knowledge of current problems (financial and economic crises, national, company and household debts, demographic development, climate change, environmental destruction, lack of raw material and energy, etc.)
- foreign language skills (Mandarin, Hindi, Spanish, etc.)
- IT skills
- knowledge about future trends
- professional knowledge

While many skills and the general knowledge are (gradually) learned during childhood and adolescence, basic professional knowledge is acquired during vocational training or at colleges/universities and specialist knowledge at the workplace.

Making Children Fit for the Future in the Family

The following text will show how parents can teach toddlers, schoolchildren and adolescents skills for the world of tomorrow. When reading it, the impression may arise that some statements are too idealistic and that too high demands are placed on parents. That is in the nature of things: An ideal is described that can only be partially implemented in reality. However, this ideal can serve as a guide for parents...

First of all, parents must be aware that they only very rarely educate a child consciously. Most of the time they have an indirect effect: Their personality, their relationship and their behavior are role models for their children and shape their development – either in a more positive or in a more negative way. Children are more likely to be fit for the future if

- their parents are mentally healthy: Then children learn from them how to think rationally, how to judge clearly, how to solve problems and how to deal with emotions appropriately. They can develop self-confidence and a positive self-image because their parents act as appropriate role models on the one hand and can allow their children to become strong and self-confident on the other.
- the relationship between the parents is good: Then children learn how to communicate positively with each other, how to listen empathetically, how to express feelings and react sensitively, how to tolerate the

individuality and peculiarities of others, how to support other people and how to resolve conflicts.

If parents are mentally healthy and live in a good relationship, children can form secure bonds and feel safe. They can develop the basic trust necessary for actively exploring their environment. If parents accept the individuality and uniqueness of their partner, they will adopt the same attitude towards their children. This allows them to develop freely and realize their potential.

It becomes clear how great the educational effect of the parents' example and their relationship is, and that the quality of living together and the family atmosphere are of great importance. Parents should therefore not think about their children first, but about themselves and their relationship.

But it is also important that parents reserve enough time for their children. The amount is not important but it should be „quality time" – time for conversations, playing, crafting and telling stories, for joint activities in the home and garden, for sports, walks and excursions. While family time is rather short on working days, parents should make the best of weekends and vacations.

If fathers also spend quality time with their children, this has many positive effects: For example, scientific studies have found that children of active fathers are more sensitive and less fixated on gender roles, have higher social skills and are more resistant to stress. For boys, fathers are important as male role models, since children are almost exclusively raised by women

in daycare centers and primary schools. Joint sporting, outdoor or DIY activities enable children to learn physical control and thus make a significant contribution to developing self-confidence. Sons can use their muscles and prove themselves physically.

But the „educational power“ of the family unfolds not only during quality time, but also in everyday life. Many studies have shown that children’s school career is largely determined by whether they grow up in a family with a more or with a less educational background. The future of children at school therefore depends to a large extent on the quality of the informal education they receive at home.

The family is considered to be an educational institution in which knowledge is not imparted in a „fragmented“ manner as in schools, but is part of everyday interaction. The learning is more comprehensive than at school, as children and adolescents acquire knowledge and skills in areas neglected by schools (e.g. medicine, law, economics, politics and technology; manual, technical, musical and artistic skills). The values and attitudes conveyed by parents also contribute greatly to their children’s orientation in life. Also the following aspects of family life have a positive educational impact:

- good communication between parents and children (in terms of vocabulary, understanding of concepts, complexity of sentences, etc.),
- support for the (small) child when exploring the world and establishing social relationships,

- educational activities in the family, e.g. engaging in educational games, reading aloud, experimenting, talking about movies, books, scientific topics or political events,
- a positive attitude towards learning and achievement, towards daycare, school and vocational training or university studies,
- positive interactions about what happens at school, support with homework, a high level of expectations regarding school performance and graduation,
- close contacts between family and school so that parents know how they can further their child's learning and so that teachers know how they can support parenting efforts.

This again shows the great importance of the quality of family life as created by the parents. Parents educate through their values, their worldview, their interests, their attitudes, their discussions about politics, economics, society, culture, etc. (even if only among themselves but in the presence of their children). A dialogic parent-child relationship in which there is a high level of communication has a particularly positive effect. Parents also educate through the people they bring their children into contact with, the activities they do with their children or encourage them to do, the television programs they choose, the books and games they select for them, and how they introduce them to the world of the Internet.

However, children should not be overwhelmed by too many activities (e.g. courses in ballet or music schools, membership in sports clubs). They should also learn how to relax and calm

down. Children need freedoms so that they can act unobserved, develop own interests and become independent.

Parenting Young Children

The easiest way to make children fit for the future is to make use of the many learning opportunities in everyday family life. The following table lists competencies to be acquired on the left side and activities that occur in everyday family life on the right, through which three- to six-year-old children can develop these skills and acquire knowledge. If the level of difficulty is varied, they are also suitable for younger and older children. Since the activities often occur in everyday family life, learning success is consolidated through constant repetition. The table also lists activities with children that can be classified into categories such as „play“ or „education“.

Promoting Young Children's Competencies	
Competencies	*Activities in Everyday Family Life*
Linguistic Skills • speaking clearly, formulating one's own thoughts, being able to form the past tense... • phonological awareness (knowing the structure of sentences and words, hearing the sounds in a word) • literacy (ability	• talk a lot with the child: language is only learned through speaking • listen when the child wants to tell something • make sure that children refer to objects and activities with the right word and speak in complete sentences • ask (open) questions that require longer answers • have them look for words that start with the same letter • teach rhymes, tongue twisters, poems and songs, clap rhymes • conversation-oriented picture book viewing • read/tell stories, fairy tales and legends

to understand texts and their meaning; competence in dealing with de-contextualized and written language; familiarity with literature and other written media; knowledge of the alphabetic principle) • media education	• let children invent stories • familiarize children with letters and writing at an early stage by writing something down in front of them, typing something, researching on the Internet, entering a text message, etc. • discover letters and numbers with children (e.g. in newspapers or catalogues, on advertising posters or on car license plates) • play games with writing scenes (children can use fantasy script or scribble something) • discuss films seen on TV or in the Internet • good computer games help children to acquire knowledge and skills
Mathematical Skills • seriation (being able to compare quantities and lengths, continue series, sort objects according to properties) • calculating ability (knowing the connection between quantity and number word, between number word and number symbol; being able to count; knowing the predecessor and successor principle) • knowing spatial	• sort washed socks, sort by owner, count (10 children's socks form a smaller pile than 8 adult socks: „more“ does not mean „bigger“) • let child estimate distances („How many steps to...“) • sort building blocks by size and color • let child separate waste • count steps when climbing stairs („one step forward - one number further“; develop a feeling for quantities: 3, 12, 20 steps), later count backwards • count fingers, steps, (blue) cars, etc. • card games (with printed numbers) • have child pay small amounts of cash in a shop • have child dial phone numbers • dice games • having the table set • let the child lead you on the way home • ask about sequences (e.g. while cooking: „What goes into the pot first...“)

relationships, temporal sequences and directions	
Scientific and Technical Skills	• explore nearby nature with the child (forests, parks, meadows, farms, etc.) • provide nature experiences: observing animals, insects and birds • have child experience nature with all senses (lying in the grass, listening to the wind, watching the clouds, feeling the summer rain on one's skin, building an igloo) • arouse interest in nature through your own example (hiking, watching nature films); teach the names of local trees, plants and animals • use of natural materials while playing • gardening with children • farm vacation • providing a magnifying glass, a microscope, binoculars, etc. • creating collections of stones, shells, tree fruits, etc. • taking things apart with the child (and putting them back together), reading out and following instructions • experimenting together • educate child during trips: types of landscape, climate zones, important buildings, architectural styles, museums, monuments, etc.
Environmental Awareness (Sustainability)	• further nature conservation (non-destructive treatment of plants, insects and animals) • careful use of resources (heating, electricity, water consumption) • being a role model in terms of consumer behavior (e.g. only buy what is necessary, do not throw away what is

	still usable, reduce meat consumption, do not buy food that is transported by plane, drink tap water) • do not satisfy all of the child's wishes (does not need all of the most modern cloths and accessories, only buy toys that can be used for a long time) • have children experience how difficult it is to grow fruit and vegetables in the garden or on the balcony (appreciation of food) • avoid and separate waste
Musical and Artistic Abilities	• singing together, humming, clapping rhythms • listening to CDs together • on long car journeys play music and sing along (also prevents nausea and tiredness) • play music instruments at home • have child paint, work with clay, construct something etc. • visits to cultural institutions: museums, theaters, concert halls, studios
Motivation to Learn and to Achieve Something	• enable own activities and successes: child develops expectations of „hope for success“ (better than „fear of failure“) • look for reasons for success and failure in (lack of) effort rather than in talent or intelligence, in the level of difficulty of the activity instead of one’s (bad) luck: only effort can be influenced by the child himself
Memory	• enable the acquisition of knowledge: answer children's questions patiently, explain things in a child-appropriate way • encourage children to think about the issue and find answers themselves by asking counter-questions • learn songs and rhymes by heart

