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Master in SMART transport and LOGistics for cities
SMALOG



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Preparing for the Future of Education

Prof. Dr.
Norbert Grünwald
E-Mail: norbert.gruenwald@hs-wismar.de
www.hs-wismar.de



Education for a changing world

The unprecedented digital transformation of the global economy and society is likely to increase the complexity of the modern world, as well as the speed of change, largely because of increased connectivity and even more educated individuals worldwide.

These two elements – complexity and speed of change – mean that connecting education to the mega-trends shaping the world we live in has never been so urgent.



Preparing for the Future of Education

- Today, we have to train young people for careers that do not yet exist, of which we do not know what technologies and procedures they will use and what problems they should solve. Much of the knowledge that is taught in the first semesters of the dynamic subjects is already obsolete at the time of the exam.
- “We can not solve our problems with the same level of thinking that created them” *A. Einstein*



Introduction

Five years from now, over one-third of skills (35%) that are considered important in today's workforce will have changed.

By 2025, the Fourth Industrial Revolution will have brought us advanced robotics and autonomous transport, artificial intelligence and machine learning, advanced materials, biotechnology and genomics.

World Economic Forum



Introduction

These developments will transform the way we live, and the way we work. Some jobs will disappear, others will grow and jobs that don't even exist today will become commonplace. What is certain is that the future workforce will need to align its skillset to keep pace.

World Economic Forum



Preparing for the Future of Education

Let us explore global mega-trends - major economic, political, social and technological trends - affecting the future of education, from early childhood through to lifelong learning.

It aims to inform strategic thinking and stimulate reflection on the challenges facing education, and conversely, the potential of education to influence these trends



Preparing for the Future of Education

But connecting education to mega-trends is not straightforward.

The future is inherently unpredictable, because it is always in the making. Long-term strategic thinking in education thus needs to consider both the set of trends and the possible ways they might evolve in the future.



Global Mega-Trends

- Shifting global gravity
- Public matters: Citizenship and democracy
- Security in a risky world
- Living longer, living better
- Modern cultures
- Digitalisation
- Climate change – going green
- **Society 5.0**



Shifting global gravity / Globalisation

- The global balance of economic power is shifting towards Asia, with giant economies emerging in China and India.
- Globalisation facilitates the emergence of transnational networks and trade.
- Human mobility across borders has increased with more affordable transport and communications.
- Globalisation also brings new challenges:
 - growing consumption,
 - unsustainable use of resources and, for some,
 - a feeling of being left behind.



Shifting global gravity / Globalisation

- Education has an important role to play in equipping students with the skills needed to succeed in the global future.
- Education needs also to play a role in combatting climate change and inequality, the most urgent and global issues of our time.



Connecting education and globalisation

- Supporting students' capacity to examine local, global and intercultural issues and developing their understanding and appreciation of the perspectives and world views of others.
- Fostering the knowledge, skills, values and attitudes that encourage students to take action for collective well-being and sustainable development.
- Providing opportunities to connect through open and appropriate multi-cultural interactions.
- Adapting the curriculum, instruction and assessment methods as well as organisational culture of educational settings to reflect cultural diversity.



Connecting education and globalisation

- Fostering international mobility and collaboration of students, teachers and researchers.
- Encouraging innovation in youth through strong science, technology and arts, teaching creativity and collaboration, and providing activities for young scientists and innovators.
- Supporting partnerships between start-ups working with tertiary institutions and other innovation actors.



Public matters: Citizenship and democracy

- A well-functioning democracy relies on the civic knowledge and skills of its citizens, as well as their direct engagement in public matters.
- Yet in many countries, key measures of civic participation such as voter turnout have fallen throughout the last half century.
- Rising inequality within countries and an increasing gap between rural and urban areas creates challenges in terms of life opportunities and access to service.
- And although digitalisation has increased our access to information, there is no guarantee that online search results are accurate.



