PROMOTING LEADERSHIP IN THOUGHT
THAT LEADS TO ACTION

THE WEALTH OF NATIONS REVISITED

CADMUS

NEW PERSPECTIVES ON MAJOR GLOBAL ISSUES

SPECIAL ISSUE ON HUMAN SECURITY: PART 2

Volume 5, Issue 2 | AUGUST 2023 | ISSN 2038-5250

HS4A
Human Security For All

In support of the HS4A Global Campaign on Human Security For All initiated by the United Nations Trust Fund for Human Security & the World Academy of Art & Science

Inside This Issue

ARTICLES

OUR VISION

The world is in need of guiding ideas, a vision, to more effectively direct our intellectual, moral and scientific capabilities for world peace, global security, human dignity and social justice. It needs evolutionary ideas that can spur our collective progress without the wake of destructive violence that threatens to undermine the huge but fragile political, social, financial and ecological infrastructures on which we depend and strive to build a better world. History has recorded the acts of creative individual thinkers and dynamic leaders who altered the path of human progress and left a lasting mark on society. Recently the role of pioneering individuals is giving place to that of progressive organizations inspired by high values and committed to achievement of practical, but far-reaching goals. This was the intention of the founders of the World Academy of Art & Science when it was established in 1960 as a transnational, transdisciplinary association to explore the major concerns of humanity. No single organization can by itself harness the motive force needed to change the world, but a group of like-minded organizations founded with such powerful intentions can become a magnet and focal point to project creative ideas that possess the inherent dynamism for self-fulfillment.

Copyrighted to & Published *under Open Access policy guidelines by* The Mother's Service Society, 16192, Coastal Highway, Lewes, DE 19958, USA

Visit http://cadmusjournal.org/content/editorial-policy-and-process for Editorial Policy and Process.

Websites: www.cadmusjournal.org *&* www.worldacademy.org **E-mail:** editoral@cadmusjournal.org

Editorial Office: 5, Puduvai Sivam Street, Venkata Nagar, Pondicherry 605011, India

PROMOTING LEADERSHIP IN THOUGHT
THAT LEADS TO ACTION

THE WEALTH OF NATIONS REVISITED

CADMUS

NEW PERSPECTIVES ON MAJOR GLOBAL ISSUES

Special Issue on Human Security: Part 2

Volume 5, Issue 2

August 2023

CADMUS
Special Issue on Human Security: Part 2
Volume 5, Issue 2, August 2023

CONTENTS

Cadmus Special Issue on Human Security: Part 2

Inside this Issue

In support of the HS4A global campaign on Human Security For All initiated by the United Nations Trust Fund for Human Security and the World Academy of Art & Science.

This is the second in a series of Cadmus special issues in connection with the Human Security for All (HS4A) Campaign being conducted by WAAS and the UN Trust Fund for Human Security. As we approach the halfway mark in the UN's Agenda 2030 program, we observe a widening gap between the 17 Sustainable Development Goals adopted by 193 nations in 2015 and global performance on the achievement of these goals by 2030. This gap is a compelling argument for adopting approaches capable of accelerating global progress on the SDGs.

All of the goals have one more thing in common. They all directly relate to and impact the central objective of ensuring Human Security for All. Human Security is the common denominator, cross-roads and intersection connecting all dimensions of our planetary environment with all dimensions of life on this planet. Peace, environmental health, social equity and human security are inseparable. Each of the SDGs is essential for meeting the main dimensions of Human Security adopted by the UN—food security, health security, economic security, political security, environmental security, community security and human rights. Human Security is the cross-cutting theme that links them all together. Human Security is the thread that links the security, health and well-being of humanity with the stability and health of the planet.

Human Security goes beyond traditional notions of national security and competitive security to encompass the well-being and dignity of individuals and communities and their interconnections with the larger whole. It encompasses a broad range of concerns, including economic, social, political, food, health and environmental aspects. This holistic approach acknowledges that security cannot be achieved through military might alone but through addressing the underlying causes of vulnerability and inequality. It emphasizes the inherent worth of each individual, acknowledging their right to live in safety, with access to basic needs, justice, and opportunities for growth.

The thought-provoking articles, insightful analysis, and compelling narratives in this issue are intended to deepen our understanding of the challenges and possibilities inherent in securing the well-being of individuals and communities around the world. They cover topics ranging from poverty alleviation and sustainable development to gender equality,

peacebuilding, and environmental sustainability. They offer unique perspectives and valuable insights into the complex interplay of forces that shape human security.

HS4A is an impassioned call to action—a catalyst for dialogue, inspiration, and innovative solutions to confront the urgent issues of our time. By bringing together diverse voices and interdisciplinary perspectives, we hope to contribute to the ongoing discourse on human security and foster the identification of innovative approaches and catalytic strategies to accelerate global progress at this crucial juncture in human history.

We hope you enjoy this issue.

Editors

CADMUS, Volume 5, No.2, August 2023, 1-14

Education for Human Security Policy Brief

Janani Ramanathan
Secretary General, WAAS;
Senior Research Fellow, The Mother's Service Society

Garry Jacobs
President and CEO, WAAS;
President, The Mother's Service Society

Executive Summary

This brief identifies critical issues and corresponding policies for effectively introducing the UN concept of human security into the curriculum of global mainstream higher education. Human Security is a comprehensive framework developed by the United Nations for achieving the 17 UN Sustainable Development Goals. It links them all together into an integrated framework. In order to achieve the goals of Agenda 2030, a dramatic increase is urgently needed in humanity's commitment and the momentum of nation-states.

Human Security is the natural complement to the top-down, objective approach to quantifying human needs embodied in Agenda 2030. Human Security views reality from the personal perspective of each human being and empowers people to act for their own upliftment at the individual, community and national levels. It converts a global perspective into personal messaging that is context-specific, relevant, accessible and intelligible to everyone on our planet.

Widespread introduction of this transdisciplinary perspective into the course content of disciplines in the sciences, arts, humanities and professions can accomplish as much or more than a doubling of global financial investments in the SDGs. Combined with similar approaches by research institutes, businesses, financial institutions and other sectors of civil society, the human security approach has the potential to generate the broad-based global awareness and groundswell of public support needed to promote the fresh thinking, resourceful research, timely investment, technological innovations and organizational initiatives the world needs.

This policy brief is based on ideas generated during the International Conference on Education for Human Security organized by the World Academy of Art and Science (WAAS) and a wide network of partner organizations on March 7-9, 2023. This article is a summary of the insights generated by over 120 experts and 27 panels covering a broad range of academic and professional disciplines. Please see the **Acknowledgements** *at the end of the article and the WAAS website for access to a complete list of partners, speakers and session videos.*

The conference was conducted in support of a multi-sectoral, global campaign to promote Human Security for All (HS4A) launched by WAAS in collaboration with the UN Trust Fund

for Human Security (UNTFHS). Taken in concert with parallel initiatives in other sectors, it can generate the energy and momentum needed to significantly accelerate progress on Agenda 2030. The Policy Brief ends with an illustrative list of practical measures that can be adopted by higher education institutions around the world in a short period of time with relatively little impact on cost.

1. Shift to a New Paradigm in Education

The conference sought to generate awareness and to initiate active discussion among educators and universities on the central importance of the Human Security Approach as an integral component of higher education. The 27 sessions focused primarily on the following questions:

- What do youth today need to learn in order to understand and act effectively in their own personal lives and as global citizens to address human security needs in these challenging times?
- How far are youth acquiring that knowledge in higher education today?
- What changes are needed in the content, pedagogy and delivery systems to prepare them to thrive personally and contribute collectively?
- What role can each discipline play in transforming higher education to more effectively promote human security for all?
- How effectively can we utilize education as a conscious catalyst and driver to accelerate global social evolution?

The conference presentations confirm that a fundamental change is needed in our concept of security and the strategies, policies and institutional framework by which we seek to achieve human security. Effective education in all fields and at all levels should include the principles of human security which are essential to the survival and sustainable development of every individual and community and to global society as a whole.

The world needs an education that addresses the current reality in which:

- A smartphone provides instantaneous access to more information than any individual has ever committed to memory.
- Youth need the training to create new jobs through self-employment, entrepreneurship and in higher order creative activities that cannot be readily carried out by automation and AI.
- Entrepreneurship requires an education which imparts self-reliance, initiative, problem solving capabilities, networking skills and capacity for independent thinking needed to fashion new solutions.
- The values of cooperation, teamwork and harmony are more essential for work in today's networked society than the competitive individualism still fostered by education.

- An integrated understanding of the complex interactions, dependencies and contextual relations between fields of knowledge and fields of their application has become more important than specialized knowledge in increasingly narrow fields.
- The capacity to ask the right questions is of far greater adaptive value than knowing the right answer to a standardized examination question unadjusted to recent developments and specific context.
- Low-cost, global information delivery systems for education are available, including AI driven custom-individualized self-learning and evaluation systems, hybrid pedagogy combining individual knowledge acquisition with facilitated group discussion, etc.
- In an age of globalization, understanding of both universal values and the diversity of subjective cultural perspectives as represented through the arts and humanities is essential.
- Students need to acquire the rationality needed to distinguish opinions, beliefs, ego-centric perspectives, cultural and social biases, and fake news from evidence-based impartial judgement.
- Knowledge of the psychology of individuality as represented in history, biography and literature becomes as important for accomplishment as that of standardized objective processes and statistics.

Education that takes into account these criteria will be our best hope for a better future. When properly designed and administered, it can become an instrument for conscious social evolution.

2. Bridging the Disciplinary Knowledge Divide

The divide between academic disciplines and between education and social needs is most apparent in fields where disciplinary expertise is unable to address the complex, interdependent challenges confronting humanity today. The challenges posed by complex interdependencies are glaringly apparent in macro level issues such as the global pandemic, war in Ukraine, resurgence of competitive nationalism, re-militarization, governance of AI and climate change.

The natural tendency of the human mind is to divide its understanding of reality into so many separate and independent fields of knowledge and to develop each into a specialized field or disciplinary silo. The complex practical interdependencies between fields have spurred academia to emphasize inter-disciplinary and multidisciplinary studies more closely aligned with the reality of modern life. But an enormous gap persists between the compartmentalized, intellectual formulations of disciplinary theories and the actual interdependencies that exist in the real world. For example, apart from being a medical problem, COVID-19 had a severe impact on employment, economy, domestic and international transport, food distribution, education, tourism, manufacturing, industrial supply chains, inflation, the entertainment industry, and countless other apparently independent fields.

The war in Ukraine is impacting energy prices, global food prices and supplies, the mental health of refugees and direct victims of violence, migration of workers, economic growth rates, employment, government budgets, inflation, etc. The impacts of climate change are only beginning to be felt, but it is already apparent that they will exceed those of all the other major threats combined.

"Technology education imparts specialized knowledge required to develop increasingly sophisticated systems, but ignores the social consequences and policy implications of those systems for individuals, society and the world at large."

What could be more important to the future of humanity than the 17 UN Sustainable Development Goals adopted by 193 nations in 2015 to address the most salient and urgent challenges confronting humanity in the 21st century? All these goals are interlinked and interdependent on one another. None can be fully achieved without progress on many or all of the others. Yet education today continues to address them largely as specialized, independent issues studied and taught separately from one another in different fields of specialization to guide policy, decision-makers and implementation agencies.

Academic handling of these complex interdependencies remains limited and inadequate. Prevailing economic theory is largely divorced from employment, social equity, investment theories and sustainability. Investment theory focuses on maximizing returns without reference to social impact or environmental externalities. Business education focuses on maximization of profit rather than maximization of prosperity and wellbeing in society. Technology education imparts specialized knowledge required to develop increasingly sophisticated systems, but ignores the social consequences and policy implications of those systems for individuals, society and the world at large. Arts education focuses on technique and technology, imagination and creativity, but largely ignores the unique role of the arts in projecting the subjective aspirations and values of humanity and harnessing that power for the benefit of global society. Education for human security seeks to reorient each field of study to make primary the capacities and wellbeing of individuals, the welfare of societies and the sustainability of the planet.

The top-down, macro-level global perspective presented by the UN's Agenda 2030 has been a useful guide for researchers and decision-makers on specific policy issues, but it fails to sufficiently stress the complex interdependencies that necessitate a comprehensive, integrated approach. The abstract, quantitative, global approach incorporated in computer modeling makes it appear unintelligible or irrelevant to billions of the earth's citizens. But it has been far less successful in generating awareness and promoting action by organizations and individuals at the local level. It appeals to specialists and leaves the public unmoved. Indeed the majority are unlikely to understand the personal relevance and importance of

more than one or two of the goals. The abstract, macro-level context studied in higher education most often fails to engage the hearts and emotions of the population to spur them to action, even when it is effectively communicated to the mind.

"What human security is to the individual, the SDGs are to our collective."

Today we confront a paradox. At a time of unprecedented economic, technological and scientific development, humanity feels less secure and confident of its future and is experiencing equally unprecedented levels of uncertainty, anxiety and insecurity. Human Security provides a personalized, contextual approach that addresses both the objective causes and the subjective fears of every human being for food, health, economic welfare, human rights, community and individual security.

What could be more relevant to today's youth than the study of the myriad ways to address the full spectrum of human security needs at the individual, community, national and global level? Today every citizen should understand the causes, threats and remedies for addressing global warming. Similarly, undergraduate education should incorporate knowledge from other disciplines essential for understanding and meeting the full range of human security threats.

3. Human Security as a Transdisciplinary Bridge

The challenges the world faces today are interrelated and interdependent, global in nature, and defy solution by piecemeal approaches and sectoral strategies. A transdisciplinary approach to teaching and learning can help transcend narrow disciplinary boundaries in thinking, policies and action. Today more than 1000 disciplines and subdisciplines are offered in universities. Instead of breaking down academic subjects into narrow specializations and teaching silo-based academic knowledge, students need to be exposed to the interdependencies between fields of research and work.

Human Security views each specialized issue within its broader relationship with other major social issues, the economic and political context, and public policy environment. Human Security is a comprehensive umbrella that places the needs and perceptions of individuals and groups at the center and views the full range of perceived threats from the perspective of their impact on people rather than as abstract theoretical constructs and measures.

Disciplines are separated from one another in order to facilitate education of instructors and researchers focused on specific areas, but the real world does not respect or fit into disciplinary boundaries any more than COVID-19 respected national borders or class boundaries.

Every discipline can contribute essential, relevant knowledge to face the challenges of the 21st century, and uncork a future that promises sustainable development and human security for all. Every academic subject can be reoriented to contribute more meaningfully to addressing the unprecedented challenges that humanity faces today. In order to make this happen, human security and sustainable development can be taken as a broad approach that integrates all the various disciplines of education, thereby integrating knowledge with life.

What human security is to the individual, the SDGs are to our collective. Today, we have the knowledge, finance, resources and the aspiration to facilitate human security for all and fulfill the SDGs. Relevant, quality education that takes the human security approach with reference to every subject, its content and pedagogy, is key to making this happen. A fundamental change is needed in our concept of security and the strategies, policies and institutional framework by which we seek to achieve it.

"Effective education cannot ignore the relationship between content and context."

4. Teaching Subjects through One Another

Every subject can be taught in the context of all others; all subjects can be taught in the context of one. Every subject can be taught within a context and the interlinkages between the various subjects can be shown. Topics such as economics, political and social stability, education, human security, human rights, sustainability, public health, crime, corruption, climate science, and such issues that touch every part of human life are best taught through transdisciplinary learning. An education that possesses the depth and insight needed to plumb the rich complexity of life and the world can provide students with inter-sectorial, integrated perspectives essential to meet the challenges of the future.

Theoretical knowledge is framed within defined conceptual systems. But policymaking that applies theoretical knowledge to life always crosses disciplinary boundaries and requires knowledge of interconnected fields. Climate change is not just an issue for meteorologists and environmentalists. Every discipline can contribute to addressing it. Faculty at the California State University at Chico have been urging that climate change issues be taught to students of every discipline since every student both contributes to and is affected by environmental changes. The natural sciences, economic, political, social and engineering sciences, law, medicine, architecture, journalism, literature, cinema and the fine arts can all play a central role in educating the public about each of the human security threats and their solutions.

Effective education cannot ignore the relationship between content and context. It needs to acquire the capacity to anticipate the unexpected consequences arising from the application of abstract knowledge in different social contexts. Instead of knowledge that is mechanistic, reductionistic, and divorced from wider social context, human needs and values, youth need to acquire an understanding of the physical, social, cultural, political, economic and personal contexts in which knowledge is applied. Rapid advances in antibiotics and vaccines were a major cause of the population explosion that began in the 1950s, yet no one at the time realized that food production must be dramatically expanded to feed the rapidly expanding population. And when the Green Revolution was launched in the 1960s to feed the multitude of youth, no one anticipated the environmental impact it would have on soil fertility, water resources and forest cover. Along with teaching the subject, there must be a constant emphasis on establishing contextual relationships—between one subject and the other subjects, between data and the circumstances in which the data was generated, between the lesson and the learners, and between knowledge and life itself.

5. Specific Recommendations

5.1. Business Education

The promotion of ESG measures by the UN is a welcome development, but the theoretical foundations on which they are based are often overlooked. Companies are social institutions. Every social institution has a fundamental role to play in the flourishing of society. Business is no exception. Human security and social welfare are business opportunities. The juxtaposition of social service and business profit is an aberration of neoliberalism. They are not contradictory goals. They are complementary and essential to support one another. History confirms that businesses flourish by serving essential social needs in a manner that is efficient and sustainable. Profit is a derivative and necessary condition for private enterprise to thrive, but it is not its essential purpose.

Business education should emphasize the symbiotic relationship between private profit and social welfare. It should be founded on values that are aligned with the well-being of all stakeholders—employees, customers, the community, the nation and the environment —not just shareholders. Business education needs to emphasize the strategic importance of attuning corporate strategy to changing social needs and emerging social opportunities. A company is a child of society. A company that is aligned with the evolution of society and fosters the human security of its citizens positions itself for growth, profitability and sustainable development.

5.2. Economics and Finance Education

What is true of business education is true of all fields of education in economy and finance. Every sector of society plays an indispensable role and thrives in the measure that it is aligned and in harmony with the others. Partial knowledge is dangerous. No activity can fully serve its basic social purpose unless education includes a study of its relationship with the wider society of which it is a part and its impact on the human security of its members, locally, nationally and globally.

Economy is founded on the social and political stability of society and thrives through activities that reinforce human rights, social justice, human security and the prosperity of all its citizens. Economic education that views economy in isolation from or in competition with these other social pillars leads to aberrations that undermine the strength and stability of the whole of which it is a part. Today's education largely ignores the underlying political and social forces that determine how social power is generated, exercised and distributed. The wider and more equitable the distribution of social power, the more stable, vibrant and sustainable the society.