	• have child remember addresses, phone numbers, etc. • have child empty the dishwasher • play memory games • use the Internet as a source of information: opens up new worlds, conveys knowledge; if possible, talk to the child about the content
Concentration	• give the child one or more tasks in a very distracting environment (e.g. in the supermarket: „Get a packet of butter, a box of crispbread...“) • reduce the number of toys in the child's room (and replace individual toys more often) • encourage the child not to give up immediately when difficulties arise, so that they develop perseverance
Problem-Solving Skills	• encourage a desire to explore (e.g. don't show children straight away how devices or toys work) • don't push problems out of the way for children, expect them to do something, allow them to make an effort • if there are problems, discuss with children how they could be solved: analyze the problem (what, how, where, why...?), break it down into small, easy-to-manage tasks, set priorities, look for information, brainstorm, try out possible alternatives... • guessing games („What if...?“), detective games, puzzles (develop a system for how to initially organize puzzle pieces)
Self-Image and Self-Confidence	• encourage the child to try something new, remind them of previous successes • take a photo, when the child has made a new developmental step, and hang it on the wall

	• make children aware that they have special strengths and abilities or that they have learned something new and achieved something special - then they can develop a positive self-image and look optimistically and confidently into the future • avoid negative feedback, withdrawal of love, destructive criticism, shaming, etc.; only praise the child when it is justified • ask the child for help once in a while • respect the child's views • don't overprotect the child, but also allow risks and mistakes • don't overemphasize failures, but have child see them as an opportunity to learn from mistakes
Independence	• allow children to do things themselves as early as possible (dressing, brushing teeth, washing, etc.) • self-regulation is made easier by rituals and routines • assign duties/tasks (and thus responsibility) • trust the child (e.g. send the child to the bakery alone if the route is safe)
Social Skills	• set an example as parent: how to maintain social contacts with relatives, friends and neighbors, how to deal with senior citizens and migrants • value conversations with one another (e.g. during meals) • have each family member let the other finish speaking and listen to all his/her words • help children to recognize, control and appropriately express their own feelings • encourage empathy and compassion (e.g. let children put themselves in the

	shoes of a crying child or a disabled person; verbalize other people's perspectives and emotions) • resolve conflicts verbally, be willing to compromise • often invite children from other families • involve children in larger groups (learn to fit in, to assert oneself without violence, to resolve conflicts, to be fair, to cooperate, to solve tasks together) • have child develop teamwork skills by sharing household tasks, cooking together, planning parties, etc. • encourage role-playing and participate in them • rule-based games (learn to follow rules, to wait and to hold back)
Values and Secondary Virtues	• live one's religion, values and traditions • discuss everyday questions of meaning; justify one's own behavior (with references to one's value base) • offer picture books and tell fairy tales that address ethical questions • stand up for equal rights for men and women, for immigrants, handicapped people, etc. • be a role model as a parent (be polite, friendly, tactful, helpful, tolerant, etc. towards other people; let the child finish speaking, apologize to them if you have made a mistake) • encourage the child to be punctual, clean, orderly, hardworking, honest, time-managed, etc.; expect good behavior • let the child make others happy: experience of giving and sharing • create clear structures at home: set meal and sleep times, rules, distribution of tasks, etc.

	• do not fulfill all of the children's wishes so that they develop frustration tolerance
Fine Motor Skills	• encourage the children to paint and do crafts frequently (they experience themselves as creative and productive; it is fun when they give away pictures as presents), paint with them • work with clay, salt flour dough, etc. • let them spread butter on bread • let them help when cooking and baking (cut, grate, cut out...) • have them dress themselves as early as possible
Gross Motor Skills	• allow physical exertion (e.g. don't put a toddler in the buggy when they start to feel tired) • involve children in cleaning the house and clearing snow • have them help with gardening • walk on foot if possible, combine walking with playful elements (don't step on the joints between the tiles, balance on walls) • swimming, gymnastics, bodybuilding (if there is equipment in the house) • mountain climbing, ,,adventure days“ in a forest

The table shows that, in addition to being involved in everyday activities, talking, reading aloud, exploring, experiencing, making music, painting, crafting and, above all, playing are very important for the cognitive and emotional development of young children. In (role) play children discover and understand the world, learn through observation, action and experience,

train their senses, try out behavior typical of adults, develop imagination and creativity, and develop motor and social skills.

Children who can play in a concentrated manner are also more likely to resist the „temptations“ of TV and the Internet. Young children should never be „calmed down“ by turning on the television or by handing a smartphone to them. Organizations such as the American Academy of Pediatrics or the Children’s Health Foundation even demand that children under the age of two should not spend any time in front of screens and that older toddlers should not be allowed to watch TV for more than 30 minutes a day (preferably together with their parents). According to scientific studies, the more time young children spend in front of screens, the more often they suffer from a lack of exercise and obesity, the less they can concentrate, the lower are their vocabulary and grammatical skills, and the weaker is their school performance later on.

Preparing young children for the future is therefore most likely to be achieved through play, interaction with parents and other people, and involvement in everyday activities. Moreover, the family must be a place where they feel safe and secure. Only when parents let them feel their love, affection and care bonds will be formed and maintained, and basic trust and self-acceptance will develop.

At any age children should feel accepted with all their strengths and weaknesses. Parents should observe their children closely and ask themselves: „What type of person is our daughter/son? A more theoretical or a more practical person? A born leader or a good friend? More imaginative or more realistic? More

extraverted or more introverted?“ Such questions help parents to perceive their child as an individual with unique characteristics. Therefore, they should not compare them with siblings or other children. Instead, parents should find out what their child’s special gifts and abilities are – many talents are underestimated by parents and teachers, but can form the basis for later success in life and work. A resource-oriented approach is therefore recommended: When parents focus on strengths, the child will develop a passion for achievement, a focus on success and self-confidence.

The more often and the more closely parents observe their child, the better they can judge whether he/she is ready for school. However, since parents tend to judge their own offspring positively, especially when it comes to young children, they should also seek the opinions of other people who know their child well – especially the child’s preschool teachers who not only have more knowledge of developmental psychology and more experience with young children than parents, but can also observe the child in the class – a group of peers.

Parenting School-Age Children

After starting school, children continue to depend on the support of their parents: On the one hand, they can specifically support them in acquiring school-related learning content, and on the other hand, in their general development, although the transitions are fluid. They can help school-age children to become fit for the future.

Parents should generally have a positive attitude towards school – even if they had many negative experiences in their own school days or are critical of today's schools. Only then their children can begin their school career without prejudice. Parents should therefore never ask them questions that imply something negative, for example „Today it must have been boring at school again, wasn't it?" or „Had you not paying attention like the days before?"

It is important that parents show interest in their children's experiences at school and in the learning content. This can also influence their children's behavior in class. After all, children starting school must first learn to listen carefully, to follow the teacher's explanations mentally, to raise their hand and to accept that they usually don't get a turn. Parents can motivate their children to raise their hand in each lesson until they have been called on at least once. In this way, they promote concentration and self-control. They also encourage them to always ask if they don't understand something.

Parents may also talk to their children about their classmates, their relationship with them, peer conflicts and similar topics. In this way they show interest in their children's social experiences. Ultimately, it is important for a child's learning and further development that they get along with their classmates and that they develop social skills.

Reading and writing are important cultural skills – the degree of their mastery determines children's further school career and thus their future. Of course, children learn these skills at school, but parents can do a lot to ensure that their children do

really well: For example, if they have practiced literacy education in early childhood (see above), their child will already have developed a love of picture books. Now it is time to transfer this interest to children's books: The best way to learn to read is to read a lot. Parents can also occasionally ask their child to read aloud, because then they will read more concentrated. It is also a good idea to have a (children's) book read to the child and then to talk about the text. This way, parents show interest and encourage their child. At the same time, they can see whether the child has understood the text.

Since children's books are expensive and may soon become boring, parents can limit themselves to a few copies at home. They should spend their money on children's encyclopedias, reference books, dictionaries, an atlas or a globe, which can be used again and again during school time. Children's books, on the other hand, can be borrowed from a library together with the child. Even if the child is only interested in one topic – e.g. wild cats or football – this is fine: After all, the most important thing is that the child reads a lot.

Support from parents is also important when learning spelling. For example, they can first praise their child for correctly spelled words before looking for mistakes with them. Parents can also encourage their child to use writing opportunities that have nothing to do with school: By the end of the first grade, children can already write short letters to friends and relatives. Some will also be proud if they are asked to write a shopping list, a text message or a note, for example.