Public matters: Citizenship and democracy

- These elements combine and connect with worries about declining trust and growing political and social unrest.
- There is an important role for education to play in improving civic and social participation and fostering democratic citizenship.
- Key questions for the future include how we strike a fair balance between all parties in a diverse society, and what this means for fostering social cohesion and trust.



Connecting education and democracy

- Providing high-quality early childhood education and care for all, with a special focus on low-income households.
- Increasing permeability between different educational pathways (e.g., TVET, general schools, universities).
- Supporting students to develop an understanding of democratic rights and values as well as social and organisational skills for civic engagement.
- Teaching analytical and critical thinking skills to carefully research, assess and use sources of information off- and online.
- Developing tolerance and respectful attitudes through deliberation



Connecting education and democracy

- Addressing the urban/rural gap and rethinking education facilities as stimulators for small communities and villages.
- Supporting education networks (local stakeholders, professional, university-to-university,...) to promote knowledge exchange and compensate for capacity gaps across the system.



Security in a risky world

- Security of person is a basic right guaranteed by the 1948 Universal Declaration of Human Rights.
- However, we are now facing ever more complex security challenges:
 - Climate change brings rising sea levels and more frequent extreme weather events
 - In an increasingly connected world, networks of terrorists pose a threat in many countries, including cyber space.
 - A great deal of sensitive and confidential data is stored on servers all around the world, and data theft and leaks have significant economic, social and political consequences.



Security in a risky world

- Many people feel less secure about their finances and their work.
- Reports of perceived risk are increasing.
- Families and communities are concerned about the safety of their children.
- Education can play a role in helping understand, prevent and mitigate security risks.
- Education can also help students distinguish between perceived versus actual risks, build resilience and better prepare citizens to withstand adversity.



Connecting education and security

- Developing digital literacy for all citizens, especially those most vulnerable .
- Strengthening digital skills of educators to help them better use technology in teaching and learning.
- Teaching politics, history, and civic education, as well as fostering tolerance, trust and resilience.
- Fostering "green" fields of study in secondary and tertiary education to build capacity to prevent, mitigate, or defend against natural disasters.
- Promoting ecofriendly schools and universities by using sustainable designs and materials, and incentivising clean forms of transport.



Connecting education and security

- Strengthening financial literacy at all ages, from the youngest to the oldest.
- Providing effective training, re-training and skills development to enter/re-enter the labour market (short courses, on-line courses, further education, microcredentials)



Living longer, living better

- Our societies are ageing.
- The likelihood of living another decade or two after the conventional retirement age raises profound questions about the nature of this phase of our lives.
- Healthier seniors are living and working longer.
- They also tend to be relatively richer, on average, creating a “silver market” for products and services aimed at their specific needs.
- However, there are risks as well.
 - Chronic diseases, such as diabetes and dementia, are becoming more prevalent
 - shrinking social circles increase the potential for loneliness



Living longer, living better

- Digitalisation can help address many of the risks linked to increased frailty and dependency, but it also opens up new threats of Internet fraud targeted specifically at the elderly.
- These trends invite reflection about how education, so often seen as primarily for the young, can benefit older adults.
- What is the best way to promote a culture of learning throughout life?
- How can education be extended to not only be *lifelong*, but also *lifewide*, touching on all aspects well-being more generally?



Connecting education and ageing

- Promoting continuous professional development of university and school teachers and leaders via in-job training and peer learning (e.g. peer evaluation, professional networks).
- Teaching and learning about emotions and social skills.
- Addressing obesity, smoking, sleep deprivation and other public health concerns through collaboration between local education institutions and healthcare providers.
- Offering education and training in caring for fragile elders and other expanding job markets



Connecting education and ageing

- Partnering with local actors to engage students of all ages in addressing community needs through service and volunteering.
- Developing formal partnerships as well as informal opportunities to share the (local) wisdom of older generations (e.g. grandparents, native people in the classroom).
- Supporting innovative learning arrangements within universities and communities.