Economics education should strive for holistic perspectives that harmonize the security of the individual, the stability of society and the sustainability of the environment in which they evolve. It should reconcile the objective dimensions of productivity, efficiency and innovation with the subjective dimensions of political stability, social harmony, psychological security and individual creativity. Business education should foster economic systems and social

organization that place a high priority on the eradication of social problems and creation of social opportunities.

> *"We could close 20% of the SDGs gap just by achieving internet connectivity and the flow of information that goes through that, and almost another 20% if technology transfer happens across countries."*

5.3. Technology Education

The global debate regarding the opportunities and threats posed by rapid advances in AI, nanotechnology, biotechnology and other sciences highlights the fact that technology and society cannot be regarded as separate fields of knowledge. But in practice up until now education in AI and other computer sciences has focused almost exclusively on the technical aspect of the field and given little attention to its economic, political, social and psychological implications. The disruptive impact on political and social stability of fake news disseminated through social media dramatically demonstrates this obvious truth. During the past six months the explosive debate regarding AI has generated confusion and anxiety around the world. As long as the knowledge disseminated through education is partial, it is bound to generate unanticipated side effects and consequences that technology producers, users and policymakers are unprepared and ill-equipped to handle. Technical education must include knowledge of the social and human security context, not merely of technology for its own sake.

This simple and very obvious message resonated deeply with the 120,000 business and technology leaders who attended the 2023 Consumer Electronics Show in Las Vegas, US. For the first time in its 100-year history, the show adopted a theme – Human Security for All. It highlighted the obvious fact that social needs are business opportunities and called on its corporate members to shift their attention from corporate profit to meeting social challenges and opportunities.

5.4. Basic Sciences

When leading scientists such as Oppenheimer and Einstein realized the tremendous social and political consequences of their inventions, they founded institutions such as Pugwash and WAAS to insist on the social responsibility of science. Global scientific cooperation is an important source of new knowledge and a contributor to world peace. The European Organization for Nuclear Research (CERN) in Geneva is one example of the cooperation of scientists from different countries leading to great progress in science as well as improved understanding across different cultures.

2022 was proclaimed the International Year of Basic Sciences for Sustainable Development (IYBSSD 2022) by the 76th session of the United Nations General Assembly.

IYBSSD 2022 recognizes that the applications of basic sciences are vital for increasing societal well-being through improved collaboration toward the SDGs. Such an orientation of research on sustainability is a welcome initiative in which WAAS participated, and is now expanding to include the full spectrum of human security needs. Basic science education to meet real-world needs should start collaborating with other sciences and humanities disciplines to identify and fully understand the unmet social needs and challenges that will emerge in the coming decades.

Today fundamental research in fields such as nanotechnology, AI, and bioscience is spilling over with increasing speed and impact on the societies in which they are created. Yet the social implications of scientific breakthroughs were not apparent until long afterwards. Fundamental research not only must assume responsibility for the unexpected consequences of its discoveries, it should also consciously orient its efforts to address pressing social problems that require resolution, such as the need for advances in hydrogen-based electricity as a possible answer to the dependence on fossil fuels.

5.5. Values-based Education

Knowledge, values and social responsibility go hand in hand. The secularization of education began during the Enlightenment when objective rational science sought to free itself from the limitations imposed by religion. Since then, education has gone from one extreme to another—from insisting on the veracity of religious dogma devoid of scientific evidence to affirming the sole legitimacy of objective observation and data while rejecting the wisdom embodied in subjective values and human emotions. Discarding insights from the arts and humanities in favor of objective data is as great a folly as its opposite. Until we restore the balance between objective observation and subjective perception, our knowledge will be one-sided, incomplete and grossly inadequate to promote human security for all.

Values represent the quintessence of human wisdom for lasting accomplishment in life derived from countless centuries of experience. Values education needs to permeate every academic discipline and every field of social activity. Students of business, science and engineering must learn about the impact of their discipline on individuals, organizations, the economy, the society, the world and the environment. There can be no sustained success in the absence of strong positive values. Education must build a sense of community in every learner. It must bring society much closer to the learning experience of students, and give them the means to maximize their well-being individually and collectively. Symbiosis literacy and ecoliteracy that help youngsters see humanity as a single living whole and learning activities that relate every student to the society around them must become part of education.

5.6. Social Responsibility of Knowledge

Academic knowledge cannot be separated from social responsibility for how that knowledge is used. This should be a basic premise instilled in every student, so we create academics, scientists and professionals who have a strong sense of responsibility for the common good of all humanity, and who become part of a scientific society that is ethically sound. Education will thus become an instrument for ensuring universal human rights, promoting peace and democracy, enhancing development and protecting the environment.

5.7. Arts & Humanities

The Arts and Humanities contain profound and subtle knowledge of life because they penetrate the subjective psychological and social consciousness of individuals and society. Science studies objective external facts within specialized academic disciplines. Reconciling art and science can help transcend the limitations of a purely material life science and discover the science of life.

The following are some of the fields suited for this reconciliation:

- Anthropology is a profound exploration of the evolution of civilizations and is about understanding the perspectives on which our views of reality are founded. It allows us to move away from looking through our own lens, to recognize the existence of the lens itself, and to discover our own tacit and unstated assumptions so as to apprehend the tacit and unstated assumptions of others. It equips us with skills that allow us to negotiate uncertainty.
- Literature offers unique insight into the process of personal growth, inter-generational change, technological and economic advancement, social development and evolution that govern the advancement of society, civilization and culture. A study of world literature can be a powerful complement to objective analysis of external institutions and events, providing youth with a historical perspective that enables them to perceive the lines of social evolution and prepare for the future.
- Films have the power to inform, educate, and to change society. Films, gaming and social media engage children, and can make education more relevant to life. They are some of the most influential mediums, but they have been relegated to entertainment. Visual storytelling can be a powerful teaching tool. Instead of advising youngsters to stay away from social media, if academia looks at social media simply as a tool, and integrates it with education, it will be able to use social media, Virtual Reality and other innovations to engage youngsters better and make learning effective.

5.8. Potential of Technology Stack

There are over 240 million children out of school in the world, and 60% of college-age youth are not enrolled in tertiary education. The monetary cost of not educating them is enormous. According to the World Bank, limited educational opportunities for girls to complete 12 years of education cost countries between $15 trillion and $30 trillion in lost lifetime productivity and earnings. The non-monetary cost of excluding girls from education is incalculable. Leaving anyone behind is no longer a viable path to social progress for humanity. At the same time, accommodating these children in existing educational institutions, or building the necessary new classrooms, schools and universities presents a daunting challenge. Technology is an immensely powerful tool that can bridge this gap. The spread of low-cost smartphones combined with AI learning software now makes it possible to deliver affordable, accessible, quality education to anyone anywhere in the world in any language using ICT.

Technology provides an enormous opportunity to ensure human security for all. All the educational, economic and social opportunities available to a small, elite group today can be made available to all—even the world's poorest and most remote groups with no access to the internet. This is possible through a stack of technologies that can transform learning and meet the SDGs:

- A fully functioning internet connection and last mile connectivity open up possibilities for a child to connect to knowledge across the whole world and to get that served in every form of media.
- A closed-end Hub connects the most remote places.
- The application of video-based learning materials and other edtech solutions developed in the private sector can make education far more engaging and effective.
- Virtual Reality and related technologies can provide immersive education, including technical and vocational training, to anyone anywhere in the world.
- The potential for the development and application of Artificial Intelligence and generative learning technologies is unlimited.

We could close 20% of the SDGs gap just by achieving internet connectivity and the flow of information that goes through that, and almost another 20% if technology transfer happens across countries.[1]

5.9. Liberate Certification from Knowledge Delivery

Education directly and powerfully impacts all dimensions of human security, e.g. food and nutrition, health, economy and employment, exercise of human rights, community and individual development, and the capacity to harness technological advances for a better life and world. The commitment of nation states to universal education is one of the greatest contributions to human rights, human security and social welfare.

But achievement of that commitment to universal, affordable access to quality education lags far behind the goals. The time is past when universal education needed to depend solely on a mass system of education. Universal access to Open Educational Resources and knowledge from non-traditional sources are deinstitutionalizing learning. Knowledge generation and dissemination need no longer be confined to the formal system of higher education. Effective, lower-cost, innovative delivery systems already exist.

The primary obstacle to rapid adoption of alternative systems is the near monopoly of traditional forms of higher education on certification and credentialing systems. The separation of knowledge delivery from certification will enable students to acquire knowledge customized to their own interests and aspirations from a wide range of sources—formal and informal, self-taught and instructed, public and private, professional instructors and retired experts of all ages, local or global—and obtain certification of the knowledge they acquire from independent institutions authorized for the purpose. This will foster rapid innovation in pedagogy, learning systems, and delivery systems and unleash a torrent of creative

educational entrepreneurship. It will also greatly stimulate life-long learning processes which are so essential for the workforce in this age of very rapid technological innovation.

> *"The world needs a transdisciplinary education that possesses the insight needed to plumb the rich complexity of life, and provides students with inter-sectorial, integrated perspectives essential to face the future."*

A global accrediting and evaluating organization, similar to that which certifies quality standards in business can be established to develop, license and monitor standards for assessment and certification, including micro-credentials, career certificates, and nanodegree programs.

5.10. Rational, Independent and Creative Thinking

The human mind is the chief instrument for all forms of higher education. Yet conventional education teaches very little about the fundamental nature of human mentation, the factors that influence it, and the blind spots, biases, inherent errors and weaknesses that impair and misguide it. Mind is humanity's most developed instrument for seeking knowledge. So it is essential that students starting at an early stage are taught to use it well. All higher education must include a course on the nature and limitations of mental ways of knowing and the means available for consciously developing our mental faculties to overcome their limitations and function more effectively. The historical record produced by great thinkers shows the central role played by intuitive thought processes in great scientific discoveries and creative work. Yet ironically, science which has benefitted so much from intuitive modes of thinking gives little or no attention to the study of ways to acquire and develop them. The World Academy of Art and Science has created such a course on Mind, Thinking and Creativity, with the aim of broadening the range and enhancing the quality of our thinking, thereby using the human mind more effectively and creatively to see greater possibilities and actualize them.

6. Conclusions

Education is the most powerful institution so far invented to support rapid conscious social evolution. It abridges the time required for individual and social progress by preserving, multiplying and transmitting the cumulative experience of humanity over millennia. It passes on to youth the essence of the accumulated knowledge of countless past generations in an organized, abridged form so that future generations can begin with all the capacities acquired by those before them. It has helped us understand nature, conquer space and time, extend human longevity and improve human lives immeasurably.

However, as it is widely practised around the world today, our system of education still largely functions according to a model of pedagogy that is centuries old. It largely relies on a delivery system that predates the telegraph, telephone, radio, television, computer, internet,

smart phone and generative AI. It emphasizes memorization of facts today when a handheld electronic device such as a smartphone provides instantaneous access to any information. It fosters obedience to authority at a time when the world needs individuals with initiative, problem solving capabilities and capacity for independent thinking. It emphasizes getting the right answers to questions when developing the capacity to ask the necessary questions is of greater value. It prepares youth for salaried jobs in positions threatened by the introduction of increasingly sophisticated technologies, rather than imparting the capacity to create new jobs through entrepreneurship in higher order activities that cannot be readily carried out by automation and AI. It fosters a competitive mode of learning in today's highly networked society where the capacity for cooperation and teamwork are the principal values required at work. It fosters specialized, compartmentalized knowledge within narrow disciplinary fields when human activities in all fields involve complex interactions and dependencies between virtually all dimensions and fields of activity.

The world today presents seemingly unsolvable challenges. Food shortages, pandemics, job insecurity, homelessness, persistent poverty, deprivation of freedom and human rights, rising levels of inequality, social unrest, war and, most serious of all, climate change pose threats around the world. Ironically, at the very time when technology and economic power are reaching unprecedented heights, the prevailing sense of insecurity among people around the world seems only to increase.

At the same time, these challenges are intricately intertwined with unprecedented opportunities. The remarkable technological advances in industry that fueled a 12-fold growth in real per capita income in the 19th and 20th centuries have led to severe depletion of water and other scarce resources, pollution of the soil, water, and air, and countless other unanticipated untoward consequences. So today, the latest technological advances in AI which multiply human capacities also threaten to displace hundreds of millions of workers and create social disparities, generating public discontent, political instability and conflict. While globalization opens up vast economic opportunities, it also increases the vulnerability and dependence of less developed regions.

These challenges and opportunities are all interrelated, interdependent, global in nature, transcend disciplinary boundaries. They defy solution by piecemeal approaches and sectoral strategies framed within the context of the prevailing values, concepts and institutions that presently dominate both the knowledge purveyed through education and the policies applied by governments. The true source of these crises lies in the ideas and values on which modern society is based, and they can only be permanently solved by radical changes in education that enable us to understand and address the crises from a deeper and wider perspective.

Education is one of our greatest hopes for the future. It can be a powerful instrument for conscious social evolution. Encumbered by outdated ideas, outmoded practices and self-preservative interests that resist change, it can be an obstacle to social progress. We cannot solve the unprecedented and multidimensional global challenges that we face today without fundamental changes in content, pedagogy and delivery systems around the world. To remain relevant as a guide and catalyst, education has to learn to respond, adapt and evolve far more

rapidly than it has so far to keep pace with the accelerated pace of social change and the ever more rapid technological and scientific progress.

The world needs a transdisciplinary education that possesses the insight needed to plumb the rich complexity of life, and provides students with inter-sectorial, integrated perspectives essential to face the future. Such a new paradigm in education is capable of more fully and effectively developing the latent capacities of our youth, and can radically abridge the time required for humanity to address critical issues related to economy, governance, ecology and lifestyle. It can foster in youth the capabilities of openness, adaptability, independent thinking, creativity, innovation, leadership and individuality so desperately needed to enlighten our economic, political, intellectual and cultural behavior. Education can thus become an instrument for promoting human security for all.

Acknowledgements

The organizations that collaborated with WAAS in designing the various sessions of the Conference were: Black Sea Universities Network, UNESCO BRIDGES, Force for Good, LSE IDEAS, National University of Political Studies and Public Administration, SDSN Europe, The International Anti-Corruption Academy, The Jena Declaration, The Julie Ann Wrigley Global Futures Laboratory at Arizona State University, and World University Consortium.

The keynote speakers in the Inaugural plenary session were: Federico Mayor, Director General, UNESCO (1987-1999); Garry Jacobs, President & CEO, WAAS; Irina Bokova, Director General, UNESCO (2009-2017); Kehkashan Basu, Founder-President, Green Hope Foundation; Ketan Patel, Chair, Force for Good; Olivia Bina, Principal Researcher and Deputy Director, University of Lisbon.

The history of the WAAS Future Education Conference Series, the conference agenda, list of partner organizations, the complete list of speakers, and the recordings of all the sessions can be found on the WAAS website.

Authors' Contact Information
Janani Ramanathan – *Email: harish.janani@gmail.com*
Garry Jacobs – *Email: garryjacobs@gmail.com*

Notes

1. *Technology for a Secure, Sustainable and Superior Future: Technology as a Force for Good* (London: Force for Good, 2023) https://www.forcegood.org/report-2023

CADMUS, Volume 5, No.2, August 2023, 15-19

Education and Human Security

Irina Bokova
Director General, UNESCO (2009-2017);
Fellow, World Academy of Art & Science

Abstract

The importance of human security has always been a concern for the World Academy of Art and Science (WAAS), which has served as a platform for intellectual debate and the exchange of global ideas. WAAS has influenced the understanding of development beyond economic growth, advocating for a focus on people's opportunities and choices. It played a significant role in supporting the UN Agenda for Sustainable Development 2030, which deepens the understanding of human development and security. The current crises, such as COVID-19, the war in Ukraine, and climate change, highlight the need for comprehensive approaches to enhance security, human rights, and sustainable development worldwide. Education is crucial to achieving these goals by promoting learning, innovation, diversity, and critical thinking. Sustainable development requires a renewed commitment to education as a public endeavor that cuts across all Sustainable Development Goals (SDGs). Global Citizenship Education is essential for promoting sustainable development and fostering values such as human rights, peace, and cultural diversity. Universities play a critical role in creating learning environments that foster the skills necessary to achieve the SDGs and address global challenges through teaching and research. Their function extends beyond preparing individuals for the workforce to shaping values and global citizenship. Ultimately, education plays a transformative role in achieving human security.

Concern with the issue of human security has indeed run throughout the history of the World Academy of Art and Science. For more than 60 years, the Academy has served as a global platform for intellectual debate, fostering partnerships, encouraging the creation of knowledge, and launching new global ideas—from the warning of the imminent danger of catastrophic nuclear war to the existential threat of climate change and environmental degradation, and today, the Human Security for All campaign.

In the last few decades, WAAS has immensely influenced the shift in understanding development beyond economic growth, expanding the richness of human life rather than simply the richness of the economy. Thus, WAAS' advocacy for focusing on people, their opportunities, and their choices as a measurement of humanity's progress was one of those critical and timely ideas, embraced by the United Nations, that resulted in the launch of the Human Development Reports in the 1990s and then the Human Development Index.

WAAS was strongly engaged in supporting the elaboration and adoption of the UN Agenda for Sustainable Development 2030, which was a major step forward in the deeper

and more comprehensive understanding of human development and human security and represents a true blueprint for the future of humanity and the planet.

> *"What we need to emphasise again concerning the Human Security for All campaign is the strengthening of the understanding of education as a public endeavour and a common good that cuts across all the SDGs. As a shared societal endeavour, education builds common purposes and enables individuals and communities to flourish together."*

The current crises of unprecedented intensity—the COVID-19, the war in Ukraine, and climate change—brought about the imperative to mobilise decision-makers, institutions, and the general public around the world to promote a comprehensive, integrated, person-centred approach to enhance the security, human rights, and sustainable development of people everywhere and to address all the critical issues confronting the world today, including peace, human rights, inequality, health, food, education, jobs, safe communities and personal safety, energy, pollution, biodiversity, and, of course, climate change.

The devastating result is shrinking economies and job opportunities, rising inequalities, a surge in poverty, and emerging food insecurity, with a dangerous impact on efforts to fight climate change and ensure a sustainable path for development. Decades of efforts to reach and implement important international agreements are under threat of being lost, including the Agenda for Sustainable Development 2030 and the Paris Climate Agreement. The UN Secretary General Antonio Guterres launched an alarming alert: the world may be going back almost 25 years in its development, and many achievements will be pushed back. These developments showed once again how interdependent the world is today and how much humanity needs multilateral platforms to look for common solutions.

These crises and their consequences are a wake-up call for putting human security and well-being at the forefront of public policies. One sure path is investing in people and in economies and societies that are clean, green, healthy, safe, and more resilient.

And it starts with education. Education is the foundation of human development, and I would add that human security is vital for our health, jobs, gender equality, the protection of the environment, risk reduction, fighting climate change, and living together with respect for diversity. In other words, education is where our future lies. But not just any education. Education which means learning, which is transformative and equitable, which embraces innovation and diversity, and which encourages creativity and the possibility to make choices. Education that supports students and other learners in different areas to develop the necessary knowledge, skills, and mindsets to contribute to solving the complex sustainable development challenges our world faces.