In addition to cultural skills, school children have to acquire many other skills. Parents can help their children by first determining their learning style (visual, auditory or kinesthetic). In principle, children find school easier if they have mastered all three learning styles, as the respective tasks can best be mastered with a certain learning style – e.g. spelling with the visual one or sports activities with the kinesthetic one. However, if children prefer one learning style, parents should either introduce them to the other two or help them to use their style as best as possible: A predominantly auditory learner, for example, benefits from reading texts to be learned out loud, having them read to them or recording them and then playing them back. This means that important contents are less likely to be overlooked and that the text is easier to remember. Visual learners learn primarily by reading, and different colored highlighters can be helpful. Videos, photos, posters and graphics are also useful. Kinesthetic learners have the hardest time because they can only profit from their strengths at school in subjects such as sports, crafts or art. They benefit from making models, experimenting or visiting places that are related to the learning content – e.g. a farm, a castle or a museum.

For the future, it is particularly important that children learn to learn, i.e. to know how to find information and acquire knowledge themselves. Therefore parents do not always answer their children's individual questions, but guide them in their search for answers. They can research with them in children's and adult encyclopedias, in books or on the Internet.

A lot can also be found out through observation or with the help of experiments.

Children starting school are proud when they have learned something new. Parents can encourage their child to „show off“ their newly acquired knowledge and skills to grandparents or neighbors. In addition, more in-depth conversations often develop in which the children broaden their horizons, benefit from the experiences of the conversation partners and train communicative and social skills.

Primary school children learn better when the intake of information is associated with positive feelings, for example when they receive praise or a smile while learning. While parents give a toddler a lot of attention and care when learning to crawl or saying first words, they praise a school-age child far less often. Parents should also frequently give older children positive reinforcement – especially if they are afraid of failure or are unsure in a certain subject. In principle, the effort (and not the result) should be praised first and foremost – after all, success comes about because of the effort put in, and this must therefore be particularly appreciated.

Children should believe in themselves – and that they can achieve everything they want to achieve, that the effort is worth it. Even if school-age children have unrealistic goals – e.g. want to become a famous football star – they should not be disillusioned: They will find out themselves where their limits lie. But now they will get involved in sports – and train their memory by learning the names of football players, their special qualities, the game results and much more.

In this context, it is also important that a child learns to deal with failure. Instead of developing the attitude „It's impossible to be able to do everything!" they should see failure as an opportunity to learn from their mistakes, use other methods or try out a new solution.

According to brain research, learning is promoted when a child is fed a diet rich in vitamins, minerals and fiber, often gets some exercise in the fresh air and gets enough sleep. It is advisable for children to go to bed at the same time at least before school days and get up on time so that there is no rush in the morning. There should always be enough time for a healthy breakfast.

The vast majority of primary school children initially enjoy doing their homework – if only because they love their teachers and would do anything to receive some recognition from them. They enjoy learning; they are proud when they have completed their homework to their own satisfaction.

Primary school children should do their homework on their own and in a relatively short time. In reality, however, many parents check their children's homework. The older the children get, the more often this leads to conflicts. Homework and studying before exams can therefore put a great strain on the parent-child relationship and the family atmosphere. Parents should therefore give their children responsibility for their success at school as early as possible – after all, independent learning is an important developmental goal.

It must be emphasized again that parents must not overwhelm their children. If they constantly feel under pressure and are often pushed to their limits, they will lose interest in learning and the motivation to achieve something. It is therefore important that parents strive to get a realistic picture of their children, of their strengths and weaknesses, of their talents and of their performance. Then they often discover completely new interests and qualities in their children, e.g. musical, manual, social or sporting talents.

To avoid being overtaxed, primary school children should be given enough time to relax, pursue hobbies, exercise outdoors, enjoy sports and play with friends. The number of appointments in their free time and the amount of time they spend watching movies or being on the Internet should be limited. There should be no TV sets in the children's room (according to scientific studies, school children then watch twice as much TV as their peers without their own TV set). It is also advisable to choose programs carefully, watch them together with the child and then talk to them about the contents. Shy children in particular should be encouraged to visit playmates or invite school friends home. This is the only way they can develop social skills for their future.

Children also need clear boundaries and rules that are consistently enforced. They must learn to take the intentions, wishes and needs of other family members into consideration. Parents should also give their children more and more tasks (e.g. around the house or in the garden, looking after a pet, tidying up and cleaning their room), as this contributes to their independence and leads to a sense of responsibility.

To be successful in the future, it is particularly important that school children develop a positive self-image, self-confidence, a love of learning and motivation to achieve. They should receive a lot of recognition and verbal praise – material rewards such as sweets or gifts of money should be largely avoided. Of course, school children do not need to be positively reinforced as often as small children: On the one hand, it is part of the process of growing older and separating that children place less and less value on their parents' praise, and, on the other hand, intrinsic motivations – i.e. those coming from the child – should increasingly replace extrinsic motives. Parents may also try to prevent their child from losing self-confidence due to too much negative feedback and from avoiding new challenges due to fear. Reprimand is only appropriate if the child has acted negligently or culpably. Criticism should always be related to the occasion and not to the person; under no circumstances should a mistake or failure be punished by withdrawal of love.

Furthermore, parental interest in the child should not be limited to learning at school. Rather, a child needs attention in all situations in life – and also tenderness and cuddling experiences. They must feel loved and secure in their family.

Parenting Adolescents

As the child gets older, the influence of the family decreases – and the influence of the peer group (and the media) increases. Nevertheless, parents can support adolescents with the developmental tasks that now lie ahead, so that their children can further develop skills that will be relevant for the future.

First of all, it is important to maintain interest in school – which is often associated with many conflicts – until older adolescents take responsibility for learning themselves. Even if many parents can no longer understand homework tasks or help with exam preparation, the joy of learning and focus on achievement can still be influenced (to a limited extent). Parents can also provide support when it comes to finding a job.

In adolescence, children increasingly separate from their family and turn to their friends. Peer relationships become more intense; here adolescents find emotional closeness and security, trust and openness. Their first intimate relationships allow them to experience love, giving and taking. At the same time, they further differentiate their gender roles. Parents can make it easier for their children to build social networks. Their tolerance is particularly required when they do not agree with friends or partners because they come from a different ethnic group or class, for example.

If adolescents have hobbies or are members of clubs, they will spend little free time in front of the television or on Internet. Sports activities promote body control and self-confidence. Making music (in a band), composing, painting, acting and similar activities are now practiced independently. They enable the expression of creative talents and often influence career choices. It is positive if the relevant skills were promoted in childhood, and if parents accept that a lot of time is invested in such activities and if they provide the necessary (financial) resources.

The developmental tasks of adolescents also include accepting their own physical appearance and continuing to develop their identity. They must also adopt their own values and worldview. Parents can only help to a limited extent here, but their role model and the experiences that their child has had in the family in previous years remain important.

Young people are increasingly taking responsibility for their own future. They are now setting the course for their future path, which – hopefully – will be associated with professional success, satisfaction with themselves and positive social relationships or partnerships.

Supporting Families

The demands on parents as outlined in this text are very high – especially when you consider that the pressure on adults is likely to become even greater in the future. This is where employers and politicians are called upon: The compatibility of family and career must be ensured, even for highly qualified employees and full-time employees with young children.

Family education courses should also be wide spread so that parents can acquire the knowledge and skills necessary for successful parenting. It is particularly important that target groups that have hardly been reached so far are included (e.g. parents with a migrant background, from lower social classes and marginalized groups). This can be achieved by outreach measures or parent training at daycare centers and schools, for example.

Finally, politicians provide funds for counselling and support services for parents with parenting difficulties and other burdens, which have often been cut back in recent years, and reduce barriers to entry by offering help in the social environment of families (e.g. in schools).

Making Children Fit for the Future in Daycare

This text describes how future-oriented early childhood education in daycare centers and preschools can be achieved by teachers who offer free play and project work, take all aspects of development and all educational subjects into account, support children with special needs, and enable children to form close relationships. In doing so, teachers should take into account the following findings of brain research, learning and developmental psychology: Today the toddler is seen as a curious, self-active, independent „researcher“ who absorbs a huge amount of information, processes it and integrates it into „intuitive theories“. Basically, it behaves like an adult who has a demanding job in the knowledge society – of course at a different level. According to these research results, toddlers need a lot of freedom to explore the natural and the culturally influenced environment, to observe and research independently.

For example, educators should give children the opportunity to learn as much as possible independently or in small groups: Children should be able to be „explorers“ who out of curiosity and a spirit of inquiry explore the world and form their own picture of it. Accordingly, preschool teachers should redefine their own role: as „companions“ of the children on this „adventure“. They can, for example, provide incentives for discovery by

- continually providing new materials, i.e. creating a well-prepared environment,

- motivating children to take part in a variety of activities (e.g. experiments, dismantling equipment, creating collections),
- confronting the children with unfamiliar situations (through excursions into nature, to shops, craft businesses, social and cultural institutions, etc.) or
- inviting parents or other adults as „specialists“ for ... to the daycare center.

Furthermore, educators support the children on the path to independent experiential learning by, for example, organizing learning teams, encouraging exchanges between children, providing materials or giving requested information. The children learn where to find information, how to critically evaluate it, how to select data and how to process and use it. It is important that the „explorers“ use all of their senses (sensory training), experience their world with their whole body and its limbs and have many primary experiences in real situations.