Modern cultures

- We seem to live in a more individualistic world, with a declining sense of belonging to the traditional reference points of community, e.g church, workplace, clubs,
- At the same time, the notion of a “network society” suggests that the sense of belonging is changing, not disappearing.
- Patterns of work and life are evolving as marriage rates decline, more women enter the workplace and more men play an active role in child-raising.
- Digital markets are making it easier for buyers and sellers to come together across time and space.



Modern cultures

- Digital markets transforming what we mean by ownership, as we increasingly pay for access to goods (e.g. books, music, movies) rather than buying them outright.
- Education plays a crucial role in equipping people with the necessary skills, knowledge and attitudes to thrive in their modern personal and professional lives.
- As the world becomes increasingly digitalised, the education system must adapt and evolve to take advantage of the tools and strengths of new technologies while simultaneously addressing concerns about potential misuse, such as fraud, identity theft or cyberbullying.



Connecting education and modern cultures

- Equipping students with knowledge, skills and attitudes to become future entrepreneurs.
- Promoting the teaching and learning of creativity and other skills that go beyond traditional distinctions between disciplines.
- Practicing collaborative problem-solving and teamwork through hands-on projects within and beyond the classroom.
- Addressing differences in social values within communities and upholding respect among students.



Connecting education and modern cultures

- Acknowledging multicultural backgrounds in the classroom and providing teachers with the tools to teach diverse classrooms
- Ensuring that all students have the digital skills necessary for the modern world, both hard and soft.
- Fostering positive uses of and attitudes towards ICT, especially among female and more disadvantaged student populations.



- Digitalisation
- Climate change – going green



Society 5.0

Society 5.0 can be defined as a human-centered society that balances economic advancement with the resolution of social problems

The aim of Society 5.0 is to create a society where social challenges are resolved by incorporating the innovations of the fourth industrial revolution into industry and social life. It tackles any aspect of society like healthcare, mobility, infrastructure, politics, government, economy and industry.



Society 5.0

Society 5.0 also involves the enormous opportunities and challenges of the 21st century. Problems such as climate change, migration and resource consumption must be solved jointly and globally. Sustainable Development Goals (SDGs) such as poverty and education require international efforts. Lessons learned from the Covid-19 pandemic can have an important impact on dealing with global challenges and crisis situations.



Society 5.0

Technological advancements and trends for digital transformation should assist us to address these global problems. Convergence of cyberspace and physical space can foster new forms of global cooperation. People, things, and systems are all connected in cyberspace. Results obtained by AI can exceed the capabilities of humans and are fed back to physical space.

<https://www.youtube.com/watch?v=odjuqbLJRMYY>

<https://www.youtube.com/watch?v=S9JMuwvzz8g>



Preparing for the Future of Education – for Society 5.0

Two types of skills are likely to be particularly very important in the future of education for Society 5.0.

First, there is evidence that the labour market is increasingly rewarding soft/transversal skills such as the ability to communicate, work in teams, lead, be entrepreneurial, solve problems, be creative and self-organize.

Second, the importance of digital skills – hard and soft – is increasing.



Preparing for the Future of Education – for Society 5.0

Top 10 skills

in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

in 2015





1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity

Source: World Economic Forum



Top 10 skills of 2025

Type of skill

-  Problem-solving
-  Self-management
-  Working with people
-  Technology use and development