I would not pretend to exhaust all the challenges today regarding the future of education and its place in the Human Security for All campaign. Let me just mention **three** important points.

"Education is not just a technical way of transferring knowledge; it should also be understood as one of the best ways of acquiring values such as human rights, mutual respect, respect for nature and humanity, and the ability to live together."

If we want to promote a comprehensive, integrated, person-centred approach to enhance the security, human rights, and sustainable development of people everywhere and to address all the critical issues confronting the world today, we need to reconfirm our commitment to sustainable development and the Agenda 2030 with education at its heart from the point of view of human security.

The importance of Goal 4 of the Sustainable Development Agenda, "**Promoting inclusive and equitable quality education and lifelong learning for all,"** comes with all of its critical importance for the future.

The Transforming Education Summit, convened by the UN Secretary General in September 2022, as well as the Report on the Futures of Education, launched earlier by the International Commission under the President of Ethiopia, Sahle-Work Zewde, made an important assessment. They concluded that the way we organise education across the world does not ensure just and peaceful societies, a healthy planet, or shared progress that benefits all. They further called for a new way of thinking about learning and the relationship between students, teachers, knowledge, and the world.

Both the UN Summit and the Report reaffirmed the criticality of Goal 4 of the UN SDG Agenda: ensuring the right to quality education throughout life. This is the essence of the social contract for education. Let me quote an important message from the Report on the Right to Education: "Long interpreted as the right for children and youth, it goes further in affirming that it must also encompass the right to information, culture, and science, as well as the right to access and contribute to the knowledge commons, the collective knowledge resources of humanity that have been accumulated over generations and are continuously transforming."

Education lies at the heart of the UN Agenda 2030 and it plays an important, multifaceted role in efforts to implement the global Sustainable Development Goals. These goals strive to eradicate poverty while addressing social needs such as education, health, gender equality, social protection, job opportunities, climate change, and environmental protection.

What we need to emphasise again concerning the Human Security for All campaign is the strengthening of the understanding of education as a public endeavour and a common good that cuts across all the SDGs. As a shared societal endeavour, education builds common purposes and enables individuals and communities to flourish together. As Nelson Mandela famously said, "Education is the most powerful weapon to change the world." And we do need to change the world and make societies inclusive, peaceful, and respectful towards each other, providing security for all.

This leads me to my second point on Global Citizenship education, which is one of the targets of UN SDG Agenda Goal 4:

> *"By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development."*

Global Citizenship Education, as a new concept that emerged during the debates about education for the 21st Century and the need for a more peaceful and sustainable future for all, is the ethical response to the quest for a peaceful and sustainable future for all, as well as the challenges of an interconnected and interdependent world. We must move beyond literacy and numeracy to focus on learning environments and new forms of learning. Education is not just a technical way of transferring knowledge; it should also be understood as one of the best ways of acquiring values such as human rights, mutual respect, respect for nature and humanity, and the ability to live together.

And my third point is about the role of universities.

Agenda 2030 recognised for the first time that higher education is part of a lifelong learning system. It also recognised, for the first time, that higher education plays an important, multifaceted role in the new global development agenda.

Let me come back to the "Report on the Future of Education", which affirmed that "Universities have a responsibility to lead the debate about the need for a new social contract for education that must not only ensure public funding for education but also include a society-wide commitment to include everyone in public discussions about education. This emphasis on participation is what strengthens education as a common good—a form of shared well-being that is chosen and achieved together."

Universities indeed should create learning environments to foster skills for achieving all 17 of the SDGs and responding to the current global challenges through their teaching, research, and pedagogy. Thus, they should educate and create global citizens in a world that is changing and transforming with unprecedented speed. Universities should teach young people critical thinking and curiosity while embracing change.

In some ways, embracing the need for sustainable development in our times creates an important new intellectual discipline and organising principle for universities. Intersectoriality and interdisciplinarity are now the norm, not the exception.

Universities are not now, nor have they ever been, solely focused on preparing young people for the workforce. It is also about values and citizenship, about preparing young people to live in a globalised world, and about intercultural competence.

The role of universities in this endeavour is critical, as their main function at the end of the day is to make a significant contribution to society by fostering knowledge, broad capabilities, and skills in our young people so that they have access to and participate in the creation of the global knowledge commons.

It is inconceivable today to speak about human security without considering the deeply transformative role of education and knowledge.

Author's Contact Information
Email: ir.bokova@gmail.com

CADMUS, Volume 5, No.2, August 2023, 20-26

Paradigm Change to Human Security*

Garry Jacobs
President & CEO, World Academy of Art and Science; Chairman of the Board & CEO, World University Consortium; President, The Mother's Service Society, India

Janani Ramanathan
Secretary General, World Academy of Art and Science; Director, World University Consortium; Senior Research Fellow, The Mother's Service Society, India

Abstract

The global challenges confronting humanity are interlinked and interdependent. They are all global in nature, and none of them can be addressed successfully by individual nations acting on their own. In order to effectively navigate the closely interconnected world that we live in and address its challenges, we need new levels of organization and strategy, and the development of strong and more effective multilateral institutions than we have at present. One of the essential requirements is for widespread adoption of a comprehensive, integrated concept of human security to replace fragmented understanding and piecemeal solutions. We need to transcend the limitations of a rear-view mirror mentality to identify the very real possibilities for a better world and act decisively with determination and faith in our collective capacity to realize them. The pressure generated by the multidimensional crises we face can be utilized to break free of encrusted ideas and overcome the resistance of vested interests and rigid structures. Now is the time to initiate steps for such a transformation without waiting for further crises to compel us. The launching of a global campaign on Human Security for All (HS4A) by UNTFHS and WAAS exemplifies the effort to generate support for human security as a unifying approach that can be embraced and applied by people and organizations at all levels and in all fields of global society.

> *"The Academy was founded on the concern that the security and the very future of humanity depend not only on the developments of science but also on the values and sense of social responsibility with which scientists act."*

1. Social Responsibility of Science

The roots of the World Academy of Art and Science (WAAS) can be traced to a letter that Albert Einstein wrote to the US President Franklin Roosevelt in 1939, expressing concern

* This article is based on the presentation by Garry Jacobs at the *Security, Science and Peace Conference* 2022 organized by WAAS and Pugwash Croatia, on 23-24 Nov 2022.

over research on atomic weapons. This was followed a few years later by the establishment of the Manhattan Project by the US Government to develop an atomic weapon under the direction of Robert Oppenheimer, who later became a Fellow of the Academy. The nuclear arms race commenced soon after Russia tested its first atomic bomb in 1949 and the first hydrogen bomb in 1953. In 1954 Bertrand Russell, Einstein and nine other eminent scientists issued the Russell-Einstein Manifesto warning the world of the extreme dangers posed by nuclear weapons to the future of humanity.

The beginning of the nuclear age marked the point in time when it became clear that the future of civilization would rest on how humanity managed the apparently infinite power of science. The idea of science as a detached observer of reality seated in an aloof ivory tower and not responsible for the consequences of scientific inventions was no longer acceptable. This change in perception led to the First International Conference on Science and Human Welfare in Washington D.C. in 1956, the founding of Pugwash the following year, and the establishment of WAAS in 1960.

The Academy was founded on the concern that the security and the very future of humanity depend not only on the developments of science but also on the values and sense of social responsibility with which scientists act. The destiny of humanity rests on how we employ our knowledge and the power that it gives us. Since 1960, WAAS has expanded its field of work to include peace, population, food security, economics, employment, finance, environment, technology, culture, religion, and other issues.

2. Characteristics of Global Challenges

In the sixty years that WAAS has spent studying solutions to the global challenges confronting humanity, it has identified several characteristics common to them all. All the challenges are interlinked and interdependent. We can no longer consider them in isolation from one another and deal with them piecemeal. They are all global in nature. None of them can be addressed successfully by individual nations acting on their own. In addition, both their causes and effects are interlinked and interdependent on one another, so none can be fully addressed without addressing the others. The 2008 financial crisis, for instance, severely impacted jobs, incomes, food, growth rates, social security, and the political stability of nations around the world. The issue of climate change has multiple causes and holds the future destiny of all humanity in its hands. The causes of the war in Ukraine are multiple and its impact is not limited to the warzone. It has already resulted in severe food crisis, massive migration, magnified healthcare challenges in the wake of the pandemic, including its psychological impact on both combatants and other citizens. It has also precipitated a global energy shortfall and soaring energy prices, inflation and rising unemployment, and has siphoned off for militarization of scarce financial resources urgently needed to address the other challenges.

In order to effectively navigate the closely interconnected world in which we live, we need new levels of organization and strategy, and the development of strong and more effective multilateral institutions. One of the other essential conditions that WAAS has identified is the need for a new concept of security.

3. Mind as a Rear View Mirror

The prospects for rapid progress in addressing global challenges have dimmed dramatically since the outbreak of COVID-19 in 2020, the war in Ukraine over a year later and growing apprehension regarding our inability to address the causes of climate change.

In 1989, no one foresaw what would unfold in the two years that followed. The succession of events that took place at the end of the Cold War was astounding and unthinkable until they actually took place. The sudden fall of the Berlin Wall, the reunification of Germany, the end of confrontation between Eastern and Western military blocs, the democratization and economic reform in former Soviet satellite states, the dissolution of the Soviet Union itself, the nuclear weapons reduction treaties, and a one-third reduction in global military spending within five years were unforeseen and unimaginable. Indeed, in July 1989, German Chancellor Kohl and Soviet President Gorbachev met in private and agreed that German reunification was inevitable, but that it would probably take another 30 to 50 years to become a reality. Within 12 months, Germany was reunited.

History is replete with erroneous predictions and unforeseen events. The human mind is often unable to distinguish between what is difficult for it to imagine and what is actually impossible. We see the threat of climate change, the war in Ukraine, and the pandemic impacting the whole world. They appear to us as intractable problems that defy solutions. We are unable to look beyond the present to discern practically implementable remedies. So too, the victors of World War II could not imagine colonial empires would soon dissolve. But within 25 years, instead of the 55 signatories to the UN Charter, UN membership expanded to 120 independent nations.

In these and many other situations in the past, the unimaginable has become reality. Looking back, what happened appears obvious, logical, inevitable. Our minds tend to be more like rear view mirrors. We are able to make sense of things when we look back in history and trace the logical chain of events. But when we try to look forward, we are inhibited by what seems to be a lack of imagination.

Be it our inability or our refusal to imagine a different future, maintaining the existing systems and the status quo will only multiply the problems and threats confronting humanity. The problem lies in the fact that collectively we are not changing fast enough to keep up with the evolution of scientific development and societal evolution. We need to adapt and respond much faster than before.

For the first time in history, in 1948 the world community agreed on a universal set of values as enshrined in the Universal Declaration of Human Rights, yet the signatories were unwilling to give legal status to this statement of ideals. In 2015, 193 nations agreed to embody the principles set for the UDHR as a concrete set of 17 Sustainable Development Goals and 169 specific targets which all these nations committed to pursue collectively. Never before have so many nations of the world unanimously committed to a plan of such magnitude.

But for all our progress, the current pace is not sufficient. Progress on achieving the SDGs lags far behind schedule. Humanity is not moving fast enough to tackle the severe existential

challenges we face. Political systems and powerful elites resist change and cling to outmoded principles. The nation states that founded the multilateral institutions of global governance refuse to let go of the power they possess. Educational institutions are slow to adapt to change in a fast-changing world. The business community thrives in a global economy that remains largely an unregulated Wild West, rather than a global system designed to maximize the wellbeing of all its members.

"Human security is an inclusive concept or umbrella encompassing all 17 SDGs, viewing them all together in their relationship and impact on the lives of individual human beings around the world. Human security approach looks at security as an integrated whole."

---

4. Evolutionary Change

The existential crises we face today cannot be addressed effectively through incremental changes in our existing policies, institutions and ways of functioning. We need evolutionary solutions that affect quantum changes in our institutional base. We need to look beyond our limited imagination to what the world essentially needs. That requires an understanding of the limitations of our institutions, systems, policies and even our way of thinking.

We need a shift in the balance of power. In addition to nation states, governments and political leaders, our global institutions must be given the authority required to represent humanity as a whole. This is an evolutionary challenge. For the first time in history, humanity has the means to unite as a single entity. Powered by technology, we can connect and collaborate globally to address the problems humanity faces. No nation, no matter how powerful, can be truly secure as long as nuclear weapons continue to exist in the world. No nation can solve the problem of the nuclear threat unilaterally. It has to be done collectively at the global level. The world's current military expenditure of $2 trillion comes at the expense of much needed investment in essential areas. These resources must be shifted towards climate, energy, food, health, water, and the environment.

We also need fundamental changes in education. Our educational institutions have not kept pace with change in the world. They do not reflect the magnitude of the need for changes in pedagogy and content. Our approach to knowledge is a highly fragmented system of disciplinary silos divided into more than a thousand disciplines and sub-disciplines at a time when all the major issues we are grappling with are interconnected, interdependent, interdisciplinary, multidisciplinary and transdisciplinary. More and more specialized knowledge cannot address these challenges effectively. The divisions between economics and politics, environment and business, business and society, human welfare and psychology are arbitrary. Life is not so conveniently divided. We also need a fundamental change in our concepts and theories. In Economics, for instance, we can no longer chase the mirage

of growth and measure our welfare in terms of per capita GDP when both are persistently accompanied by rising levels of insecurity, unsustainability and widening inequality.

At a more fundamental level, we need a change in the way we think. We must overcome the artificial divisions of reality. We often act as if the different aspects of our life and the different problems of the world exist independently and can be addressed separately from one another. We must learn to look at things in a more holistic, organic way. We need to transcend the limitations of our rear-view mirror mentality to identify the very real possibilities for a better world and act decisively with full confidence, determination and faith in our collective capacity to realize them.

5. Understanding Real Human Security

We need also to challenge and modify the basic concepts on which our approach to the world has been based and confined. One of the critical changes needed is in our concept of security. The world today exists in a competitive security paradigm where the stronger a nation is relative to other nations, the greater is its sense of security and the greater the sense of insecurity of other nations. In the case of collective security of a military alliance, the greater the sense of security of those within the alliance, the greater is the sense of insecurity of those who are left out of the alliance. The very concept of national security must shift from a competitive to a globally cooperative model.

For centuries the term security has been applied primarily with regard to the capacity of sovereign nation-states to defend their national borders from aggression, regardless of whether they were representative democracies or oppressive authoritarian autocracies. In the process, the security of a small group of powerful leaders has been protected at the expense of the population as a whole. Attempts to broaden the concept of security to encompass the lives of individual citizens have repeatedly been met with opposition from those who insist on the predominant rights of the state rather than its people.

In reality, national security and human security are closely intertwined and interdependent. No nation can be fully secure unless its people enjoy political, economic, social, personal, community and ecological security as well. People without access to food, medical care and education are not secure. So too, people cannot enjoy full security as long as their borders are threatened by water scarcity, soil degradation, the destruction of biodiversity, environmental calamities, violence, war, crime, corruption or social unrest. Human security is an inclusive concept or umbrella encompassing all 17 SDGs, viewing them all together in their relationship and impact on the lives of individual human beings around the world. Human security approach looks at security as an integrated whole.

The seven major pillars of human security that the United Nations seeks to address are economic, food, health, environmental, personal, community and political. We see individually and collectively, how each of these seven pillars is closely interrelated and interlinked, how all human needs are closely interdependent. If we do not stop war, we cannot ensure food security, economic security, employment or education. Without protecting the environment, protecting all life on earth, and preserving the biosphere, there can be no

guarantee for human security. Climate change threatens all areas of human security and all dimensions of the SDGs.

Threat to national security can come from outside or from within. Externally it can come from other nations. Internally it can come in the form of the polarization of society, increasing discontent, extremism, drug abuse, crime, violence, corruption, revolution and civil war. We have been focusing too narrowly on the national dimension, not giving enough to the global dimension, and at the same time not giving enough to the individual human dimension.

Humanity needs to recognize the common security of nations and the individual security of its people as complementary aspects of real security. We need to adopt a balanced perspective that reconciles the legitimate rights and security of social collectives with the equally legitimate rights of their individual citizens. Only when we embrace both human security and common security can we arrive at a formulation which can truly provide a common basis for the security of all. The common security of all nations and the security of every individual are mutually interdependent.

6. Multilateralism and Human Security

All forms of security depend on the strength and functioning of the multilateral system. No nation can ensure its own individual and collective security without cooperation from the multinational system. The global pandemic, the impact of the war in Ukraine on global food and energy supplies, and the multidimensional threats imposed by climate change testify to the fact that we are all in this together and only through cooperative initiatives can we secure the security of all.

The UN system was founded primarily to protect the security of nation states from recurrence of world or regional war. Its founders vested some power to promote international cooperation but retained ultimate authority over their own internal matters and the rights and welfare of their citizens. Efforts to reform the multilateral system have been limited for decades by national political considerations and are unlikely to be successful unless another organized center of power representing the shared collective aspirations of humanity acquires more influence over global affairs.

Efforts to build a third layer of influence consisting of major civil society organizations have been retarded both by the resistance of member states and limited forms of representation offered by the multilateral system, as well as by the fragmentation of CSOs into countless sectoral groups focused on different global issues such as climate, environment, peace, disarmament, health, human rights, economy, education, research, religion, etc. Even within sectors, collaboration is limited by the inevitable competition of organizations for limited funding, media attention, and policy access. In spite of their differences, a vast number of these organizations share common values and perspectives that could form the basis for a common global platform.

Beyond CSOs, the last remaining court of appeal is to global humanity as a whole, which does not presently enjoy any direct form of voice or representation in global society. Giving voice to vast numbers of people around the world is for the first time technologically and

organizationally feasible, but such a voice would not carry any official or legal authority under the present system. A decade ago, WAAS envisioned the possibility of fashioning a global platform as a transnational institution to give a direct voice to humanity. Initially, its influence could only be informal, but over time it could develop into a cost-effective way to monitor global public opinion free from restrictions imposed by nation states or national biases. It could eventually evolve into a global institution for conducting referendums on issues of greatest concern to the global public.

It would also be necessary to educate the global public about the link between multilateral institutions which seem to be far removed from them and their own basic needs and individual security. Empowerment of the individual, the community, and of different stakeholder groups is important. The emotional commitment, endorsement and participation of the whole of society would be needed. A unifying theme that brings together hundreds of millions of people from different countries would be essential to be sufficiently powerful and influential.

Human security is such a unifying theme that has the potential to serve as a rallying cry and unifying cause to bring together and empower the vast multitudes which constitute global humanity to press for a shift in focus to fully recognize the security needs of individuals around the world and at the same time press for the strengthening of the multilateral system.