Free Play and Project Work

Exploring the world, guided by one’s own curiosity, desire to explore and individual interests, is particularly possible in free play (including role play) – the natural form of learning in early childhood. While playing on their own or in small groups children encounter very different materials and explore how to use them, show their creativity, put themselves in different roles, plan something together with others and put it into practice, improvise and solve problems independently. They learn to form relationships, compete and cooperate, lead and subordinate themselves, let others finish speaking and listen

carefully, negotiate something, assert themselves, make compromises, resolve conflicts and be able to lose – important skills for the future.

Due to its great importance, there should be lots of time for free play in day care facilities – young children need time and spaces which are not controlled by educators. Of course, this does not exclude educational offers, as preschool teachers can only impart some knowledge and skills in this way. However, this is often also possible in play situations in which the educators get themselves involved: By playing along or guiding, they improve the quality of the free play, bring in new ideas or stimulate thinking processes through questions. It is particularly important that they repeatedly make themselves available as conversation partners, so that longer joint thought processes can develop, knowledge can be co-constructed and metacommunication is made possible. This is when the cognitive development of young children is most intensively promoted.

Since it is not as important in day care centers to impart certain knowledge (e.g. according to a curriculum) as in school, exemplary learning is a good option. Project work is particularly well suited to this because very different methods and activities can be used, which together lead to holistic support for the children in all areas of development. Since children plan something together in projects and cooperate in implementing their plans, since they have to talk a lot to each other and discuss different positions, teamwork, communication skills and a willingness to compromise are promoted.

Subjects of Education

On the one hand, preschool teachers must introduce children to computers, smartphones and the Internet and teach them media skills. If good software is used, young children can learn new knowledge and skills with the help of computers, but can also be creative and artistic. When solving tasks together, they must interact and cooperate with one another, so that they often talk to one another more than in other activities. On the other hand, educators must also face the growing risk of primary experience deficits: Media must not gain the upper hand in everyday educational work. In the preschool sector, holistic learning, physical experience of the world and sensory training should be of greater importance.

If children are perceived as „explorers“, preschool teachers should align educational work with their interests. Children should be able to have a say in naming project or monthly topics and in selecting activities. They need (self-selected) tasks that allow them to grow and develop their potential. This increases motivation to learn independently, autonomously and responsibly – and after all, learning should be fun! When children work in a team, discuss different opinions, interview „experts“, etc., it is rarely necessary to point out (thinking) errors to them – which would often discourage and demotivate them. As a rule, they will discover and correct errors themselves, which not only means additional learning success, but also promotes future skills such as self-perception and perception of others, communication skills and problem-solving skills. The positive self-experience with regard to

exploring, questioning and designing new things also increases curiosity, willingness to learn and performance orientation.

Promoting creativity should continue to play a major role in childcare. Painting, working with clay, handicrafts, singing, making music, dancing, shadow, puppet and theater plays and festivals should not be neglected. Thereby, the focus is less on „achievement“ (e.g. on particularly beautiful handicrafts or demonstrations in front of parents), but more on playful experiences with different materials, tools, types of paper, painting techniques, sounds and (body) instruments. The seeds for later hobbies can be planted in day care centers – hobbies that offer creative activity and relaxation and are not as expensive as commercial leisure activities.

Educators should also place great value on social education, on the development of communication skills and on the ability to resolve interpersonal conflicts in a way that is satisfactory for all parties. Children must learn to shape relationships with other people in a positive way, to put themselves in other people’s shoes, to adopt their perspective and to respect their feelings. They must learn to integrate themselves into smaller or larger groups, to get involved with others and to participate in determining what happens in the group. All of these skills are relevant for their future. In addition, this prepares children for life in a democracy This also includes, for example, discussing classroom rules or voting on alternative proposals (e.g. in children’s conferences).

Young children must also learn to cope with normal transitions such as those from daycare to school, as well as individual

transitions such as the separation of their parents or the formation of a stepfamily. Educators can help with this – by promoting the development of resilience or by furthering self-esteem (especially of children from lower social classes and marginalized groups).

Since most families live separately from older people, educators can help children to come into contact with seniors – also by integrating them into everyday preschool life. Each side can then develop an understanding of the other side's living situation and needs. Children appreciate such encounters and not only gain insights into the experiences and behavior of older people, but also a historical perspective when talking about the past. In this way, preschool teachers can contribute to understanding between the generations and create a new culture of togetherness – beyond the extended family.

The day care center is often the first place where children from different cultures and subcultures come together and interact with each other. Therefore, educators can help children from different cultures to respect each other, to tolerate different religions, values, traditions and behavior patterns and to get along with each other. Openness to cultural diversity is set by the example of the professionals. By involving parents from different population groups in the educational work (e.g. projects or lessons), children are given new learning experiences. Thanks to the Internet, partnerships with day care centers in developing countries are also possible. This allows young children to gain a first impression of the lives of children on other continents.

Through religious or ethical education, educators can help children to acquire values and morals and find meaning in life for themselves. Thereby the foundation for later social commitment can be laid: the willingness to help other people. In particular, in church-run daycare centers young children will learn Bible stories, prayers, religious songs and the meaning of holidays such as Christmas and Easter.

In an increasingly hectic society, it is also important that children learn to calm down and relax – e.g. with the help of meditation, relaxation exercises, music and mandalas or by creating places to sleep and retreat. In this way, educators can also contribute to slowing down life and reducing pressure to perform. Toy-free phases can help children learn to keep themselves busy and practice abstinence. In addition, preschool teachers act as role models if they always keep calm and do not put themselves under time pressure.

Since there will probably be more and more malnourished and overweight children in the future, health education in day care centers needs to be intensified. At least here, small children should be fed wholesome food that corresponds to their calorie needs. Often children will only learn in preschools what herbs and vegetables look like in their natural state, how to cook with fresh ingredients, how to bake bread, cookies or cakes, what is healthy and what is unhealthy. Physical education and sports are also particularly important.

In an increasingly urbanized world, it is necessary to give young children as many experiences of nature as possible. This is possible on the one hand in the outdoor area of the daycare

center if it is equipped with flowerbeds, herb spirals, fruit trees and bushes or even with dry stone walls, a pond, a compost heap, bushes that invite children to hide or a sensory path. On the other hand, natural areas in the neighborhood should be explored where children can observe and experience nature, play with natural materials, prove themselves physically and have safe adventures. At the same time, they can be motivated to actively protect nature and the environment by encouraging them, for example, not to damage plants, not to kill insects and to pick up rubbish. But children can also learn to use resources such as water, heating and electricity sparingly in the daycare center, for example by collecting rainwater to water plants, opening windows only briefly – but wide – in winter or only switching on lamps where light is needed.

In day care facilities, there are many other situations – in contrast to lessons – in which children can gain scientific, technical or mathematical experience. For example, they learn to count when they count the number of children present in the morning or set the table. When sorting (e.g. beads) or distributing objects (e.g. gummy bears), they develop concepts of quantity; when pouring sand or water into containers of different sizes, they observe the invariance of quantities. When playing with building blocks, they recognize different geometric shapes and learn their names. At the same time, they gain experience with statics. When they seesaw, they experience the leverage effect. When they observe how snow and ice melt or that steam is produced when cooking, they recognize different states of matter. When they make yeast dough, they see how quickly fungal cultures can multiply.

They should also learn how to use the equipment available in day care facilities (tricycle, telephone, copier, CD player, computer, etc.) – and how it works, if the teachers (can) answer the children's questions.

In addition, young children can gain their first experience of economic life when they explore the money cycle as part of a project or look at who is involved in the production of processed products (e.g. „Where do the ingredients for bread come from?"). Other possibilities include exhibitions in the day care center, for which the children collect an entrance fee or where they sell pictures they have painted themselves at prices they set themselves.

Although the last paragraphs differentiated between different areas of competence and education, the impression should not be created that lessons or even programs developed by specialists should predominate here. Young children learn holistically, and so the focus should be on appropriate activities for self-education and co-constructive learning (e.g. free play, project work).

Children with Special Needs

As more children will grow up in families with little education, in subcultures of various migrant groups or in risk situations (e.g. poverty) in the future, educators will be required to improve their chances in school – and thus in life. For example, children with a migrant background need some language teaching in addition to everyday language support so that they can speak English when they start school. At the same time,

their parents should be encouraged to cultivate their native language as well, as multilingualism is an important qualification in the future.

Inclusion will become more important in the coming years: Disabled children and children at risk of disability should not only be integrated into daycare centers as has been the case up to now, but „pedagogy of diversity“ means that the focus should be expanded to include the heterogeneity and individuality of all children: Every child has special needs, strengths and weaknesses. Accordingly, through differentiation and individualization – and without „labeling“ them as „disabled“, „highly gifted“ or „musical“ – all children should be appropriately supported according to their specific needs. In individual cases, educators will cooperate with specialists from other professional groups.