Analytical thinking and innovation



Active learning and learning strategies



Complex problem-solving



Critical thinking and analysis



Creativity, originality and initiative



Leadership and social influence



Technology use, monitoring and control



Technology design and programming



Resilience, stress tolerance and flexibility



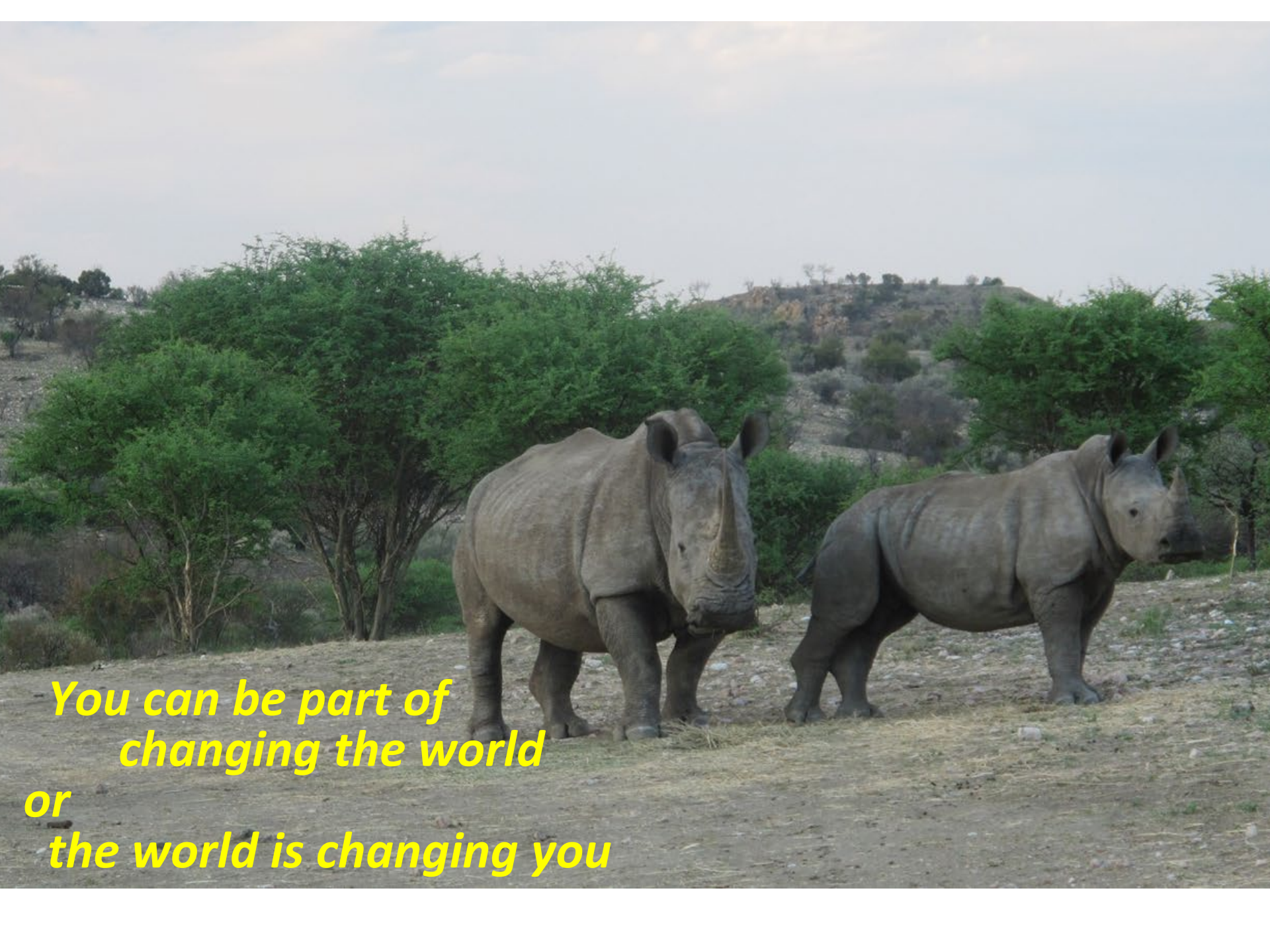
Reasoning, problem-solving and ideation



Preparing for the Future of Education – for Society 5.0

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<https://www.youtube.com/watch?v=Pu1U-hsQIgA>



*You can be part of
changing the world
or
the world is changing you*