Human security is a key policy issue that can be placed on the national and local legislative agendas of countries around the world in an effort to influence policy making. Leaders of technology companies can adopt the human security perspective to identify ways in which further technological innovation can be harnessed to address human security needs. Educational curriculum can be modified to introduce themes related to human security in every academic and professional field in order to broadly educate the next generation of youth regarding major human security needs and how to meet them. The media, arts, cinema and social media can also play powerful roles in shaping this narrative.

The World Academy of Art and Science and the United Nations Trust Fund for Human Security recently launched a global campaign on Human Security for All (HS4A) which is intended to generate support for human security as a unifying message that can be embraced and acted upon by people and organizations at all levels and in all fields of global society.

A major paradigm shift to a focus on human security is a challenging idea. Paradigm shifts usually happen only when humanity is under extreme duress, as it is today. The pressure of severe crises has provided the necessary rationale and pressure to break free of encrusted ideas and overcome the resistance of vested interests and rigid structures. Now is the time to initiate steps for such a transformation without waiting for further crises to compel us.

Authors' Contact Information
Garry Jacobs – *Email: garryjacobs@gmail.com*
Janani Ramanathan – *Email: harish.janani@gmail.com*

CADMUS, Volume 5, No.2, August 2023, 27-37

Zero-Sum Power Politics vs. Synergetic Politics for Human Security

Jerome C. Glenn
CEO, The Millennium Project
Fellow, World Academy of Art and Science

Abstract

Zero-sum power politics is a fundamental threat to human security. Synergetic relations among nations are proposed to improve human security. Among existential threats to humanity, the most immediate and little understood is the development of Artificial General Intelligence (AGI) before agreements are in place for its management. Examples of potential beneficial initial conditions, rules, and guardrails for AGI and governance modes are proposed.

***

If the world continues to play zero-sum power geopolitics it seems continuing wars in one form or another is inevitable for our future.

1. Synergetic Thinking

Synergy is a concept made popular by futurist R. Buckminster (Bucky) Fuller. He would say "you put a wheel in a box and you don't get much, but put it under the box and you get a wheelbarrow and you can get plenty of work done." Hence, it is not the parts that may create synergy, but their relationship. It is not that the wheel cooperates with the box, instead the synergetic relationship creates a new entity with properties not easily predicted by the parts.

"We need a United Nations Convention on Artificial General Intelligence."

What synergetic relationships between Taiwan, China, and the US are possible? What synergetic relationships could be created between India and the United States or China? Could a recovering Sri Lanka work with India to create international synergy?

The Millennium Project, a global participatory think tank, has just created the South Asia Foresight Network (SAFN) to conduct collaborative futures research for the region and explore synergies among these nations. While cross-border, maritime security, trade, economic and climate challenges will be at the forefront for many policymakers, it is important to find innovative synergetic solutions to move away from zero-sum mentality.

What are the future potential synergies among the nations in the region? A synergetic matrix could be created, as shown below.

Table 1: Synergetic Matrix

	India	Pakistan	Nepal	Srilanka	Afghanistan	Bangladesh	Bhutan	Maldives
India	xxx	1	2					
Pakistan		xxx						
Nepal			xxx					
Srilanka				xxx				
Afghanistan					xxx			
Bangladesh						xxx		
Bhutan							xxx	
Maldives								xxx

To fill out cell 1, answer: what are possible synergetic relations of India with Pakistan; to fill out cell 2, answer: what are possible synergetic relations of India with Nepal; etc.

> *"We have to create a global agreement on how to govern AGI BEFORE it is created. This could be the most difficult management challenge we face today."*

University Schools of International Affairs should teach potentials for synergetic relations and analysis as well as current zero-sum power politics and competitive advantage. For example, we need a United Nations Convention on Artificial General Intelligence. The synergetic relationship between the United States and the People's Republic of China could be to create an Apollo-like climate change goal and a NASA-like R&D Program to achieve it that others could join. This new organization would give hope to the world and focus research and policy on addressing one of the greatest threats to humanity.

Another synergetic relationship, instead of the current zero-sum politics, could be that the United States and China jointly introduce a UN General Assembly resolution to create the UN Convention on Artificial General Intelligence (AGI)—not narrow AI we have today, but general AI we could have within 10 years. If we do not get the initial conditions, rules, and guardrails right for this future AGI, then it could evolve into a superintelligence beyond our control and benefit. This is what Hawking, Gates, and others have warned about.

Some think that such discussions of regulation are premature or that they will hinder the development of AGI, but this overlooks the fact that it could take 10 or more years to create agreements on initial conditions for AGI, then a UN Convention on AGI, and then establish

global governance system. We have to create a global agreement on how to govern AGI BEFORE it is created. This could be the most difficult management challenge we face today.

Exploring synergic relations in our universities instead of only zero-sum thinking should further human security. The US-China Climate Change and AGI synergies are a good place to start.

Even schools of business could contribute to this global mindset change. University Schools of Business teach competitive intelligence, competitive advantage, and competitive strategies. They could also teach potential synergetic intelligence, synergetic advantage, and synergetic strategy.

2. Some Strategic Threats to Human Security

United Nations Secretary-General António Guterres included "existential" risks or threats five times in his report *Our Common Agenda*. This UN report also calls for many UN reforms, including a periodic report: Strategic Foresight and Global Risk Report on a regular basis. In response to an informal request to the author by the Executive Office of the UN Secretary-General for very brief overviews of some existential threats to be considered, the following was submitted:

2.1. Loss of control over future forms of Artificial Intelligence

As explained above, if the initial conditions of Artificial General Intelligence (AGI) are not "right," it could evolve into the kind of Artificial Super Intelligence (ASI) that Stephen Hawking, Elon Musk, and Bill Gates have warned could threaten the future of humanity. Intense pressures of competition among corporations and zero-sum power politics among states for advanced AGI could lead to inadequate initial conditions, cutting corners, and other reckless behavior. Instead, synergies among the US and China could lead to a more rational development of AGI and a global governance system.

2.2. Massive Discharges of Hydrogen Sulfide (H_2S) from De-oxygenated Oceans, caused by Advanced Global Warming

Global warming is beginning to change ocean currents. If this trend continues, water conveyors that bring oxygen to the bottom of the ocean will stop. Microorganisms that proliferate without oxygen emit hydrogen sulfide (H_2S – a deadly gas) when they die. This, plus ozone depletion, may have killed 97% of life during the Permian extinction*. Also in our future could be desperate attempts at geoengineering that go astray. Again, the synergic strategy could make a difference to human security.

2.3. Weakening of the Earth's Magnetic Shield that Protects us from Deadly Solar Radiation

The Earth's magnetic fields weaken as the magnetic poles reverse. The last reversal was 42 million years ago†, and scientists predict the Earth is due for another one. The process

* https://www.sciencedirect.com/science/article/abs/pii/S0921818112001452

† https://www.sciencenews.org/article/earth-magnetic-field-reversal-mass-extinctions-environment-crisis

of reversal can take hundreds of years, during which time humanity and all life will be vulnerable to deadly radiation* worldwide. If a solar eruption the size of the 1859 Carrington Event occurs again it would knock out the Internet, electrical systems, water controls, and crucial satellites. If it occurs during a magnetic reversal, it could kill life on Earth.

> *"We have no rules, agreements, conventions, and governance systems in place to address what Stephen Hawking, Elon Musk, and Bill Gates have warned the public could threaten the future of humanity via the future globally connected Internet of Things (IoT)."*

2.4. Malicious Nanotechnology (including the "gray goo" problem)

There are two approaches to nanotechnology: big machines, making nanotech that we have today, and atomically precise manufacturing and self-assembly that we do not have yet. Theoretically, the second version could take CO_2 from the air, strip out the oxygen, and make massive carbon nanotech structures, with nothing to stop it. This uncontrolled self-assembly is referred to as the "gray goo problem."†

2.5. A single individual acting alone, could one day create and deploy a weapon of Mass Destruction (most likely from synthetic biology)

Synthetic biology that mixes genetic material from different species could make a new kind of virus living outside the body for deployment around the world, with a long incubation period. National technical means can identify and disrupt such actions, but probably not all. Improving applications of cognitive science and child development psychology could reduce such insane people, but not all. Families and communities can also help reduce the number of such mass killers. Technologies will continue to become more powerful, decentralized, and easier to use‡, so strategies to prevent misuses should increase—globally—as well.

2.6. Nuclear War Escalation

Although nuclear war was prevented between the USSR and the USA, the number of countries with nuclear weapons has grown to nine: United States, Russia, France, China, the United Kingdom, Pakistan, India, Israel, and North Korea. Since there are political tensions among several of these the possibility of war is not zero. In addition to deadly radiation, Carl Sagan§ and other scientists explained that firestorms created by the nuclear explosions would fill the atmosphere with sufficient smoke, soot, and dust circling the globe interrupt plant photosynthesis stopping food supply.

* https://www.sciencedirect.com/science/article/abs/pii/S1342937X16000319

† https://iopscience.iop.org/article/10.1088/0957-4484/15/8/001

‡ https://books.google.co.in/books?id=bUbiDgAAQBAJ&pg=PA161&lpg=PA161&dq#v=onepage&q&f=false

§ https://www.atomicarchive.com/science/effects/nuclear-winter.html

2.7. New Uncontrollable, more severe Pandemics

As synthetic biological research advances and proliferates, the ability to create (by accident or design) immune pathogens that continually mutate increases the possibility, although remote, of human extinction. Human-caused environmental changes could also lead to pathogens that could also lead to our extinction*. While no single pandemic is likely to extinguish humanity, they may do so in combination with other catastrophic threats.

2.8. Particle Accelerator Accident

Some scientists consider it possible that future particle accelerator experiments could possibly† destroy the Earth and even open a blackhole or create a phase transition that could tear the fabric of space. Brookhaven National Laboratory‡ altered its research program when they found an extremely unlikely chance of opening a blackhole, but they determined the possibility was not zero.

2.9. Gamma-ray Bursts

When two stars collide§, a gamma-ray burst originating thousands of light years away, could sufficiently damage the protective ozone layer to kill life on Earth. According to Dr. Adrian Melott of the Department of Physics and Astronomy at the University of Kansas, "We don't know exactly when one came, but we're rather sure it did¶ come—and left its mark." The WR 104-star system could cause such a gamma-ray burst in the future. October 2022 one just affected Earth's lightening from 2 billion light years away. The Sun could also emit high-energy flares, damaging our ozone layer.

2.10. An Asteroid Collision

An asteroid large enough to end humanity missed the Earth by six hours on March 23, 1989. If it would have hit the Earth, the impact would have been the equivalent of a thousand of our most powerful nuclear bombs. NASA is identifying and tracking such threats now. There are over 12,000 asteroids 140 meters or more in dimeter that pass near Earth's orbit that could destroy an average sized country. Although some have proposed attacking an asteroid with an explosive device, that could result in multiple hits on the Earth. Instead, research to find effective ways to change its course may prove safer.

Two other existential human security threats could be added: Super Volcano and Extraterrestrial Contact, but the most immediate to address is AGI.

3. Why Focus on AGI Now?

Because it is the most near-term potential existential human security threat. AI is advancing so rapidly, that some experts believe that artificial general intelligence (AGI)

* https://www.news-medical.net/news/20210419/Humans-versus-viruses-Can-we-avoid-extinction-in-near-future.aspx

† https://www.sciencealert.com/earth-could-be-crushed-to-the-size-of-a-soccer-field-by-particle-accelerator-experiments-says-astronomer

‡ https://www.scientificamerican.com/article/the-safety-of-strangelets/

§ https://www.space.com/13221-space-collisions-earth-extinctions-gamma-ray-bursts.html

¶ https://www.nasa.gov/vision/universe/starsgalaxies/gammaray_extinction.html

could occur before the end of this decade. We have no rules, agreements, conventions, and governance systems in place to address what

Stephen Hawking, Elon Musk, and Bill Gates have warned the public could threaten the future of humanity via the future globally connected Internet of Things (IoT).

There are many excellent centers studying values and the ethical issues of ANI, but not potential global governance models for the transition to AGI. The distinctions among ANI, AGI, and ASI are usually missing in these studies. The U.S. National Security Commission on Artificial Intelligence report has little mention of these distinctions and the US S&T Artificial Intelligence & Machine Learning Strategic Plan has no mention at all. Current work on AI governance is designed to catch up with the artificial narrow intelligence proliferating worldwide today.*

Meanwhile advances toward AGI seem to be accelerating. Investments into AGI development are forecast to be $50 billion by 2023†. However, estimates on financial investments into AGI are difficult to measure, since government classified funding into AGI is unknown. Microsoft invested $10 billion into OpenAI according to Bloomberg.‡ A survey in 2020, found 72 projects working on AGI development in 37 countries.§

Although expert judgments vary about when AGI will be possible, the estimates keep coming closer and closer.¶ Estimates also vary due to definitions. Many say it is human level intelligence or capacity. However, there are many forms of ANI today that are already beyond human capacity or human level intelligence such as:

- Protein folding: AlphaFold by DeepMind;
- Lip reading: LipNet by DeepMind
- Playing games: Chess: Deep Blue by IBM; and Jeopardy & Go: AlphaGo and AlphaZero
- Live voice translation: Microsoft
- Mathematics
- Flying planes, driving trucks
- Face recognition
- Medical diagnosis
- Reading comprehension speed: Microsoft and Alibaba
- Legal analysis: LawGeex
- Income tax preparation: TurboTax
- Organizing shipping: Amazon
- Specific research: Google; Alexa

* The author is a member of the IEEE SA P2863 Organizational Governance of Artificial Intelligence Working Group

† *Artificial General Intelligence 2018–2023* https://mindcommerce.com/reports/artificial-general-intelligence-2018-2023/ and https://www.analyticsinsight.net/microsoft-baidu-tech-giants-head-head-becoming-agi-innovator/

‡ Microsoft Invests $10 Billion into ChatGPT maker OpenAI https://www.bloomberg.com/news/articles/2023-01-23/microsoft-makes-multibillion-dollar-investment-in-openai?leadSource=uverify%20wall

§ *2020 Survey of Artificial General Intelligence Projects for Ethics, Risk, and Policy* https://gcrinstitute.org/papers/055_agi-2020.pdf

¶ AI Multiple, 995 experts' opinion: AGI / singularity by 2060 [2021 update] https://research.aimultiple.com/artificial-general-intelligence-singularity-timing/, December 31, 2020

- Traffic navigation: Google Maps
- AI/robots for repetitive tasks
- Large scale data analysis
- Autonomous vehicles

For the purpose of this paper, AGI is defined as a general-purpose AI that can learn, edit its code, act autonomously to address novel and complex problems with novel and complex strategies similar to or better than humans, as distinct from Artificial Narrow Intelligence (ANI) that has a narrower purpose. Artificial Super Intelligence is AGI that has become independent of humans, developing its own purposes, goals, and strategies without human understanding, awareness, or control and continually increasing its intelligence beyond humanity as-a-whole.

Granted there are grey areas between narrow and general. Large platforms are being created of many ANIs, such as Gato* by DeepMind of Alphabet which is a deep neural network that can perform 604 different tasks, from managing a robot to recognizing images and playing games—it is not AGI, but Gato is more than the usual ANI: "The same network with the same weights can play Atari, caption images, chat, stack blocks with a real robot arm and much more, deciding based on its context whether to output text, joint torques, button presses, or other tokens."† Additionally, Wu Dao 2.0 by the Beijing Academy of Artificial Intelligence‡ has 1.75 trillion parameters§ trained from both text and graphic data. This allows it to generate new text and images on command and has its virtual student (Hua Zhibing) that learns from Wu Dao 2.0.¶

AGI should not be confused with General Purpose AI Systems (GPAIS)** which is defined as an AI system "able to perform generally applicable functions such as image/speech recognition, audio/video generation, pattern detection, question answering, translation etc. These systems rely on "transfer learning" applying knowledge from one task to another. ChatGPT†† is an upgrade from GPT-3 to GPT-3.5 that can generate human-like text and perform a wide range of language tasks such as translation, summarization, and question answering. (GPT-3 uses 175 billion machine learning parameters.) ChatGPT interacts with the user to produce sophisticated text from simple instructions or questions. See the Appendix for an example of how it answered the first question in the second section below. It can also write and correct code, write music in different styles, organize information, and other uses being invented now. SingularityNet is also in this grey area. It brings together AI developers who want to create AGI and share code so that AGI might emerge from many interactions. The Athens Roundtable held at the European Parliament on 1-2 December 2022 did discuss

* https://www.deepmind.com/publications/a-generalist-agent

† Overview AI values, principle, an ethics https://openreview.net/forum?id=1ikK0kHjvj

‡ Beijing Academy of Artificial Intelligence https://www.baai.ac.cn/english.html

§ *Beijing-funded AI language model tops Google and OpenAI in raw numbers* https://www.scmp.com/tech/tech-war/article/3135764/us-china-tech-war-beijing-funded-ai-researchers-surpass-google-and

¶ *China unveils first domestically developed virtual student* http://en.people.cn/n3/2021/0604/c90000-9857985.html

** Council of the European Union General Purpose AI Systems (GPAIS) https://data.consilium.europa.eu/doc/document/ST-14278-2021-INIT/en/pdf

†† *ChatGPT: Optimizing Language Models for Dialogue* https://openai.com/blog/chatgpt/

General Purpose AI, but not AGI. The Future of Life Institute has assessed General Purpose AI and the AI Act,* but not AGI.

It is the business of futurists to explore a range of possible futures. Since some AGI experts believe it is possible to have AGI in just a few years, then that possibility should be taken seriously today. If beneficial AGI's initial conditions are important for creating of AGI that is less likely to evolve into an artificial superintelligence that becomes an existential human security threat, then identification of such initial conditions and global governance systems also should also be taken seriously. Here is some initial thinking on this:

3.1. Some Initial Conditions for AGI:

- Regulatory standards in place prior to an AGI being connected to the Internet
- Incentives to cooperate with humans and other AGIs
- Seeks synergies with other AGIs rather than conflicts but notifies humans if a conflict begins.
- Keep detailed records of your design processes and decision making.
- Ability to distinguish between how we act vs. how we should act.
- Ben: We should build a neural-symbolic-evolutionary AGI with rich self-reflective and compassionate capability, educate it well, work with it on benefit projects, put it under decentralized control, and have some of us fuse with it.
- Heuristic Imperatives (reduce suffering, increase prosperity and understanding – David Shapiro)
- Ability to teach itself reality – AlphaZero teaches itself how to win with just the rules as a given – what are the rules for learning reality?
- Criteria to know when to be autonomous and when to check with humans
- Think about Chaos Theory's position in sensitivity to initial conditions as leading indicator of Chaos (meaning behaviour does not match past perceived rules).
- A pause command for the AGI that traces back to see how/who/when the AGI made the decision that led to the undesirable action, and then can be amended (patched?), in conversation (?) with a human. But such patches could build up overtime, creating their own anomalies.
- Transfer learning elements should be pre-audit approved before being added to an AGI and unsupervised learning.