The Educator-Child Relationship

Finally, it remains important that the preschool teacher has a lot of time for the individual child. The more hours the child is cared for in the daycare center, the more important it becomes that the child can build a bond-like relationship with its primary educator. Particularly with children under three, the educator is faced with the challenge of managing the balancing act between „parent substitute“ and „professional distance“. Only if children feel safe and secure in the daycare center can they take advantage of all the learning opportunities offered here.

Also in the future children will need people to talk to, people they can confide their thoughts and feelings to and who really listen. Above all, the current needs of children must be taken into account – for love and affection, appreciation and respect, reliability and friendship, individuality and self-realization. For children, day care centers should be an environment in which they feel content and happy.

Educating children for the future does not mean that child orientation is abandoned – and of course day care centers must continue to be family, everyday life and present-oriented. But the child must always be the focus!

Improving the Conditions of Work

The tasks of daycare and preschool facilities outlined here can only be fulfilled satisfactorily if the quality of educational work is improved in the coming years. To do this, the group size and the teacher-child ratio in particular must be reduced. But the preparation and follow-up time must also be extended; bureaucratic tasks must be kept to a minimum. In addition, the initial qualification and further training of educators must be improved. Like employees in other areas of child and youth welfare, teachers need (individual) supervision, which is currently denied to them in most daycare centers. A better quality of early childhood education can therefore only be achieved if more financial resources are made available by politicians.

Making Children Fit for the Future at School

Due to the future trends outlined before, schools around the world are facing fundamental changes. These affect the educational content, teaching methods, and assessment procedures. The importance of acquiring factual knowledge will decrease considerably in favor of learning methods – the ability to find relevant information, evaluate it and use it creatively. This way the foundation is laid for lifelong learning in the knowledge society. Moreover, communicative, social and personal skills must also be promoted more than today. A competency-based educational concept is therefore needed that focuses on key qualifications that can be further developed over the course of life.

Furthermore, the pool of talent must be better exploited – especially the potential of children with a migrant background or from educationally disadvantaged backgrounds, but also that of highly gifted children: Some of them are not identified at all or too late and therefore do not receive enough support like acceleration and enrichment offers.

In all-day schools, the subject matter can be taught in the morning and in the afternoon. In between, students can do their „homework“ and repeat, practice and deepen learning content alone or in small groups – with or without support from teachers or pedagogically trained staff. This enables independent and self-responsible learning, whereby students can divide their time within a given framework and also set their own priorities. In addition, low-performing students can

be supported individually or in small groups during these periods.

Moreover, in all-day schools activities where cognitive learning is not the focus and the pressure to perform is lower can be inserted between lessons and homework times. These may include sports, reading in the library, music, computer programming, art, first aid courses, group games, crafts, cooking, needlework, drama groups, language courses, debating clubs and study groups. This way, a balance can be achieved between cognitive learning on the one hand and motor, musical, artistic, cultural, media, emotional and social learning on the other. At the same time, school becomes a place of experience and living that is designed not only by teachers, but also by the students themselves.

Since teachers usually have to spend the whole day at school with lessons spread over the morning and afternoon, they are available during their free periods to answer questions from their students – but also for meetings with colleagues, for example to plan interdisciplinary lessons, projects or special activities together. They are also available to professionals who work with individual students with behavioral problems, learning difficulties or disabilities (e.g. special education teachers, school social workers and psychologists) or who advise parents with parenting difficulties and other problems. In this way, a culture of cooperation and feedback can develop in the increasingly multi-professional school staff.

Educational Content

If one takes the idea of lifelong learning seriously, one will not „fill“ the students with huge amounts of knowledge according to the Nuremberg funnel principle. At present, high school students have to acquire knowledge in many subjects that teachers with other subject combinations at the same school do not master – this goes far beyond general education. The curricula should be radically streamlined so that motivation to learn is maintained, topics can be discussed critically (promote thinking instead of cramming!), knowledge can be deepened in group work and time is available for repetition in order to consolidate learning success.

Above all, children and adolescents need to develop learning skills so that they can acquire the knowledge they need over the course of their lives themselves. They must learn to learn, i.e. know how to obtain, assess, compare and classify relevant information in relation to previous knowledge, how to memorize it and how to check their own learning success. But students must also learn how to pass on their own knowledge, for example, how to present it in a working group, how to combine it with the knowledge of other group members, how to solve problems together and how to achieve a work result that is supported by everyone.

Today’s students should be enabled to shape science, technology, business, culture and society as adults. The Greek philosopher Heraclitus already believed that education is not „filling barrels“ but „igniting flames“. Or, as the neurobiologist Gerald Hüther said, it is not as important to pass on cultural

assets as it is to ignite the spirit that created these assets. Thus students must also acquire subject-specific methodological skills, i.e. learn which processes are used to gain knowledge and solve problems in the respective educational field. At the same time, they should develop an inquisitive attitude based on curiosity, intrinsic motivation and strong interests.

Cramming or learning out of fear is not the future – instead, according to brain researcher Manfred Spitzer, learning should be associated with positive emotions, even with a feeling of happiness. Therefore students „only“ have to acquire a basic framework of knowledge that enables them to orient themselves in the postmodern world, lead a self-determined life and actively shape social processes. Their knowledge should be sufficient as a basis for vocational training or university studies.

If the curricula were streamlined, there would be more time for economics, for example. This subject should be introduced in all schools and taught across as many grades as possible. Students should also gain practical experience, e.g. through internships or case studies in companies. In addition, some of the teaching could be done by managers – either at school or directly in the company. Students may also set up their own companies at school (e.g. a sales stand, a student café, an event service, a T-shirt production facility), thus developing an entrepreneurial spirit and acquiring practical commercial skills (e.g. market analysis, customer acquisition and care, calculation, bookkeeping). In addition, economic knowledge and skills can be taught to students with the help of special computer games that simulate companies.

In recent years, the importance of the natural sciences has been recognized and at many schools the teaching of mathematics, biology, chemistry and physics has been intensified. Some high schools even have research time: For example, the students carry out individual research activities at university institutes, in companies or municipal institutions. There they are guided by a mentor. The students document their practical experiences and present them to the class at the end of their research time.

Scientific knowledge can also be imparted through lessons in nature, by working in school gardens or raising animals. For example, more and more school gardens are being set up in the USA (there are now more than 6,000 in California alone) so that students can learn how food is produced and what it tastes like in its natural state. At the same time, it is becoming clear how dependent humanity is on natural resources. The nature deficit disorder as described by Richard Louv could also be countered through lessons and research activities in parks or forests, on agricultural land or at a lake. The more experiences of nature a student has, the more likely it is that nature is seen as something to be loved and protected.

Engineering – including computer science – should also be considered in the curricula, as economic development largely depends on technology and as most children are surrounded by (and fascinated by) technology. In addition to theoretical lessons, children should also learn as early as possible how to work with materials such as wood, plastic, metal or ceramics, for example by making useful objects, gifts or jewelry. Older students can take technical devices apart and learn about their components and how they work together. They could also build

small vehicles, airplanes, machines or robots, maintain school computers and networks, program new functions or carry out repairs in the school building. Practical experience could also be gained through visits, internships or projects in factories, craft businesses or municipal utilities. This would intensify interest in engineering. At the same time, students would learn to apply scientific knowledge.

Since our society is strongly influenced by laws and regulations, legal knowledge should be taught in schools in the future. Current political issues and social problems should also be addressed in class and discussed by students. Medical, sociological, psychological and educational knowledge are also becoming increasingly important and should therefore be included in the curriculum. Internships in hospitals, facilities for the disabled, retirement homes, daycare centers, courts and prisons would provide practical experiences.

Unfortunately, there is currently a lack of teachers with medical, legal, engineering or business qualifications. Thus schools should be able to give contracts for a few teaching hours to managers, engineers, technicians, lawyers, doctors, IT specialists, etc.

In our globalized world, foreign language skills are becoming increasingly important. Therefore it should be checked whether the most important languages are really being taught in our schools. For example, according to Wikipedia, Mandarin Chinese is currently spoken by 929 million people, but English, the second most common language, is only spoken by 373 million people. However, English plays a greater role as a

second language: 1.080 million people have learned English, but only 199 million have learned Chinese. Other world languages with a future are Hindi and Arabic; they could overtake English as the mother tongue by 2050. The importance of Spanish will also increase; in the USA, people of Latin American origin, together with blacks and Asians, will make up more than half of the population by 2050. French or even Latin and Greek, on the other hand, will become less important.

If one considers that China will be the largest economic power in a few years, Mandarin should be offered at least in all secondary schools in the future. Spanish or Hindi should also be given preference. Of course, it is not possible to train enough teachers for Mandarin or Hindi in just a few years. But teachers can be recruited from China, India, Spain or Latin America. Lessons would then be taught exclusively in the respective foreign language. Teachers from other countries, who would also represent their culture, customs and traditions, would certainly enrich the multi-professional school staff of the future.