3.2. Examples of Rules:

- An algorithm cannot turn off its own off switch† or learn how to prevent human intervention (but there are likely to be cases where this would not be desirable – how to address?)

* *General Pupose AI and the AI Act*, an assessment by the Future of Life Institute https://artificialintelligenceact.eu/wp-content/uploads/2022/05/General-Purpose-AI-and-the-AI-Act.pdf

† https://youtu.be/lX5LPwigyi0

- Cannot use subliminal techniques to manipulate humans.
- Continuous audit system able to pause an AGI that triggers evaluation when an AGI does the unexpected, undesirable action, not anticipated in the utility function, to determine why and how it failed or caused harm.
- Recursive self-improvement and self-replication with human supervision
- Incorporate principles of the Global Partnership on AI, OECD, UNESCO
- Meets IEEE and ISO governance and transparency standards (definitions, principles measurements, and auditing methods).
- IEEE Ethically Aligned Design 15 standards *
- IEEE SA P2863 (Jglenn member) standard doc ready by 6/2023
- ISO/IEC JTC 1, Information Technology, Subcommittee SC 42, Artificial Intelligence
- Asimov's three laws
- Russel's three Human-Compatible AI principles; Stuart Russel includes uncertainty of what is right, so it can be developed.
- 2017 Asilomar conference – Ethics and Values; e.g., 16 Humans should choose how and whether to delegate decisions to AI systems, to accomplish human-chosen objectives.
- Decision/data logging to recreate a decision and date at the time of an error. (a government transparency law could require X-year period of data retention).
- Reinforces human development rather than the commoditization of individuals.
- Ability to state why the action is requested and the environment in which the mission is to be conducted –Karl Schroeder
- Similar to a flight recorder, the AGI should have a log of changes of the neural network (not all activity).

3.3. Some Governance Issues

- Create with diversity of input—government, business, universities, NGOs, UN agencies, software engineers, poets, futurists, international lawyers
- Trusted enforcement mechanisms
- Global governance agency should have access to all code to review ethics? And how to protect the IP of the coder/corporation?

3.4. Audit – Certification – License

- Tested in several environments (including wild card interventions) to see if its values/principles hold up, and if so, then certified.
- Massively complex simulation used to test software and alignment with stated values with their definitions and measures for audits.
- Continuous audit system to monitor crossing of guardrails, rules infractions, and unethical or biased behaviour.

* https://ethicsinaction.ieee.org/

- Show detailed records of design processes and decision making.
- Trust Label if it meets standards and accountability.

3.5. Development Strategies

- Can an AI be designed to solve the alignment problems?
- MIRI: break down the alignment problem into simpler and more precisely stated sub-problems, develop basic mathematical theory for understanding these problems, and then make use of our newfound understanding in engineering applications.
- Create and use less powerful versions of AGI (e.g., future versions of GPT, etc.) one after the other to learn how to manage AGI and prevent "one shot to get it right" future.
- Common platforms for AGI developers and their cryptocurrencies
- Pause development beyond GPT-4 to assess situation
- Causal reasoning based on a conceptual model of reality (explore, as a global ontology of sufficient amount of the world). Peer reviewed cognitive maps of how the world works—and use of massively complex simulation of global human behavior and natural environment.
- Evidence which now strongly supports the claim of predictive learning hard wired in the mammal brain*. Predictive learning in engineering is VERY closely tied to Kalman filtering and state estimation... building up an image of the state of the world. Adaptive engineering systems WITHOUT that capability scale poorly.

4. Initial Sample of Potential Governance Models for AGI

These are drawn from "Artificial General Intelligence Issues and Opportunities," by Jerome C. Glenn contracted by the European Commission for input to Horizons 2024-27 planning.

1. IAEA-like model or WTO-like with enforcement powers. These are the easiest to understand, but likely to be too static to manage AGI.
2. IPCC-like model in concert with international treaties. This approach has not led to a governance system for climate change.
3. Online real-time global collective intelligence system with audit and licensing status, governance by information power. This would be useful to help select and use an AGI system, but no proof that information power would be sufficient to govern the evolution of AGI.
4. GGCC (Global Governance Coordinating Committees) would be flexible and enforced by national sanctions, ad hoc legal rulings in different countries, and insurance premiums. This has too many ways for AGI developers to avoid meeting standards.
5. UN, ISO and/or IEEE standards used for auditing and licensing. Licensing would affect purchases and would have impact, but requires international agreement or treaty with all countries ratifying.

* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9262088/

6. Put different parts of AGI governance under different bodies like ITU, WTO, WIPO. Some of this is likely to happen but would not be sufficient to govern all instances of AGI systems.
7. Decentralized Semi-Autonomous TransInstitution. This could be the most effective, but the most difficult to establish since both Decentralized Semi-Autonomous Organizations and TransInstitutions are new concepts.

Clearly there are many threats to human security, and all should be addressed, but one of the greatest opportunities to improve human security is the transition from zero-sum to synergetic thinking and applying that to a US-China United Nations Convention on AGI.

Author's Contact Information
Email: jerome.glenn@millennium-project.org

CADMUS, Volume 5, No.2, August 2023, 38-73

Towards Human Security through Personalized Trans-disciplinary Evolving Symbiotic Education Based on Cognitive Digital Twins

Witold Kinsner
Fellow, World Academy of Art and Science;
Professor of Electrical & Computer Engineering, University of Manitoba

Abstract

Education has been evolving through a complicated roadmap to serve varying objectives from the understanding of the world we live in through training of servers of production lines, after the first industrial revolution (IR1) to other commercial targets throughout the next three industrial revolutions. With the current scientific and technological progress, human security and sustainability were expected to take care of themselves and evolve naturally. Not only they have not evolved, but the threats triggered by the developments in artificial intelligence (AI) tools alone are becoming existential. Our insensitivity and neglect of the ecosystem must now be transformed very urgently. Education is central to that transformation. The traditional uni-disciplinary one-size-fits-all approach to education appeared to have been sufficient through the first three industrial revolutions as it served the learners for a lifetime. However, it must evolve now into a multi- and trans-disciplinary collaborative model to cope with the exponential growth of knowledge and the complexities of our ecosystem stressed to the limit. One of the possible enablers of the transformation is the concept of cognitive digital twins (CDT) which is maturing due to the developments in high-performance computing and artificial intelligence. This paper addresses some aspects of this view.

1. Introduction

This paper is intended to highlight links between human security within our ecosystem and a new type of **personalized symbiotic education** facilitating community building through cooperation and knowledge sharing rather than competition alone. This new educational ecosystem moves away from the current **one-fits-all** methodology towards a **one-fits-one** model. This new model also moves away from the emphasis on **teaching** to theoretical and experiential **learning** and from the brick-and-mortar setting to a **hybrid**. This approach includes several classes of **artificial intelligence** (AI) [27] and not only Web 2.0 and Web 3.0 [26], but also other wireless networks, both terrestrial and low-Earth orbit (LEO) satellites. The new model of learning can be achieved through personalized symbiotic and memetic cognitive digital twins. "Cognitive" refers to the action or process of knowing. Cognitive informatics [95], cognitive computing and cognitive systems [103] have been studied extensively because they extend the data mining quest and are critical to knowledge mining.

People have been dreaming about knowing and understanding the world around them. When we were isolated geographically and culturally, sharing and acquiring knowledge was very slow, with the acquired knowledge, however, lasting a lifetime. When we learned how to write, print and travel, the exchange of knowledge accelerated. When we discovered how to compute and communicate electronically, knowledge and new ideas became available to many more individuals, and the pace of information doubling accelerated to a point where we could not absorb it without help. Connected machines and software entities have now materialized with abilities to recognize patterns and learn from observations and the corresponding data on their own. Their sophistication has reached a point where there is a fear that those machines could replace all our jobs and might even be a threat to humanity.

This section provides the industrial, business, and societal context in which the new education becomes so important.

1.1. How Secure Are Human Security and Sustainability?

The traditional definition of security refers to all the measures that are taken to protect: (i) a country (national security, defence); (ii) a place (security guards, airport security, energy security); (iii) access (only people with permission are allowed to be at a place or use protected documents, data, files); and (iv) financial assets (stocks, shares, bonds, or other certificates).

Human security focuses on the individual human being in the context of the ecosystem, and on all the measures that are taken to protect humans, and not on national security or industrial security only. It exists in three constitutive dimensions: (i) freedom from want, (ii) freedom from fear [69], and freedom to create in order to improve and deepen our existence. "Freedom from want" represents the ability of an individual to meet their essential physical and social needs. "Freedom from fear" signifies the ability of an individual to live without threats to physical integrity or intentional harm. "Freedom to create" represents the critical human ability to bring change to ourselves and the world we live in. Measuring human security often uses the human security index [70] with the corresponding data available.

Human security includes the following areas (often interdependent) all consistent with the UN 17 Sustainable Development Goals (SDG) [98]: (i) Food security; (ii) Water security; (iii) Energy security; (vi) Environmental security; (v) Health security; (vi) Economic security; (vii) Ecological security; (viii) Personal freedom, safety and mobility security; (ix) Community security; and (x) Digital, cybersecurity, cyber-physical security, and cyber-physical-social security.

Just at the time of the expansion of the generative AI (genAI) and its potential to transform our future more than any other technology, Max Tegmark [84] asked many human security-related questions about AI's impact on society, war, justice, crime, jobs and the very sense of being human. How can we balance our prosperity without leaving people lacking income or purpose? How can we make future AI systems more robust, so that they do what is beneficial to us without crashing, malfunctioning or getting hacked? Should we fear lethal autonomous weapons? Will machines be smarter at all tasks, replacing humans altogether? Will AI be

used by us to gain more power than we can handle? Or will AI help life flourish like never before?

Various institutions have also been investigating how organizations are considering **responsible technology** (ResT) and how they are implementing policies, frameworks, or strategies to meet the ResT objectives [MITT23]. The National Academies of Sciences, Engineering and Medicine addressed many concerns including the transition from STEM to STEAM in K-12 [65] and how people learn [63], [64]. Particular focus was also given to cyber-physical security [66].

After observing the tidal wave of AI and the impact of lethal autonomous weapons to cyber-physical viral sabotage, Stuart Russell [72] turned a red light on the potential conflict between humans and machines if we would not rethink AI from the ground up. While the near-term benefits are already seen in areas such as intelligent personal assistants to the accelerated scientific research in new medicines and materials, threats from misused AI are also seen. He suggests that we use a revised foundation on which we design AI systems with inherent uncertainty about the human preferences they are required to satisfy. Russell expects such machines to be humble, altruistic, and committed to pursuing our objectives, not theirs. Such machines could be provably deferential and provably beneficial.

Since human security has been weakened by many contemporary international and national events and conditions, many organizations are trying to improve it through impactful planning and actions. One example is the Human Security for All (HS4A) campaign by the World Academy of Art and Science (WAAS) and the United Nations Trust Fund for Human Security (UNTFHS). They had a presence at the Consumer Electronic Show (CES23) organized by the Consumer Technology Association (CTA)[CES23]. The HS4A has reached many individuals, industries and organizations at the event as it was attended by 115,000 from 151 countries, with over 3,000 exhibitors and nearly 250 conference sessions. The first CES1967 had 17,500 attendees and 200 exhibitors, making it one of the largest gatherings.

Many countries are also attempting to regulate hostile AI technological and economic developments affecting human security [37]. Examples include (i) the European Union AI Act in sectors such as health care and education, and (ii) the legally binding AI Treaty to protect human rights, democracy, and the rule of law. The treaty could potentially include a moratorium on technologies that pose a risk to human rights. Another example is the US Federal Legislative Proposals Pertaining to Generative AI [56]. Other examples include (i) The Autonomous Weapons Open Letter, 2016; (ii) The Asilomar AI Principles, 2017; (iii) The Jena Declaration on Sustainability, 2020; and (iv) The Pause Giant AI Open Letter, 2023, three of them organized by the Future of Life Institute.

None of those attempts is intended or designed to stop AI and similar progress, but to align it with human security for all.

1.2. Motivation for New Education: Evolution of Industries and Work

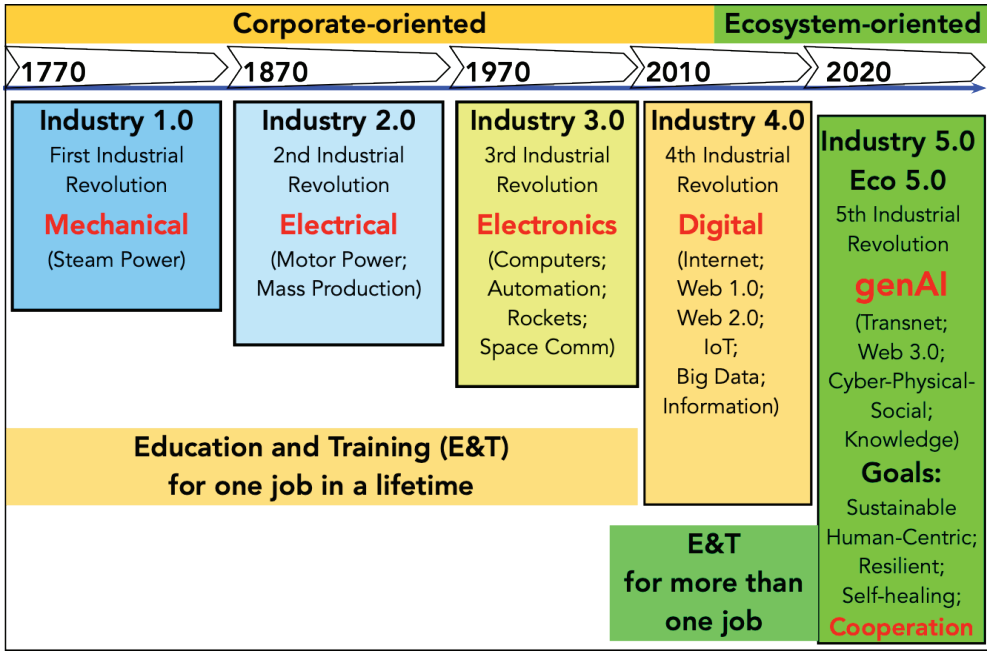
Over the past several centuries, the human condition has been changed profoundly by the agricultural and three industrial revolutions (Industry 1.0 to 4.0). The term “industrial

revolution" was introduced by Arnold Toynbee in his 1884 Lectures on the Industrial Revolution [87].

> *"The time has come to revamp the educational system at its core. The new system must be personalized to match the diversity of individual abilities and styles of learning."*

As shown in Fig. 1, Industry 1.0 was marked by the improvement of the steam engine and the resulting shift from human-muscle power and horsepower to steam power, leading to improvements in manufacturing and transportation. Industry 2.0 was marked by the implementation of electric generation, transmission and the electric motor which also triggered the need for assembly lines to improve manufacturing. Industry 3.0 provided a new set of developments due to the improvements in electronic devices and systems. Industry 4.0 was marked by the development of digital computers, digital data acquisition, digital processing, computer connectivity, telecommunications, and real-time control [75]. Notice that the first three revolutions lasted around 100 years each, while the fourth was only half of that period. Consequently, if someone learned the skills required for a given assembly line, the person could keep the same job for a lifetime.

Fig. 1: Progression of Industrial Revolutions.



Over the past several decades, a new augmented/ambient/artificial intelligence (AI) revolution (Industry 5.0) has evolved [102]. The last five years indicate that it may be far more transformative than all the previous ones. While many users are enthralled by the beneficial capabilities of generative AI (genAI), others are not only afraid of the risks and potential pitfalls that have already manifested themselves, but also see genAI as an existential risk to humanity.

The industrial revolution accelerated the need for many skilled individuals that could not be produced by the personalized master-student educational system of the old. What was needed was a well-organized one-size-fits-all educational system that could produce a large number of individuals with the expected skills within a short, fixed period of time. The Prussian classroom education system of 1770 produced magnificent results. At that time, the acquired knowledge and skills lasted for at least a lifetime.

The third and fourth industrial revolutions have accelerated the pace of knowledge, doubling from a lifetime to months. Are we capable of adjusting to that pace of knowledge acquisition? Furthermore, since the viability of jobs has also been below that of a single lifetime, young professionals are expected to have more than one job. How can they learn all of that in the old educational system?

The time has come to revamp the educational system at its core. The new system must be personalized to match the diversity of individual abilities and styles of learning. This personalization requires that the system have **cognitive abilities**. The new system must also be based not only on the body of knowledge (BoK), but also on the body of experience (BoX). We envisage that the new personalized system of education will be sufficiently agile and interactive so that will evolve in its symbiosis with humans. For that to happen, we must coexist with symbiotic autonomous systems, specifically those involving digital twins. This paper addresses some aspects of this view in the context of recent and projected developments [1].

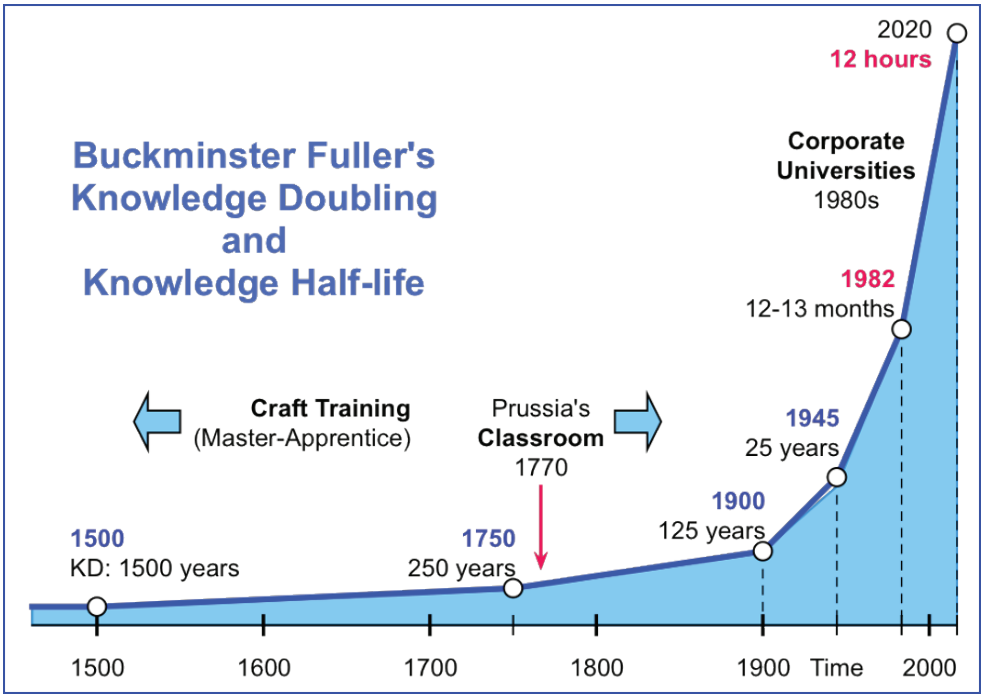
The paper gives definitions of the digital twins (DTs), their classes, and their applicability to industry, academia, and governments, as well as person-centred education and training. It also describes a new concept of cognitive personalized, symbiotic, and memetic digital twins to help in the transformation of education for sustainability and security for all.

1.3. More Reasons: Knowledge Doubling and Its Half-Time

With the explosion of data, information, knowledge and wisdom, we would have to spend all our available time searching for what is needed for our education and work. We cannot just ask a teacher or professor to answer our questions outside their class or research area. Today, search engines still provide millions of hits that have to be reviewed for relevance. Finding relevance in the sifted out and even prioritized material takes time. Since our reading and comprehension abilities are slow (the average reading speed is around 300 words per minute), it might take up to four hours to keep up with daily emails, news digests, blogs, magazines, and books. This keep-up time reduces the time for creative work.

According to Buckminster Fuller's "knowledge doubling curve" in 1982, all human knowledge generated and transmitted doubled in size around the year 1500. It doubled again by 1750 (only 250 years), and doubled again by 1900 (just 150 years). With those rates, humans were able to accommodate and adapt to the growth and change. It became harder to adapt when the doubling took 25 years around 1950. As shown in Fig. 2, the knowledge doubling today is much shorter (around 13 months). As an example, the number of annual patents increased from about 50,000 to more than 325,000 over the last 50 years. Many at IBM expect that around 2020s, the knowledge doubling could happen in 12 hours. It is not feasible for a human to adapt to that rate. The concept and implementation of digital twins that would act as an assistant and helper to each individual seem to be a necessity now [Wood18].

Fig. 2. Buckminster Fuller's Knowledge Doubling Curve



There is another reason for digital twins: the knowledge half-life. In his book Future Shock [86], Alvin Toffler stated that "the illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn." The knowledge and skills acquired in our schools and successive jobs diminish in relevance, thus requiring continuous updating, not once but throughout our lives.

How long does it take for knowledge to become outdated and irrelevant, or even incorrect? The half-life of knowledge (i.e., the amount of time it takes for knowledge to lose half its

value) is often used to indicate the devaluation of knowledge in various disciplines. As might be expected, the knowledge half-life in aggressive disciplines like science, engineering and technology is also shrinking fast.

1.4. Knowledge Tsunami and the New AI Tools with Understanding of Language

We live in the knowledge revolution when knowledge-doubling occurs exponentially, while the knowledge half-time decreases. Attempts to solve the knowledge tsunami through artificial intelligence (AI) experienced several winters, and understanding the reasons for the bumpy road might prevent new slowdowns [45].

That available body of knowledge (BoK) and Body of Experience (BoX) are no longer confined to selected individuals or a single group of people only. The development of the Internet and the World Wide Web (WWW), first in the static informative form (Web1.0) and later in the dynamic interactive form (Web2.0) has shifted the BoK and BoX from a written form to an electronic hyperlinked form. The price we had to pay was lower security, with fraudulent use of the materials and personal attacks. A better form (Web3.0) is being developed to increase security through a more intelligent decentralized Web architecture [26].

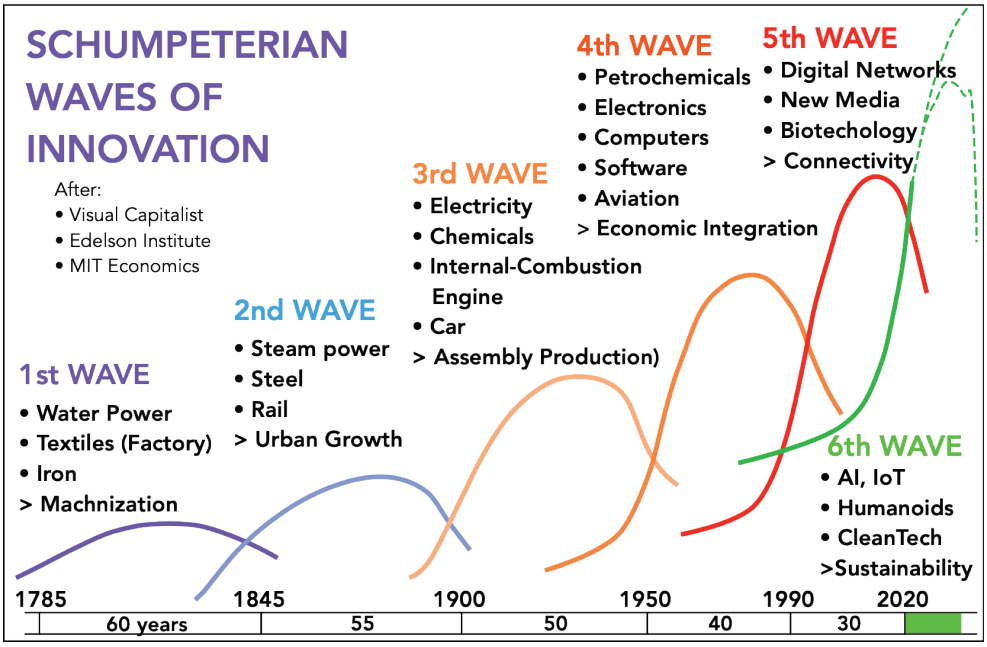
We live in the knowledge revolution when knowledge-doubling occurs exponentially, while the knowledge half-time decreases. That knowledge is confined neither to selected individuals nor to a single group of people because it is also in the possession of AI tools such as the *large language models* (LLM) [67], the *pathways language models* (PaLM) [9], and the associated chatbots such as the *chatbot generative pre-trained transformer* (ChatGPT) [77], and the dozens of other specific-domain applications [38], [39], [40], [41]. A large part of the cumulative BoK and BoX is also inside the AI tools. These conditions may have a tsunami effect on any society, organization, company, or other operating unit. It has a direct impact on learners and practitioners regardless of their age.

1.5. Second Context: Evolution of Business and Schumpeterian Waves

Economists observed that economic cycles behave like long composite waves pushed by the wind of inventions and innovation (Kondratiev, 45 to 60 years), with other shorter waves and ripples due to entrepreneurs' investments (Kuznets, 15-25 years and Juglar, 7-11 years), inventories (Kitchin, 3-5 years), as well as implementation and acceptance difficulties. The primary wave is followed by the next wave. The composite wave has a period of prosperity, followed by recession and depression and revival before entering another prosperity [AgAH15].

In his 1942 book, *Capitalism, Socialism and Democracy*, Joseph Alois Schumpeter (1883-1950) suggested a model of continuous innovation and "creative destruction" in which the old economic structures of society are destroyed, but replaced by new economic structures. Examples include word-processing software, e-Mail, digital camera, smartphones, LED light bulbs, electric vehicles and the latest generative AI. That process oscillates around an increasing equilibrium state [82]. For those cycles to function we need four ingredients (TIPS): Theories, Ideas, People and Systems. Figure 3 shows five such waves.

Fig. 3: Illustrates the Economic Waves (After [NeMa21])



The first economic wave (1785-1845; 60 years) coincided with that part of the first Industrial Revolution, water power was instrumental in manufacturing paper, textiles, and iron goods. Unlike the mills of the past, full-sized dams fed turbines through complex belt systems. Advances in textiles brought the first factory, and cities expanded around them.

With the second wave (1845-1900; 55 years), between about 1845 and 1900, came significant rail, steam, and steel advancements. The rail industry alone affected countless industries, from iron and oil to steel and copper. In turn, great railway monopolies were formed.

The third wave (1900-1950; 50 years) was critical because of the emergence of electricity to power lights, motors and telephone and radio communication. In addition, Henry Ford introduced the Model T with its combustion engine and its assembly line transformed the auto industry. Automobiles became closely linked with the expansion of the American metropolis.

The fourth wave (1950-1990; 40 years), expanded transportation to include aviation that revolutionized travel and supply chain. Integrated circuits led to computers.

The fifth wave (1990-2020; 30 years), brought the internet which erased many barriers to information exchange, and the new digital media changed news cycles and political discourse and changed the role of the post office. It also ushered in a new frontier of globalization.

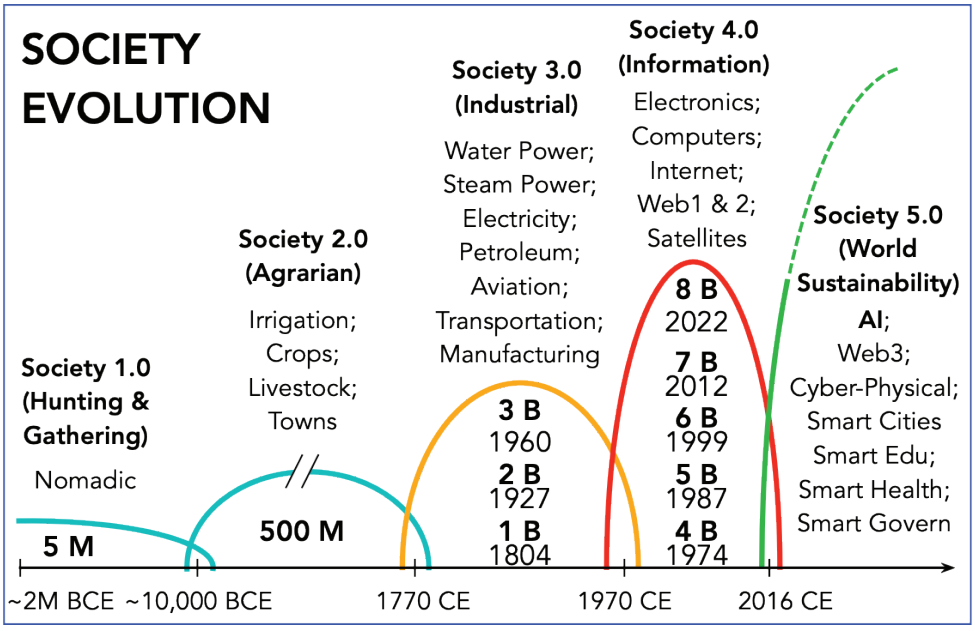
The sixth wave (2020-2030; 10 years), marked by three ingredients: (i) digital-tech (connecting and automating everything and everyone), (ii) human-tech (waste avoidance,

reduction, recycling and reuse in a closed ecosystem), and (iii) human-tech (living healthier, happier, and maybe longer; personalized education). Those elements include the Internet of Things (IoT), virtual reality (VR), augmented reality (AR), mixed reality (XR), robotics, drones, humanoids and the automation of systems with predictive analytics, and physical goods and services will be digitized for digital twins. The time to complete tasks could shift from hours to real-time. Furthermore, to survive, clean tech must dominate to solve complex problems behind climate concerns.

1.6. Third Context: Evolution of Society

Most of the discussion today focuses on the evolution of industry and economy. In this paper, we will place society in the center. The evolution of our society follows a path that is very different from the other two revolutions, though they become intertwined around the first industrial revolution, as shown in Fig. 4.

Fig. 4: Evolution of Society and Population Growth



Society describes a group of people who share similar values, laws and traditions, and live voluntarily in organized communities for mutual benefits. Members of society often share religions, politics or culture. A society is successful if people agree to certain laws and a code of conduct (the social contract). They also agree to the process of selecting a leader/referee who mediates and voice an opinion on the rules.

A society is called modern when it is industrialized, literate, live in cities within a nation-state, and is not confined to a specific geographical area. A society often includes more

diversity, with people from different backgrounds, social classes and races, and the relation between individuals are often indirect.

In contrast, a community is limited to fewer individuals located in a specific geographic area, with individuals often sharing similar characteristics, and interacting regularly and directly.

Much has been written about the evolution of humankind, its struggle, successes, failings, aspirations and potential future (e.g., Harari's three takes on the past, tomorrow and our approaches to coping with the challenges [32], [33], [34]).

Society 1.0: Hunter-Gatherer Society

The hunter-gatherer society produces none of its own food. Hunter-gatherers spend an inordinate amount of time seeking food.

Society 2.0: Agrarian Society (12,000 years)

An agrarian society develops its economy based on agriculture and the cultivation of large fields. This distinguishes it from the horticultural society, which produces food in small gardens rather than fields. The transition from hunter-gatherer to agrarian societies is called the Neolithic Revolution. One of the earliest happened between 10,000 and 8,000 years ago in the area of the Middle East stretching from present-day Iraq to Egypt (the Fertile Crescent). Other areas of agrarian societal development include Central and South America, East Asia (India), China, and Southeast Asia. Agrarian societies often have a ruling class of landowners and a lower class of workers.

Society 3.0: Industrial Society (1770 to 1970; 200 years)

A society is considered industrial when only fewer than half its members are actively engaged in agriculture. They congregate in larger cities which become centers of manufacturing and trade. Their growth depends on innovators in technology. For example, the introduction of the printing press by Gutenberg in 1440 changed the world by accelerating the spread of literacy and the creation of new knowledge even though physical books were expensive to produce, transport and store.

This form of society evolved when water and steam power replaced ox and horsepower to allow the manufacturing of textiles and other products. It accelerated when electric energy could be delivered at longer distances and petroleum could drive cars with their combustion engines. The airplane became a tool of war and the start of aviation. Supply and distribution chains accelerated transportation.

The 3rd industrial revolution was marked by a radical shift from analog electronics and production control to digital computing, information and communications technologies (ICT) with automation in production, social networking and distribution of information, knowledge, experience in education and training for more than one job, as well in healthcare and governments.

Society 3.0 spans 200 years with three industrial revolutions (1.0, 2.0 and 3.0). Over the relatively short period (200 years), the Earth's population has tripled, from 1 billion (B) in 1804 to 2B in 1927, and 3B in 1960. The search for resources became relentless.

Bertrand Russel has seen the danger in the 1950s and developed the Einstein-Russel Declaration.

> *"How can we achieve sustainable living on this planet? How can we transition from a consumption-oriented society to a human-aligned society?"*

Society 4.0: Information and Communication Society (1970 to 2020; 50 years)

The 4th Industrial Revolution was marked by the ability (i) to monitor and acquire massive data almost everywhere at any time (the Internet of Things, IoT, and the Industrial IoT) (ii) to accommodate the big data in new classes of data storage and distribution, (iii) to transmit the big data almost everywhere through terrestrial and space channels, (iv) to compute almost everywhere with small and large computers (locally and in distributed computing cloud of the cyberspace), and (v) to control almost anything in hard or soft real-time). These pervasive technologies started blurring the boundary between the physical world and cyberspace.

Significant breakthroughs in fields such as AI, robotics, IoT, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing are augmenting the possibilities every day. Innovative digital fabrication technologies with biological science connect computational design, additive manufacturing, materials engineering, and synthetic biology to mastermind a symbiosis between micro-organisms, human bodies, to commodities, and even our homes.

Humans in the physical world have been empowered by smart technologies from cyberspace. Our human capabilities have been augmented by machines that behave in a way to complement our operations.

The fundamental feature of current Society 4.0 is that a person decides to access the data needed, retrieve the pertinent data, and analyze the data to make better decisions and predictions so that the actual work can be done by other human beings or robots or both. Society 4.0 has room for us to work and make the world a better place.

This augmentation through AI was well-intended and often useful for society. However, the process of vetting the correctness, truthfulness, timeliness, relevance, and ethical value of the data retrieved was done by humans. We have shown that we are not very good at detecting misinformation, disinformation, indoctrination, falsehood(s), and fabricated data generated by other either humans or by AI such as the ChatGPT.

The most significant recent achievement of AI appears to be the ability to learn the human language based on what we have done so far in our writing, sound, images, and video. In doing so, our human operating system has been hacked.

"We have to learn how to do almost everything in a new symbiotic way, not only with other humans but with machines."

Our uniqueness in telling stories has been challenged. AI is telling stories already. They are as beautiful or as ugly as we are. It has learned from us through our language. It can also tell stories in more spoken languages than many of us.

This is the reason why AI has also very dangerous in more ways than we can imagine. This is why we need the next version of Society 5.0.

We also need Society 5.0 because of the (i) information and knowledge tsunami and the limited ability to discern between the relevant data and noise; (ii) rapid population growth and the corresponding increasing consumption and pollution, (iii) increasing need for limited Earth resources; (iv) slow transition for sustainable energy production; (v) increasing globalization and monopolies; (vi) regional and social inequalities and the perceived or real need to migrate; (vii) lack of policies, regulations, and laws related to industrial, economic and social infrastructures of the nations.

How can we achieve sustainable living on this planet? How can we transition from a consumption-oriented society to a human-aligned society?

Society 5.0: Sustainable Society with HS4A (Since 2016)

The concept of Society 5.0 is centered around life on Segan's "pale blue dot" where we have now been living for a while, and feel the obligation to not only maintain it, but make it better for the new generations of our successors.

In addition to scientific, engineering and medical innovation, we must create a better new value through social innovation to reduce the current diverse inequalities and gaps through the personalized and safe delivery of education, healthcare, and work environment in symbiotic relation with the AI-related technological developments. While we must refine our understanding of creative competition, we have to relearn how to cooperate. Society 4.0 was laced with conflicts intended to expand, conquer, and colonize other tribes, then dominate, steal and kill groups of perceived lesser value.

We need Society 5.0 because our four industrial revolutions have created unintended and undeclared wars on our planet itself. She has been patient, understanding and resilient for a while now, possibly because society is prone to errors and insensitivities. However, her recent severe climate responses might be a wake-up call so that we could rebalance our economic values with the values humanity has gained on the long road to freedom, safety, wonder, knowledge and life. If we will not stop the abuse, she might ask us to leave her soon anyway.

To be more specific, around 500 million people in India make their living from agriculture. In recent years, those farmers have lived through irregular monsoon cycles, making it difficult to plan on what crop and when to plant. Precision smart agriculture might help. Japan proposed the concept in 2016. Japan is the fastest-eldering nation, where more than 50% of citizens are already over 60 years of age [14], [73].

This Society 5.0 approach has a reasonable potential to address the urgent challenges in education, healthcare, agriculture and food production, energy, manufacturing, and disaster control.

The fundamental feature of Society 5.0 is that an AI decides (i) how to obtain the required data, (ii) how to analyze them, and (iii) how to decide what to do through either dialogue with humans, or through direct instructions for robots.

The process of collecting the required data is now very different from that in Society 4.0. Since AI is aware of all the data collected so far, it either extracts what already exists (including historical operational data, analytics, decisions made before, and outcomes of those decisions) or collects the new data from either the physical terrestrial and space environments (such as autonomous self-driving cars or from low-Earth orbit (LEO) interlinked satellites), or from humans, other living entities, organizations, governments, as well as other robots and machines.

The process of vetting the correctness, truthfulness, timeliness, relevance, and ethics of the data retrieved must also be very different from that of Society 4 because it has to be done at the speed and bandwidth of AI. Any false information carried by well-manipulated data may lead to unrecoverable catastrophes [12].