But even in subjects such as history or geography, more teaching time should be devoted to the heavily populated regions of the world or the economic and global powers of the future. Students should know at least as much about the nature, population, history, culture, economy and society of countries such as China, India, Russia and Brazil as they know about the USA, the European Union, and Great Britain.

Through stays abroad, technical or entrepreneurial activities at school, internships in companies, projects with an extracurricular focus, etc., students not only gain insights into the world outside the school walls, but also recognize a connection between the knowledge imparted in class and later application in the workplace, between learning (now) and working (later). Then learning makes sense, as the practical value of school content and its relevance to everyday life become apparent. This will increase motivation and enjoyment of learning.

If you consider that children and adolescents are reading less and less in their free time, are reading more and more superficially, and are developing a primitive writing style through texting and typing texts on social websites, promoting reading and acquiring de-contextualized or written language skills will be of great importance in the future. For example, (primary) schools should create more enjoyable reading situations by offering emotionally appealing reading material or by taking into account the students' interests, which encourage intrinsic motivation to read. Regular reading times in (primary) classes, reading diaries, reading competitions, reading nights, literature cafés, engaging volunteer reading mentors or book rallies could also be useful. Reading corners in the classroom and a school library with reading rooms which are open all day would enable students to study the available books and (youth) magazines alone or with like-minded people (e.g. in a reading group). Reading scouts – children who love books – could make their classmates curious about exciting books. Older children and adolescents should also be

introduced to non-fiction and specialist texts. If paper and pens were used more often instead of keyboards, students could develop a complex, accurate and cultivated writing style. They should produce longer texts as often as possible (e.g. articles, essays, presentations, term papers).

In addition, children's creativity must be encouraged more. Relevant activities are possible primarily in music and art classes. In addition, more projects could be carried out together with musicians, painters, sculptors and filmmakers, or music performances and art exhibitions could be held in the school or other locations.

Furthermore, sports and physical activity (e.g. during recess, by transforming schoolyards into adventure playgrounds) would promote motor and health development – too many students are untrained, clumsy and too fat. Since they are often overtired and stressed, they need information about the importance of sleep and the causes of stress. They should also learn relaxation techniques. Children must also be prepared for life in a leisure society in which they have many opportunities for self-realization and hobbies.

The more diverse and differentiated a society becomes, the greater the number of options is and the fewer traditions, values and customs are shared by everyone, the more important it is to provide help with orientation, in the search for the meaning of one's own life and in the formation of a conscience. Subjects such as religion and ethics will therefore continue to be of great importance in the future. Students could acquire knowledge about various religions such as Judaism,

Christianity, Islam, Hinduism, Buddhism, Taoism, Shintoism and Confucianism. Such knowledge is relevant for life in a global world: People are increasingly confronted with other religions in their home country, during stays abroad and when traveling and should therefore know the most important beliefs, cults, rituals and behavioral norms.

In ethics, key problems of today's and the future world can be discussed: social inequality, population development, dealing with the elderly and the disabled, unemployment, poverty (including in developing countries), migration, war, exploitation of nature, climate change, environmental destruction, etc. But also ethically relevant experiences of children and adolescents should be addressed: „unfair" performance assessments, conflicts with adults and peers, emotionally stressful experiences such as the death of a grandparent, bullying, binge drinking, drug risks, etc. Ethical questions could also be dealt with in other subjects, e.g. a lack of fairness when playing football in sports or the dangers of genetic engineering in biology. However, children and adolescents will only talk about personal matters if they feel a genuine interest on the part of teachers, experience them as reference persons and friendly conversation partners, and do not have to fear negative sanctions.

It would be ideal if students were led from reflecting on ethical problems to taking concrete action. For example, they may develop an understanding of the living conditions and needs of senior citizens, whose share of the population will continue to rise. Then the generation war expected by some experts could be avoided, as younger people might be more willing to forego

an increasing share of their income in favor of senior citizens. Or the discussion of ecological problems could result in support for climate refugees, school projects such as building a wind turbine, sponsoring a biotope, better recycling behavior or more economical use of resources such as water, electricity, heat, paper, food, etc. At the same time, students experience that their actions make sense and have positive effects on society.

Since older students often experience problems when dating and have less and less experience with small children, since many relationships have become fragile and parents are becoming more uncertain about how to raise children, there should be a subject called „family studies“ in schools. Important pedagogical and psychological knowledge could be imparted and – to a very limited extent – the experiences of students in their own families may be discussed. Students could be asked how they imagine a good partnership, how they would try to achieve it, how they would like to raise their own children and how they plan to combine family and work. Moreover, relevant communication and emotional skills could be trained. There are now also lifelike, computer-controlled dolls that students can take home and look after like real babies. The „infant simulators“ demand all-round care through loud screaming, so they have to be fed, changed, held and rocked, for example.

It should be noted that the expansion of the range of subjects should not lead to students having more lessons per week or having to learn more. As already mentioned, the current curricula should be streamlined and no more knowledge should

be taught that goes beyond general education. In addition, many minor subjects do not have to be planned for every school year. For example, it would probably be sufficient if family studies were only taught at one grade level.

Promoting Interdisciplinary Skills

In addition to subject-specific, learning method and other cognitive skills already mentioned, teachers must promote other skills and abilities that are important for the future and that have not yet been specifically trained. Many of these are not tied to a specific subject, but are relevant in everyday school life.

Social skills are particularly important: Firstly, students should learn to cooperate with one another in class, to complete tasks together and to support one another. When homework is done at all-day schools, students who are better at a subject can help classmates who are worse – or older children (tutors) can help younger ones. Secondly, living together in a class should be peaceful even when no adults are present. For example, class teachers could draw up a code of conduct with their students at the start of the school year, whereby compliance with the agreed rules will be checked again and again and violations would be discussed in the class. Above all, however, bullying and other forms of violence, which have become increasingly common in recent years, should be prevented by setting boundaries and disciplinary action. Students should learn to stand up for the weaker and to resolve conflicts peacefully. Specifically trained classmates might act as conflict mediators or teachers as supportive mediators.

It is also important to promote communication skills. Teachers should not only pay attention to whether answers are right or wrong or contribute to the planned course of the lesson, but also how they are formulated. By asking questions, rephrasing and, in the case of older students, by criticizing, children and adolescents can be stimulated to use longer and more complex sentences, more appropriate nouns and verbs and more adjectives. In the future, students should have more opportunities to speak in class, i.e. not just have to answer questions from teachers. Long and intensive discussions could arise if pupils' interests or current problems are addressed (e.g. using online games, relating „throwaway society" to one's own behavior, dealing with refugees, religious and ethnic conflicts, terrorism). Then students learn to express their own feelings, thoughts and opinions without fear (since they are not graded), to respond to the statements of other people or to question them critically, to distinguish between what is essential and what is not, and to recognize and follow the „common thread" of the conversation.

Communicative skills therefore go far beyond formulating linguistically correct sentences or using de-contextualized language. Children and adolescents must also learn, for example, to communicate openly and authentically, to send congruent messages (where verbal statements and non-verbal behavior match), to clarify their statements when necessary, to express feelings appropriately, to respond empathetically to the emotions of others, to seek eye contact, to let others finish speaking and to listen actively to them, to signal their

understanding or to ask questions. They should also be able to deal with feedback and metacommunication.

Emotional skills include not only the appropriate expression of feelings, but also the ability to first perceive one's own emotions. Male students in particular often have problems with this. Teachers and adults working in extra-curricular situations could occasionally ask: „And what are you feeling now?" or „How are you feeling?" Many (male) students also have to learn to perceive the feelings of others, for example to deduce them from their facial expressions, posture and tone of voice, and to correctly identify and name their emotions. Self-control must also be supported. Especially during recess and during activities at schools that are not part of the curriculum (see above), situations arise again and again, in which emotional skills can be promoted.

The same applies to the development of the child's personality, e.g., the formation of a positive self-image, the discovery of identity and the assumption of gender roles. The more students are able to determine their own learning, acquire knowledge together with others and choose between many extracurricular activities, the more independent they become. At the same time, they should take responsibility for their own school performance – and for their own behavior, their own body, their own health and their own media consumption. In the future, personal development and the assumption of responsibility could be supported more strongly through experiential educational projects, internships in social institutions, working in student companies, participating in school committees or acting as a mentor or mediator.

Personal development and social development could also be promoted by discussing the students' life situations in school, peer group, family and society with regard to their own role and the roles of others. Since the students experience these situations as personally relevant and are emotionally involved, they are not only very interested in the matter, but also want to become active themselves and get involved in a meaningful way. The search for solutions to problems and conflicts is often an intellectual challenge and promotes creativity; the implementation of jointly drawn up plans requires energy, instrumental and communicative skills, flexibility, cooperation with others, a willingness to compromise and the ability to overcome resistance. With adolescents, teachers can largely stay out of the analysis of the respective life situation, so that the students can act independently and responsibly.