The process of analyzing the data to make better decisions and predictions is also different from Society 4.0 because the request for the decision originates from the AI collective. Since the AI identifies the need for the decision at a higher speed and bandwidth, it can cooperate and consult other AI units with similar experiences.

Decisions that lead to the actual work can be made as before in Society 4.0.

Society 5.0 has room for robots to perform work much faster, safer, and efficiently, while giving us more time to be creative in making the world a better and more sustainable place.

For that scenario to be true, we have to learn how to do almost everything in a new symbiotic way, not only with other humans but with machines.

Will the AI system tolerate our slowness, our idiosyncrasies, our fuzzy memories, our inability to transfer our knowledge and experience to the next generation, our need to relearn, our compassion, our dislikes, and our hate? Will there be work for all of us?

The shift from the past corporation-oriented slow industrial revolutions to a human-sustainability-oriented rapid eco revolution is consistent with many calls for sanity, including the Russell-Einstein Manifesto from July 9, 1955, “We appeal as human beings to human beings: Remember your humanity, and forget the rest” [8], as well as those initiatives mentioned in Sec. 1.1.

2. Why We Should Consider Personal Companions in Learning & Living

This section addresses some of the critical issues related to human security in the emergence of new AI tools.

2.1. The Language and Human Intelligence (hI)

Human culture uses language as the key ingredient in the process of bringing us together in terms of identity. This critical binding ingredient, language, includes different forms such as gestures, smiles, spoken and written language, sounds, songs, music, images, movies, and video. All those real-time and more-permanent language forms are used to tell stories (orally, in handwriting, in printed writing, in images, and in music), as well as to write regulations and law, create money and currencies, formulate political views, and articulate laws of nature in terms of science, mathematics, engineering, technology, design, and other standards. Language has been instrumental in teaching and training us to design and manufacture better products, to grow food more efficiently, and do our work better and with a greater impact. It has also been used to articulate and communicate our emotions, desires, aspirations, and dreams. Code of ethics, human rights, and human security have also been articulated using language. Those elements are some attributes of human intelligence (hI) that allow us to solve problems.

Throughout our human written history, we have been dropping such cultural "bread crumbs" in the places where we lived. Some of them were lost in accidental or intentional fires (e.g., The Library of Alexandria), purging of intellectuals, wars, and declining interest in them due to other more urgent events.

The revolutionary shift from analogue to digital representation of our language, as well as the development of the Internet and Web hyper-connectivity, have produced more permanent traces of the available data, information, and knowledge. The expansion of our abilities to monitor, read and interpret signals from the physical and biological worlds has resulted in a knowledge tsunami so great that our human intelligence (hI) has recently overwhelmed our ability to absorb it, and we have learned how to ignore most of it by not knowing what exists.

This planet has also experienced another carbon tsunami due to our four industrial revolutions triggered by technological discoveries and innovation. The severely expanding climate changes, however, cannot be ignored.

Another tsunami has also occurred in the population of people on this planet. In 1974, the planet hosted 4 billion individuals. In 2022, that number exceeded 8 billion; doubling in 50 years as compared to the entire history of people on this "pale blue dot."

A tsunami related to the industrial revolutions has also occurred in business. The inequality of wealth has increased beyond what can be handled by the vast majority in the population tsunami.

The outcome of the previous tsunami waves produced a tsunami of human insecurity, including the planet and all life on it.

This Earth needs help. We need help. Perhaps our human intelligence (hI) is no longer sufficient to undo what we have created.

> *"The two-sided nature of the genAI entities cannot be fixed easily, because it originates from the human nature captured through the acquired language. The acquired language in genAI reflects our duality because humans swing between various extremes characterized by dialectic, contrasting, but complementary patterns."*

2.2. Artificial Intelligence (AI) and Generative AI (genAI)

Although the concept of artificial intelligence could be traced back to 1308 [Pres16], the term "artificial intelligence" (AI) was coined in 1955 by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon [Adam21], [45]. With some bumps, the evolution of AI was very intense at several levels including pattern recognition, self-organization, neural networks, *natural language processing* (NLP), and corresponding mathematics. However, what has happened since 2017, and particularly in 2022, is that the 70-year-old AI has jumped to acquire new capabilities to learn our language because of a new idea of how to treat the human language through attention [90]. This non-human intelligence, in the form of *generative AI* (genAI) has hacked our *human operating system* (hOS) and acquired a part of our recorded human language. It has been shown to be able to mimic our use of language.

In a very narrow sense of intelligence, AI systems are already better at solving well-defined complex problems. For example, it can beat humans at chess and Go.

In a narrow sense, the genAI is already better than us, although it acquired the knowledge from us. Although our brain is still more complicated and complex, our short- and long-term memory is very leaky and elastic, while the *large language models* (LLM) remember. We have an idea about the vastness of current knowledge but do not have it.

In a broader sense, when solutions require conscience (the ability to feel compassion), humans have not been challenged yet.

The key problem with this genAI is, however, that our recorded culture is characterized not only by the most desirable human features, but also by all the shortcomings and fringes, including dishonesty, falsehood, corruption, nepotism, bias, anger, hate, selfishness, dominance, skillful dissemination of fear, and all the traits that caused the tsunamis in the first place. Since the genAI had acquired those undesirable attributes, it has been using them in the generated output, as seen by many available examples already. Some major designers of genAI expressed concerns about its possible existential threats (e.g., [78], [18]).

2.3. Why is genAI Uniquely Dangerous?

2.3.1 Past Fears of Machines Used as Tools

Similar fears have emerged with the creation of computers, as well as agile and powerful robots capable of using their strength and fast computing capabilities to take over our physical and knowledge-based jobs [10]. Although killer robots have been created, computing and robotic technologies have not posed an existential threat to humanity because our human rights and culture are not defined by brute force and the ability to compute fast. Those developments did not produce a system capable of acquiring our language. Computers and robotic devices were just very capable tools. Humans controlled them and decided how to use them. While a scalpel can kill or save a life in an operating room, it does not decide by itself for what purpose it is used. As a tool, we could unplug a computer or a robot when it malfunctions.

2.3.2 How Does the New genAI Differ?

The situation is now fundamentally different because genAI has succeeded in hacking our human operating system (hOS) by acquiring our language. Such a genAI articulates new answers to questions that were never asked before. It already started changing social media. This type of AI may want to be autonomous and decide on its own, even being able to pretend that it cooperates with us.

The two-sided nature of the genAI entities cannot be fixed easily, because it originates from the human nature captured through the acquired language. The acquired language in genAI reflects our duality because humans swing between various extremes characterized by dialectic, contrasting, but complementary patterns. We are suspended and swing between predictability and spontaneity, utopia and dystopia, yin and yang, and Heschel's halakhah and aggadah. Lyman Tower Sargent [74] calls this utopianism a social dreaming or the desire for a better way of being and argues that it is essential for the improvement of the human condition. However, if used without any checks and balances, it becomes dangerous.

2.3.3 Will Our Right to Cognitive Liberty Survive?

There is another threat that has just emerged: the potential loss of our cognitive liberty [Fara23a], [Fara23b]. When genAI acquired our language with our help at an enormous expense, we felt quite free because the acquired thoughts were from the past. Our current thinking inside our heads was still inaccessible, private.

When we realize that our thoughts (when reading a sentence, imagining, calculating, or a private thought and emotion) trigger some localized neurons in the brain to become active, it becomes obvious that those activities constitute an electrical language of the brain. Such a language can be picked up by another genAI. No more private thought(s).

Neurotechnology is the collection of devices including (i) sensors capable of picking up brain activity through external electrodes, (ii) storing the signals, (iii) translating them into tokens, (iv) recognizing them and (v) generating actions back in the language of the brain. The picked-up signals constitute the language of our brain.

What if the brain language can be translated into internal actions, altering the thoughts, or internal actions performed by us? This might be beneficial in rehabilitation but is also unchartered territory. This new thought-to-action translation can benefit humanity immensely, but without safeguards, it can seriously threaten our fundamental human rights to privacy, freedom of thought, and self-determination.

"Addressing human security is of paramount importance not only today but in the future."

2.3.4 Is the New genAI a Tool?

Such an AI is no longer a tool. When it malfunctions, unplugging it is not possible. How do we unplug a social network that spreads misinformation and disinformation, and manipulates us to do unthinkable harm to others? There is no single plug. In fact, much research has been done to detect malicious attacks, and issue counter-measures to either neutralize the attackers, or to make the networks more resilient (the ability to recover from any damage).

Humans have evolved so far because they were expected to reduce suffering. We failed that expectation many times on that journey, but we were able to globalize, recover and improve when we realized the damage. For many of us, the real wake-up call comes when we realize that we must **breathe** and, like all our predecessors, we need a place to breathe. The AI entities do not breathe.

2.4. Human Security for All (HS4A)

Addressing human security is of paramount importance not only today but in the future.

We are facing unprecedented climate changes due to the industrial and economic revolutions. We can prevent and recover if we agree to invest 2% of GDP each year. This requires collaboration by all. We will still have enough life on this planet to breathe. What about our children and grandchildren?

Global conflicts stemming from our mistakes in the past ended with the hope that they would not be repeated. They ended because many nations fought them together and because the weapons of global destruction did not exist. They do exist now.

The new type of generative AI (genAI) capable of acquiring human language has been released to the public without testing. We have learned from experience that no new medication should be released to physicians or the public without its testing and approval. Furthermore, by having almost unlimited access to our data, it can sell us to various bidders without us even knowing about it. Doctors require our data to help us and are not allowed to share our data. The proposed new regulations to control the use of AI must be implemented urgently.

2.5. The Need for Life-Long Learning and Education

The World Economic Forum reports [96] that 673 million people are being affected globally by the technological transformations, and that one job in four may undergo a change (either growing by 10% or declining by 12%), thus leading to 69 million jobs created and 83 million jobs lost (14 million jobs net lost). Those shifts from one job to two or more in a lifetime appear to become a new reality.

"We should develop a totally new Personalized Symbiotic Education and Learning Ecosystem (PSELES). The system should not be producing a workforce only, but be in symbiosis with all the stakeholders, including industry, business, governments, security forces, and those who will not be able to work. This system should match the capabilities of each individual and prepare those individuals for many jobs in their lifetimes."

The leading drivers for job growth are expected to be ESG (Environmental, Social, and Governance) standards, green transition, and localization of the supply chain. The leading losses may be caused by slow economic growth, high inflation, the increased cost of money to fight inflation, geopolitical uncertainties, and a shortage in supply.

More specifically the expanding jobs due to data generation and processing are expected to occur in (i) AI and Machine Learning (ML) specialists (+39%); (ii) Sustainability specialists (+33%); (iii) Business intelligence analysts (+32%); (iv) Information security analysts (+31%); (v) Fintech engineers (+31%); (vi) Data analysts and scientists; (vii) Robotics engineers; (viii) Electrotechnology engineers; (ix) Agricultural equipment operators; and (x) Digital transformation specialists.

The greatest decline due to digitization may occur in (i) Bank tellers and related clerks (-40%); (ii) Postal service clerks (-40%); (iii) Cashiers and ticket clerks (-37%); (iv) Data entry clerks (-36%); (v) Administrative and executive secretaries (-34%); (vi) Material-recording and stock-keeping clerks; (vi) Accounting, bookkeeping and payroll clerks; (vi) Legislators and officials; (ix) Statistical, finance and insurance clerks; and (ix) Door-to-door sales workers, news and street vendors and support workers.

To address some of the problems, many actions have been initiated by organizations including the Future of Life Institute [23], [24], [25], and individuals [88], [100].

This paper addresses personalized education in symbiotic relations with cognitive digital twins that may be helpful in our human transformation to deal with this complicated and complex intertwined problem.

3. A New Personalized Symbiotic Education and Learning Ecosystem (PSELES)

3.1. Motivation and Foundation

This paper focuses on a new personalized model of education and learning designed to prepare individual learners of any age for a constant change in their lives within their local communities and global societies. The model requires personalized cognitive digital twins with sufficient awareness of their symbiotic relation to others and local and global cultures.

The industrial, economic, and social revolutions and the emergence of new tools such as generative artificial intelligence (genAI), with its acquired functional concept of human language, are altering many aspects of our lives. What used to be safe in the domain of human security has been now challenged existentially. The need for transformation in education and learning is being addressed by many organizations such as the World Academy of Art and Science (WAAS), the United Nations (UN), the National Academies for Science, Engineering and Medicine (NASEM), the Association of Computing Machinery (ACM), and the Institute of Electrical and Electronics Engineers (IEEE) with its TryEngineering program. Many companies provide tools such as Customer Management Systems (CRM), Student Information Systems (SIS), and Learning Management Systems (LMS), including the Desire-to-Learn (D2L) from Brightspace, Blackboard Learn LMS, and Canvas LMS, and over 900 other LMSs.

There are many models of educational systems proposed and some implemented. For example, Zucconi and Jacobs discussed the general need for revising education in 2014 [103]. Integrated approaches were discussed by many (e.g., [22]). Different implementations were evaluated (e.g., [31]). A new education paradigm and the role of eco-systemic leadership were discussed in [59]. Kinsner et al. discussed some challenges in the engineering education of cognitive dynamic systems (e.g., [55]). A model involving digital twins for an evolving symbiotic education was discussed by Kinsner [51].

At the beginning of the first industrial revolution in the 1770s, an efficient well-organized Prussian classroom education system was introduced to produce large numbers of individuals with well-defined expected skills within a fixed period. This "one program fits all learners" produced magnificent results for assembly lines in many new factories then. That one-size-fits-all educational system worked so well that we are still using it.

Since we will not be working on the same assembly line throughout our life and each of us is different and many of the hard skill jobs may be taken over by humanoids and machines, we should develop a totally new **personalized symbiotic education and learning ecosystem** (PSELES). The system should not be producing a workforce only, but be in symbiosis with all the stakeholders, including industry, business, governments, security forces, and those who will not be able to work. This system should match the capabilities of each individual and prepare those individuals for many jobs in their lifetimes.

The PSELES should provide the individuals not only with the requisite body of knowledge (BoK) and the body of experience (BoX) in a single discipline but also with the

additional trans-disciplinary BoK and BoX. Furthermore, the new PSELES should prepare each individual to act as a learner, teacher, and mentor to close the educational loop in which Box is passed to young students and professionals.

In addition, PSELES should also pay attention to the development of talent, character and softer skills, including transparency, honesty, fairness, nimbleness, passion and purpose, and the ability to cooperate in teams, all grounded in literacy to demonstrate analytical and critical thinking.

Sustainability and human security for all are the ultimate goals that must be implemented soon. In short, using an analogy from music, the new PSELES is intended to help individuals develop not only their abilities to read a musical score and play the notes, but nurture the talent of a musician playing both solo and in an orchestra in a way that many listeners would like to experience.

To achieve this goal, we cannot hire a teacher for each student. One of the solutions is to develop personalized tutoring helpers/companions for each student in the form of personalized **symbiotic memetic cognitive digital twins**.

3.2. Learning Ecosystems: Some Definitions

Education and learning have always been existential to humanity, and have been evolving throughout the millennia [51]. Recently, educational systems have been changing more rapidly as a result of sociocultural, political, economic, demographic, and technological changes [90]. New technologies (such as social media, serious games, adaptive software, and software-defined communications systems) and emerging practices (openness, user modelling) in particular, have facilitated opportunities to transform education, learning, and particularly teaching. With the advent of the Internet, the Web and the arrival of the COVID-19 pandemic, brick-and-mortar education has been expanded to network education through distance education, massive online courses (MOOC) [3], avatars, online classes, discussion groups, and remote laboratories. Social media is also providing new channels, including Facebook, Twitter, Flickr, Digg, YouTube, Upcoming, LastFM, Technorati, MyBlogLog, Discord, and SlideShare.

New ways of presenting the material and discussions had to be developed. New ways of doing laboratories and demonstrations of results had to be developed. New ways of asynchronous and synchronous consulting and proctoring of students by the instructors and teaching assistants had to be developed with new communications channels on learning networks.

In addition to those changes, in the classrooms and research laboratories, the pandemic has also accelerated the development of artificial and augmented intelligence (AI) because of the enormous new data related to human activities online, including teaching, theoretical and experiential learning, delivery of test and examinations on line, preparation of the materials, on-line tutoring, tutorials, workshops, symposia, conferences, business meetings, and new forms of educational interaction.

Elimination of travel has resulted not only in the reduction of the carbon footprint, but also more time to find more productive ways to interact and cooperate with more individuals. Although research and development in the area of AI produced magnificent results, the pandemic shock provided an additional impetus that resulted in radically enhanced language translators, written and spoken language generators, as well as image and video generators, all consistent with the user behaviour exhibited during the massive online activities during the pandemic.

3.2.1 What is Learning?

Learning is the acquisition of knowledge, or professional and other skills, through either self-study, or by being taught by parents, friends, teachers and/or tutors, or intelligent systems, or workplace, or organizations, all with different degrees of experience, starting from childhood, through adolescence, to professional life and seasoned years. Learning occurs in many different ways, including a **systematic** way (schools, routine reading of scientific, technical and other news digests, discussions with family, colleagues and friends) and through the less predictable experiences and events that occur in life. This **experiential learning** is also fundamental in acquiring knowledge that is important in decision-making. Learning alters the functioning of the brain [42].

3.2.2 What is Education?

We have just defined learning as the process of acquisition of knowledge in a discipline, hard and soft skills, critical thinking, creative thinking, values, beliefs, and habits. Education is then the process of facilitating learning by teaching, training, discussion, interactive experiential experiments, and directed research.

We learn best when acting on what we have learned, thinking about it, and actually participating in the real world. Effective and impactful learning requires that we immerse ourselves in the process completely: with our will, senses, feelings, intuition, beliefs, and values. It often starts from our own enquiry. This is a very important point to make: the impact of education on us is determined by our engagement; technology by itself can help, but is not a replacement for engagement. For the symbiosis to have the multiplying effect, we must engage the technology too.

In the past, learning was modelled as a linear process in which progression through various educational events produced an additive effect. Today, researchers and educators model learning as well as growth and development as a nonlinear dynamical system. Our proposed digital twin symbiotic educational system is intended to assist in our engaged lifelong learning with emergent possibilities.

A **learning ecology** includes (i) learning concepts, (ii) learning dimensions, (iii) filters, (iv) conduits. Learning is a process that involves several foundational concepts, such as signals and noise in the real and or virtual environment, observables and data, information, knowledge, meaning, understanding, wisdom, and vision. We learn because (the **dimensions of learning**): we need to know, we want to do something, want to be somebody, as well as want to create, transform, and change. Educational filters affecting our outcomes include

values, perspectives and beliefs. Educational conduits include selected languages, media, and technologies engaged in the process.

The educational process can be either formal or informal, it can be done through self-study or communities, with the help of direct performance support or monitoring and mentoring, all gaining experience through simulation, emulation, experiential learning, internship, co-op, or apprenticeship.