If more current youth literature would be selected for lessons, the developmental tasks addressed therein could be discussed and students helped to master them. In this context, the ideas of children and young people about the future could also be discussed. Teachers can use texts written by futurists, but also teach methods of future research: For example, students can be asked to develop positive, negative and realistic scenarios for their own lives in 10 or 20 years and discuss them with each other. Teachers could address fears about the future or feelings of meaninglessness. Edward Cornish, the founder of the World Future Society, demands that young people should be helped to perceive the many opportunities they have in economy and society and to evaluate them realistically and optimistically.

Then they would plan their lives for the longer term and more often postpone the immediate satisfaction of needs.

Social, emotional and personal skills can be developed particularly well in sports, music, art, theater, home economics and hobby courses, as well as in discussion and work groups (especially if attendance is voluntary or if the course is not graded). In the future, special programs like assertiveness training or aiming at violence or addiction prevention could also be used more frequently to promote these skills. Some schools have also experimented with „skills lessons“, in which social skills (e.g. acceptable behavior in the class community, ways of resolving conflicts), communicative skills (e.g. rules of conversation, active listening, participation in group discussions, rhetoric), learning skills (e.g. completing homework correctly, preparing effectively for exams, concentration exercises, time planning, methods of academic work, research techniques in libraries) and IT skills (learning relevant computer programs, using the Internet correctly) are practiced. Skills can also be taught that are relevant for the next developmental step (e.g. writing job applications towards the end of school, training for job interviews).

Educational Methods

In preparation for the knowledge society, it is of great importance that students are given a much more active and independent role in the learning process than is currently the case. They should become „explorers“ who, through critical exchange with other students and adults, independently gain new knowledge and become experts in their own learning.

Education must become a self-directed, exploratory, „pleasurable“ and socially embedded process that includes not only active knowledge construction, but also the acquisition and application of subject-specific methods and tools, problem solving and the development of very different skills (see above). Desire to learn, enjoyment of learning, critical review of one’s own learning process, frustration tolerance and the acquisition of self-confidence and confidence in one’s own abilities are other important aspects.

Accordingly, teachers should become „managers of learning processes“, „coaches“, „tutors“ and „learning advisors“ who accompany children and adolescents in the „adventure“ of learning and on their individual educational paths. They must recognize and use the students’ willingness to learn and to achieve, arouse their curiosity, encourage them to make greater efforts, give them the information they need, let them experience the applicability of what they have learned, encourage them and support them if necessary. They must also organize learning teams, promote exchanges between participants and moderate collaborative learning processes. Another task of teachers is to „capture“ the results from the individual and social learning arrangements and structure them in such a way that they can be built upon.

These are not new goals. As educational scientist Ulrich Herrmann, for example, has made clear, teachers and psychologists have basically known since the late 18th century when learning is successful in the long term: Through suggestions, practical challenges that make subjective sense, and individually measured requirements that neither under- nor

over-challenge the respective student, teachers should encourage curiosity and thirst for knowledge so that the children or adolescents become active on their own and acquire relevant knowledge and skills. Students should be able to determine the time needed for a task or learning process, because time pressure „blocks“ the brain, and should also be allowed to make mistakes, as these are learning opportunities. Feedback and praise, but above all the experiences of success and self-efficacy associated with overcoming new challenges, would confirm the students on the path to independent self-education and maintain their joy of learning and intrinsic motivation. Alternating between tension and relaxation as well as lots of opportunities to practice and repeat, would also be important.

In the future there will also be frontal teaching, as it is the most effective and efficient form of imparting knowledge. However, it should last a maximum of 30 minutes, as even older students cannot listen attentively for longer. According to brain research, the working memory is overwhelmed of completely new learning material after just five minutes.

Much more important than the „classic“ frontal teaching situation, however, are learning forms that promote a wider range of skills than the pure acquisition of knowledge and that correspond to the aforementioned findings.

These include, for example:

- independent study time, during which students either complete given tasks on their own, can choose between different topics or (in consultation with the teacher) devotes themselves to a question they have posed. The individual work assignments can also be adapted to the level of performance of the respective students and completed by them at their own learning pace.
- partner study time, during which, for example, a topic is discussed with a classmate or learning material is practiced with him or her. The two students support each other.
- group study time, during which a topic or various aspects of it are discussed in small teams or during which a (learning, research) task is completed. This is where the strengths of individual students come into play, while at the same time their weaknesses are compensated for by the others. They must cooperate with each other and work together.
- station learning: Using a checklist, different stations (in the classroom) are visited and certain tasks or exercises are completed there, using the instructions and materials provided. These tasks often allow different approaches to a topic or relate to sub-areas. Depending on their level of performance, students often have to go through different stations or more or fewer stations; there are often also compulsory and optional stations.

- workshops: Different materials relevant to one or more topics are placed on the tables in the classroom. The students have to choose a table.
- open lessons: The students are involved in the planning and implementation of their learning by having a say in which topics are dealt with and what activities are carried out.
- project work: A topic is pursued over a longer period of time, with the students having a large say in the goals, content and course of the respective project. By intensively dealing with the respective issue, they develop a deeper understanding and acquire more subject-specific and methodological skills. Often, the school building must be left to visit certain places (in nature or in the community; companies, institutions, research facilities, studios, etc.) or to interview experts, depending on the topic. Several projects can also take place simultaneously in a class, being carried out by small groups or by individual students. Some projects may even involve several classes or the whole school (In interdisciplinary teaching, similar to projects, a complex topic is taken up and dealt with simultaneously in different school subjects, for example the topic of „water“ in physics, geography, biology, sports and music. Here, however, the specialist teachers work together to enable the students to learn in context).

In all of these forms of learning, the teachers hold themselves back, take on a more observing role and only offer support when necessary. The students learn largely independently or in

a team, where information can be more easily collected and checked through cooperation with others. Students often have to present the results of their work in writing, orally or in multimedia format, and editorial work opens up additional learning opportunities.

The individualization of learning practiced in some schools goes even further than these future-oriented forms of learning: Here, every student can determine their own learning program, daily work priorities and learning pace within a given framework. When using weekly plans, students are given compulsory and optional tasks at the beginning of the week, which they are to complete in the hours reserved for weekly plan work – in what order or how quickly, whether alone, with a friend or in a team, is up to them. Depending on the student's ability, the tasks can also be easier or more difficult. The teachers are present during these hours and are available to answer questions or provide individual learning support.

At some schools, almost all learning is self-organized and self-responsible. Here, students are usually given clearly defined learning goals and content for a semester – often adapted to an adolescent's individual ability after an analysis of his/her learning level. Books, objects and materials that are needed are available in the various rooms of the school, in learning workshops, laboratories and studios. At the beginning of a day or week, students use a logbook to determine what they want to learn during this period. Learning paths are also documented here; learning results are evaluated based on specified criteria. Each adolescent is free to decide in which order, at what time and in which rooms tasks will be completed, how much time

will be spent and with whom they will collaborate. Mixed-age work groups can also be formed in which students with similar levels of ability cooperate or younger students learn from older students. The teachers create a stimulating learning environment, supervise, observe, give suggestions, provide materials, answer questions, advise and offer individual support if necessary.

It is questionable whether largely self-organized learning in schools will prevail in the future – but there must be more independent, active, research-based and discovery-based learning in collaboration with classmates. Homework, when done at all-day schools, could also contain more cooperative elements. Since existing materials and rooms can be used in school, homework can also be combined with creative activities, experiments, research tasks and practical activities.

In the future, traditional textbooks will increasingly be replaced by e-books, which are cheaper and can be updated more quickly. The blackboard is also no longer needed: On digital whiteboards, teachers and students can interact with information, move it, select it, organize it and evaluate it. They can also watch pictures, animations and films. This means that more senses are addressed, which is particularly beneficial for those students who do not absorb information so well by listening – and this will be more and more children and adolescents, as the Internet and social media favor visual perception. In addition, there is empirical evidence that people learn better when information is presented in multimedia form – i.e. on different channels.

In addition, laptops and tablets will be used more in the future, as interactive learning programs allow for a greater consideration of a student's learning level and thus for individualized learning opportunities, and as the Internet allows access to vast amounts of information. This would also make it clear to some students that computers and smartphones can be used for more than just games – namely also for virtual learning. States and municipalities must ensure that all schools have modern information technology and up-to-date software, and that teachers are regularly trained in how to use them.

The Internet also allows learning groups out of students from different countries to come together in virtual space – this way, also foreign language skills can be practiced. All students should learn to use computers for word processing, programming, presentations, calculations, composing, creating graphics and painting pictures, for example, but also for implementing their own ideas – e.g. with the help of artificial intelligence (AI). Digital cameras and smartphones could be used to make short films or record interviews. Students should often have the opportunity to see multimedia presentations and be trained in how to use the respective software. All children should learn to type at an early stage in school.

As already mentioned, there are now educational computer games that simulate very complex processes such as decision-making in companies. Students have to take on different roles, complete practical tasks and solve problems in collaboration with others – with creativity, imagination, strategic thinking as well as learning through experimentation and trial and error playing a major role. In virtual worlds, students can create their

own environments, for example by selecting landscapes, climate zones or buildings from different eras of human history. On the one hand, students have to acquire the necessary knowledge from subjects such as geography, architecture, history and biology themselves, and on the other hand, they learn how to use the tools required. Moreover, specialist knowledge that is traditionally taught in different school subjects is not only linked together, but it is also applied in practice – which not only shows the relevance of this knowledge for the student, but should also further the learning process.

A higher quality of school education might be achieved if experienced teachers and media designers would prepare part of the curriculum content in a multimedia and interactive way and put it on the Internet. These films, programs and learning games can either be used by the teachers during their lessons or they are used by the students themselves (e.g. during individual or partner study time, in the afternoon during homework time, as part of projects or when classes are cancelled). Since several experts have worked on the respective teaching element, it can be ensured that it is of high quality.

New Assessment Procedures

Educational standards and same exams for all class levels introduced in recent years in some countries have led to a fairer assessment of student performance at different schools. Teachers also receive feedback on the quality of their teaching. Central final exams guarantee comparable knowledge among students who have attended different schools and are therefore

a better basis for decision-making for universities and employers when selecting applicants or trainees.

However, these final exams focus on cognitive skills and on the performance of the individual student – the same applies to almost all class tests and oral examinations carried out in schools. Thus the other areas of competence that are so important for the future are not taken into account and the performance in work groups is not assessed, although in business, science and administration only teamwork produces the desired results. In addition, frequent poor grades demotivate the student; enthusiasm for learning and motivation to achieve decrease. However, when the work of a team is assessed, even poor students can derive self-esteem and self-confidence from cooperative action and the goal achieved together.

Therefore, assessment procedures should be used more frequently in the future which focus on feedback (i.e. not on grading), which take all areas of competence into account, which allow for self-assessment of one's performance, or which can be used to measure the joint results of two or more students.

These include:

- learning journals in which students write down what they have learned at the end of each lesson,
- reflection sheets that allow students to evaluate their own learning progress or achievement at certain intervals,

- learning development reports in which individual learning progress is described and ways are shown how possible learning deficits can be remedied,
- video recordings with which students can be made aware of certain behaviors,
- portfolios in which work products are collected that reflect individual learning successes and acquired skills,
- assessment scales used by the teacher or individual student to assess strengths and weaknesses in various development areas so that competency profiles are created,
- catalogs of learning objectives that relate to a longer period of time (e.g. a school semester) – with predetermined criteria on the basis of which the student's cognitive, social and personal development can be assessed by the student himself or by the teacher,
- report cards that do not contain grades but a description of learning processes and results,
- partner assessment, in which classmates award points for the performance of a student (like a report or presentation) or fill out a feedback form,
- group journals or project logbooks in which study groups reflect on their learning progress, and
- assessment of the quality of the contribution of an individual student to a common result by the other members of the study group, sometimes in conjunction with self-assessment (e.g. using questionnaires).

Papers and presentations prepared at home are likely to become less important because they can be created with the help of artificial intelligence (AI). Since it is difficult for teachers to verify this, fair grading can no longer be guaranteed.

In individual cases, psychological tests could also be used, for example to diagnose special talents or learning disorders. However, they should only be applied by specialists such as school psychologists.

Supporting Disadvantaged Students

The fewer children there are, the more important it is that the potential of all children is developed in the school system. This is the only way to counteract a shortage of skilled workers. In addition, the lower the funds for social benefits in the future, the more urgently disadvantaged children and young people must be supported so that as adults they do not have to rely on residential care, social assistance, unemployment benefits, drug rehabilitation, resocialization measures and the like.

Many education systems are socially selective: Children with uneducated parents, a migrant background or (learning) disabilities are sorted out early and often leave school without a qualification. Many of them only find low-paying jobs or are unemployed for shorter or longer periods of time. Therefore, children from educationally disadvantaged families or with a migrant background should be supported more intensively in the future. They benefit from full day schooling, because the education is more comprehensive and more time is available for (individual) support measures. They also have to do their

homework under supervision and can receive help if needed. In addition, migrant children are exposed to the language of their new country for longer periods of time. Moreover, mastering another family language and culture – be it Turkish, Russian, Spanish, Arabic or Chinese – should be seen as a strength and recognized accordingly. Then students with a migrant background will also feel more emotionally accepted.

In many countries, the number of children disadvantaged by the education system includes more and more boys: On average, their school performance is one grade lower than that of girls. Boys are more likely to repeat a class, are less likely to obtain a university entrance qualification and are more likely to drop out of school. Low verbal and social skills also mean that they are ill-equipped for the future. Therefore, teachers must support male students more intensively in the future, for example by including more „boys' topics" in the lesson content, reading material and essay topics, by giving boys longer reading lessons, by consciously improving their communication skills and by counteracting their ambivalent attitude towards learning and performance. Boys also benefit from all-day schools, where they will spend as much time on homework as girls and are prevented from playing computer games and consuming media content for at least five days a week. The number of male teachers at primary schools must also be increased because female teachers – in most countries they are the majority – focus too much on „good" girls and demotivate boys by criticizing their behavior. The role model of male teachers would also counteract the „feminization of

childhood“ as most boys are cared for by females (in the family, in child care and in primary schools).

According to the UN Convention on the Rights of Persons with Disabilities, disabled children should not be excluded from the general education system. The demand for inclusion has even more far-reaching implications: It basically affects every child, who may no longer be „labeled“ based on certain characteristics (e.g. as a disabled or highly gifted student, as a child with a migrant background or from an educated class), but must be recognized and valued in his/her individuality and uniqueness. Every child is different and has different strengths and weaknesses. The individualization of teaching should therefore be given even greater importance: Basically, the teacher should take into account each student’s special (learning) needs, talents and interests, his/her motivation to learn and his/her level of performance – and adapt the teaching accordingly (e.g. in differentiated lessons, in appropriately composed small study groups or through individual work with the respective student).

Better School Quality

The current education system does not prepare children and adolescents sufficiently for the future. For example, many future-oriented educational goals and learning content as mentioned before are neglected in the curricula. Even if teachers want to impart the aforementioned skills and knowledge, they usually find this difficult, as such action contradicts many of the attitudes, educational methods, teaching styles and methods of grading learned at universities

and in practice. Some teachers are also aware that they are not role models for future life. So they can only provide impetus – the students have to find their own way as young adults. In addition, the faster the technological, economic and social change, the less students can be prepared for it – general skills, however, such as life-long learning motivation, creativity and flexibility will be of use to them.

It is therefore time for a new beginning in educational policy: On the one hand, spending on educational institutions must be increased significantly. On the other hand, a higher quality of educational offerings must be achieved, in particular through smaller classes, a better teacher-child ratio, measures to improve the quality of teaching, supervision, and continuous training of teachers in future-oriented education. As mentioned before, new educational content, teaching methods and assessment procedures should be introduced. Schools also need modern equipment with whiteboards, information technology and other learning materials. They should also become places where students feel comfortable (e.g. homely classrooms with carpets, pictures and plants, corridors with sofas and armchairs, beautifully designed common rooms such as canteens, places to retreat such as reading corners in the school library).

A continuous external evaluation of school quality would also be important. However, this requires that educational institutions are granted more independence, responsibility and freedom of design, as this is the only way to create competition between them and mobilize creative and innovative forces. Public funding should be linked in part to quality criteria.

Despite the future orientation of educational efforts, the child's right to the present must not be ignored. Also the current needs of students have to be taken into account. Furthermore, education should not only be viewed as preparation for a „high performance in the economy and in society", but also as an „end in itself": Education should also lead to the development of inner humanity and one's own individuality.

Collaboration with Parents and Other Institutions

On this website, education is viewed as the joint „product“ of the family, daycare center and school – as well as of the children themselves. Ideally, the family provides the emotional basis and promotes personality development as well as basic skills, abilities, attitudes and values. Daycare centers and schools build on this, expand the child’s skills and impart more and more knowledge (general education). Ideally, parents, educators and teachers should give equal weight to the three forms of education: self-education, co-constructive learning together with peers and adults, and teaching.

If education is a „co-production“ of the family, daycare center and school, they should work closely together. Daycare centers and schools must complement families, and families must complement daycare centers and schools. Parents, educators and teachers should therefore enter into a partnership and frequently discuss how the children/students are developing and how they can best support them together. Thereby, the basic rights and the individuality of the students must always be taken into account: Ultimately, children cannot be „made“ fit for the future, but must use the learning incentives and the educational opportunities in their environment to develop their skills and to acquire knowledge...

Author

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Martin R. Textor published 23 monographs, 23 books as (co-) editor, more than 470 articles in journals and books, about 310 articles in the Internet and more than 730 book reviews. Moreover, he founded several websites in the fields of early childhood education, future trends, social work and family support. Martin R. Textor participated in more than 480 events with 24.600 participants as a speaker or trainer.