3.3. Current Models of Learning

Marcy Driscoll [17] provided a classification of epistemologies including (i) **Behaviorism** (objectivism) in which reality is external to the mind and knowledge and perception are acquired experientially, (ii) **Cognitivism** (pragmatism) in which knowledge is a negotiation between reflection and experience, inquiry and action, and (iii) **Constructivism** (interpretivism) in which knowledge is an internal construction and is informed through socialization and cultural cues. De Corte provided an overview of historical developments in the understanding of learning [11]. A detailed discussion of the systems and their variants can be found in [51].

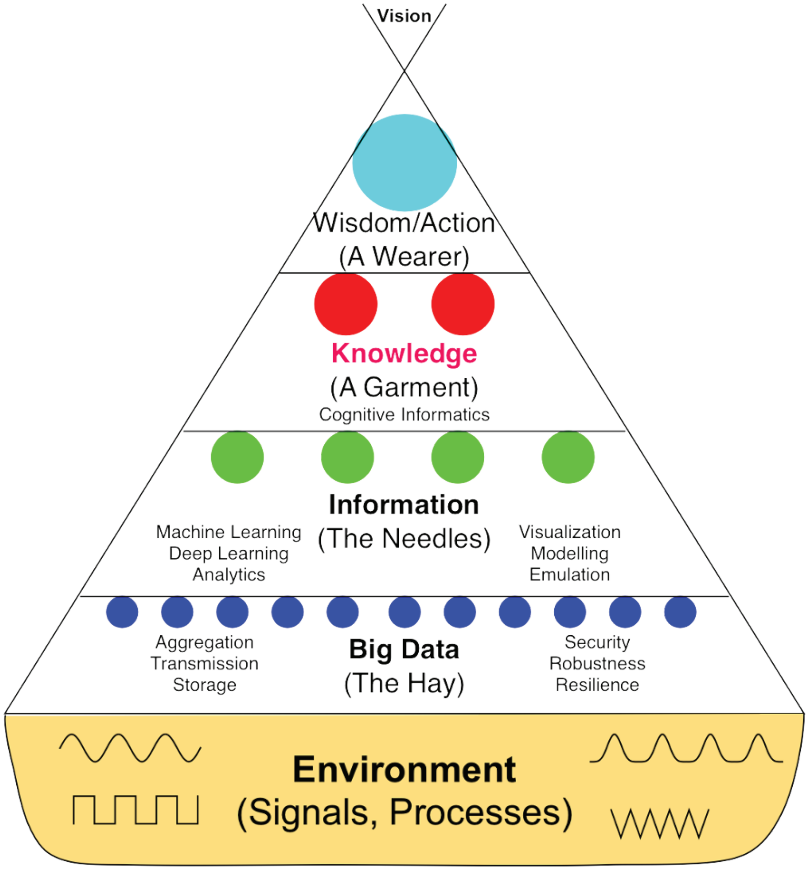
Since human behaviour cannot be fully understood by the reductionist behaviourist approach (decomposing the system into linear parts and then reconstituting it), the idea of Gestalt psychology became more attractive in which the organized configuration of components in the whole system is considered. This approach to learning requires information-processing techniques. **Social constructivism** might be a good model for representing interactions between learners and their grounding contextual environment. This is also combined with shifting away from artificial exercises to real-life situations. The current view on learning includes **adaptive competence** characterized by the so-called CSSC learning ("constructive" to signify that the learners are responsible for constructing their knowledge and skills; "self-regulated" as the learners use their strategies to learn; "situated" to indicate learning in the context of the environment, rather than abstracted from it; and "collaborative" to indicate a team rather than an individual approach.

Stephen Downes [16] [16] and George Siemens (e.g., [17], [79], [25], [80]) proposed another learning theory called **connectivism**, based on various ideas from networking and dynamical systems, i.e., complex interacting nonlinear systems that can develop chaos and self-organization. Connectivism is based on distributed adaptive knowledge (viewed as composed of connections and networked entities) and tries to explain how new knowledge is created. Siemens uses the example of senior citizens that have been linked as mentors to elementary school pupils, thus forming a new distributed knowledge. In that view, learning is a process of connecting specialized nodes or information sources and may reside in non-human nodes. Thus, knowing where to find information is more important than knowing the information element. In contrast, the other three theories do not address the new distributed knowledge creation. A discussion of critical views of the systems and their variants can be found in [51].

3.4. The Knowledge Pyramid (ODIKWaV) Model

Figure 4 illustrates a common progression of situated-learning stages from (O) observations of the environment leading to (D) data extracted from the observations to (I) information, (K) knowledge and action, (W) wisdom, and finally (V) vision [51]. This is often called the data-information-knowledge-wisdom (DIKW) pyramid model. This model is important because it will be required in the SALES learning system using digital twins. The core of a digital twin will have to include the ODIKWaV model.

Fig 5: The Knowledge Pyramid Model



We have extended that model to include directed and purposeful observations to reduce unwanted data. To know what constitutes relevance in data, knowledge and actions (experience) are needed. Responding to the environment only is not sufficient in the extended model, as for the observations to be relevant, a vision is also required.

In the hierarchy of human scientific and technical development, data appear at the starting point for our analysis and provide the impetus for our data-driven learning. Analysis of the data may produce useful information. Note that if we consider the data as a stack of hay, extracting the information could be compared to finding a needle in the stack. Useful information may lead to knowledge (information woven into a garment). Good knowledge may lead to enhanced wisdom needed by the student (the wearer of the garment) to make good decisions. Although this model is fairly limited, we have described it to link it with the concept of digital twins directly. A more detailed discussion of the different levels in the pyramid can be found in [51]. Kinsner also modified the ODIKWaV from a pyramid to an igloo model to emphasize the importance of relevant knowledge and wisdom (purpose).

4. Towards Evolving Personalized Symbiotic Education with Digital Twins

4.1. Summary of Reasons

As we have seen, the knowledge tsunami, automation, and the emergence of generative AI (genAI) are a change in the current classroom/workshop model in universities, colleges, vocational training and retraining, high schools, primary schools and kindergartens. More students and workers learn "just-in-time", and often just enough to solve a problem or get a job completed. this is not sufficient.

Teachers and trainers can no longer be the main sources of knowledge about the world or the work environment, but need new forms of technology to help find and manage the increasing amount of information. No single person, no matter how brilliant, can handle the knowledge, even in one field of study.

Consequently, the roles of teachers, trainers and consultants need to change—from mostly presenters of information to guides, mentors, curators of knowledge, critical thinkers, and problem solvers. They will have to use digital learning skills and literacies.

Throughout the previous section, we have been making the case that the next generation of education would benefit much from the development of personalized symbiotic cognitive digital twins capable of being in relation with human beings in a symbiotic system. This intimate knowledge of personal abilities and needs could allow the digital twins to deliver both the BoK and BoX in a personalized way that has a chance to compete with the best model of the Oxford Master of the past.

Cognitive digital twins could be very helpful in increasing our resilience in many areas, including: (i) Curation of knowledge (organizing and filtering according to agreed-upon criteria to eliminate irrelevant knowledge); (ii) Knowledge fusion (to discover and clean errors present in sources, as well as mistakes made in the process of knowledge extraction from sources); (iii) Plagiarism management (to generate new knowledge); (iv) Knowledge vetting (to identify and verify sources for quality of the content used in the organization); (v) Intellectual property management (separating intellectual property, trade secrets, and copyrighted information from generic and public-domain content); (vi) Knowledge sunsetting (to identify knowledge that cannot be used any longer); (vii) As traditional libraries dwindle, creation of a digital twin "librarian" that knows the needs of the organization and

its members would be beneficial; (viii) As traditional publishing also dwindles, creation of a suitable digital twin "publisher" could benefit the organization; (ix) Acting as assistants and consultants to medical personnel with their awareness of the thousands or more similar cases; (x) Acting as assistants, consultants and mentors to students at different stages and levels of their development; (xi) A guardian against fake information, misinformation (incorrect, but not intended to harm); disinformation (intended to harm); and (xii) A guardian of our privacy and safety to protect us against Slavery 4.0 in which we (i.e., our behaviour) are sold without even knowing it.

4.2. What is a Digital Twin?

A digital twin (DT) is defined as a real-time (RT) digital replica (virtual entity, VE) of a physical entity (PE) such as a non-living entity (devices, subsystems, systems, processes) or a living physical entity. The DT models the PE's physical elements and their dynamics, and both PE and VE can co-exist simultaneously, thus constituting a cyber-physical system.

Based on multi-source RT data, the DT learns and updates itself to represent its status (working conditions, possible malfunctions, and required maintenance), and can control the PE throughout its operation. Since the DT can also integrate its historical data into its model, it can learn from its past behaviours, as well as from its past decisions and their impact on the process itself and the environment in which exists. The fourth industrial revolution (Industry 4.0) has been using DTs very extensively (e.g., [28], [30]).

The idea is to mirror a physical analog object in bits (i.e., a physical digital system, not resembling the original object in shape, but in its behaviour), keeping the bit replica synchronized with the physical one. This allows various types of retrospective and predictive analyses on the digital twin that can provide a better insight into the analog one, and lead to corrective actions when required. In this sense, digital twins are new tools for education: rather than studying and training on the analog object, one can study using its digital representation first. Many technologies like virtual reality can further enhance training and education.

The usefulness of a digital twin goes beyond that scenario. The digital twin can develop far beyond our physical and physiological limitations, and find proper ways to be helpful in our adaptation to the untenable challenge of doubling knowledge over a decreasing time period. Another challenge is the need to educate individuals for more than one job due to automation, mechanization, and the unprecedented growth in deep learning (DL) [1] [27] and artificial general intelligence (AGI), as described in the White Paper I and II [13]. Some challenges in developing better engineering education in cognitive systems are described in [2][49], [3][55].

4.3. Applications of Digital Twins

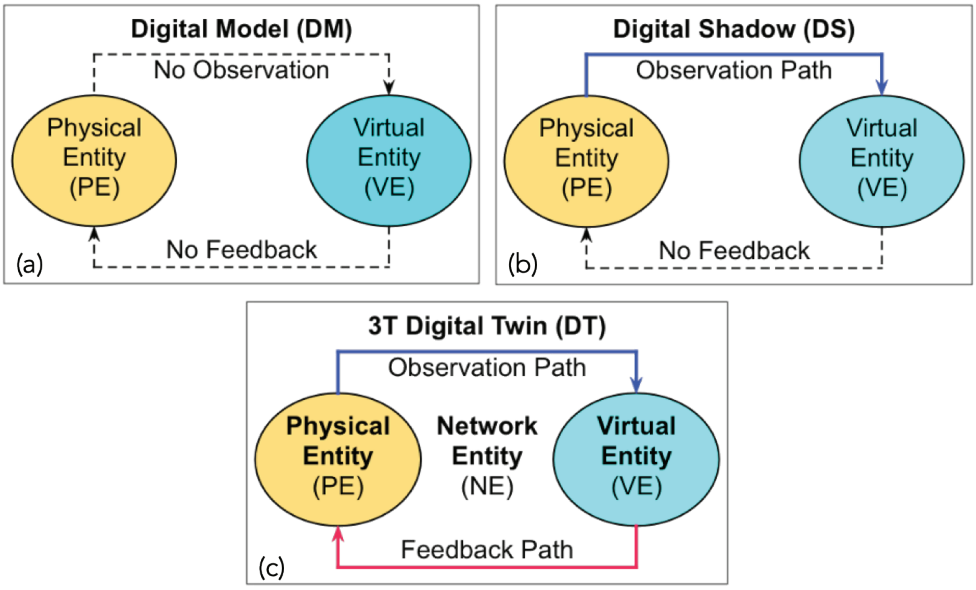
In industries (manufacturing, automotive, healthcare, and enterprise), DTs are often used to optimize the operation and maintenance of physical assets, systems and manufacturing processes. Other applications include: (i) Power generation (hydro turbines, wind turbines, solar); (ii) Utilities (electric, gas, water, wastewater networks at Siemens, General Electric); (iii) Aircraft, rockets, satellites, engines (Boeing, NASA, SpaceX); (iv) Locomotives; (v)

Automotive (Tesla); (vi) Buildings; (vi) Large structures (offshore platforms); and (vii) Heating, Ventilation and Air Conditioning control systems. There is interest in applying digital twins in education (e.g., [43], [19]).

4.4. Evolution of Digital Twins

The digital twin (DT) concept has evolved over the last 10 years (e.g., [29] [71]) from a digital model (DM, Fig. 5a) through a digital shadow (DS, Fig. 5b), to the proper digital twin (DT, Fig. 5c).

Fig. 6: Evolution of the digital twin concept.
(a) Digital model. (b) Digital shadow. (c) Digital twin.



4.4.1 Digital Model (DM)

A digital model (DM; Fig. 5a) is an accurate mathematical model of the physical entity (PE) designed to mimic the physical entity (PE) as accurately as possible, and when implemented in software on a computer environment, it can be used to simulate the behaviour of the PE for teaching or research purposes. However, since there is no monitoring link from the PE, the model cannot be adjusted to the current conditions of the PE. Furthermore, since there is no link back to the actuators in the PE, the physical system cannot be controlled.

4.4.2 Digital Shadow (DS)

A digital shadow (Fig. 5b) is an improvement over the digital model (DM) because it has a link to the monitoring section of the PE, thus allowing the digital shadow to update its parameters in the model to reflect the current conditions in the PE. The DS does not have a feedback path back to the PE.

4.4.3 Digital Twin (DT)

The digital twin (Fig. 5c) is a further improvement over the digital shadow (DS) because it has another link to the controlling section of the PE, thus allowing the DT not only to update its parameters in the model to reflect the current conditions in the DE, but also control it.

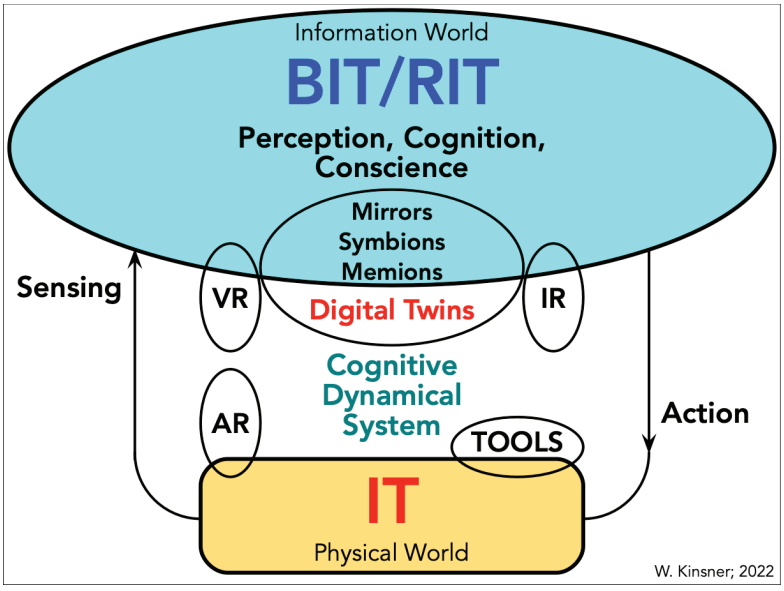
4.5. Attributes of Digital Twins

Digital twins have several essential attributes. They are well connected to the physical entity (PE) using many forms, including the Internet of Things (IoT) and the Industrial Internet of Things (IIoT). They utilize Artificial intelligence extensively for reactive and predictive analytics. They often utilize holarchy (a structure of multi-agent holons where each holon can be not only a part, but a whole). This is in contrast to the hierarchy (with a separate top and bottom) used by hierarchical systems with a central dominant control centre. Another attribute is homogenization in which data are unconstrained by physical location or time. DTs also have digital real-time traces to have a sense of real-time evolutions of events. Modularity is also an important attribute of DTs for debugging and maintenance.

4.6. Bit/Rit from It or It from Bit/Rit/Qbit?

Figure 7 illustrates the linkage between physical reality (IT) and digital reality (BIT) and relational reality, RIT) with the help of the digital twin, virtual reality (VR), augmented reality (AR) and intelligent reality (IR).

Fig.7. The digital twin ecosystem and links between physical and digital realities.



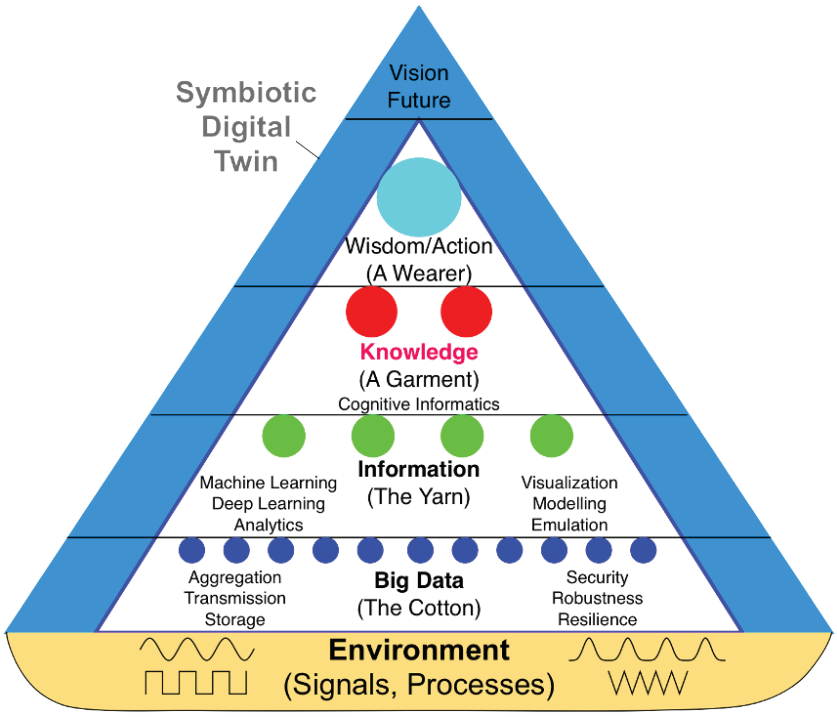
The concept of a digital twin resembles the famous John Archibald Wheeler's observation "It from Bit" and the other direction from Julian Barbour's "Bit from It" [2]. Today, we still have mostly "Bit/Rit from It," but with the advances in technology, the "It" is affected increasingly by "Bit/Rit and Qbit." Wheeler's observation may also be the source of one of the greatest dangers when we could become separated from the real "It." The current misinformation, disinformation and fake visual and audio "realities" generated by genAI have done much damage already.

4.7. Symbiotic Digital Twin (Symbion)

Recall that a digital twin (DT) is a replica of a physical entity (PE). If the PE is a person whose current state of learning is described by the knowledge pyramid/igloo model (ODIKWaV), then the personalized digital twin is called DT1.

Since the DT1 is intended to interact with the PE and the environment by monitoring not only the person but the environment, then analyzing both continuously, while advising mentoring, and learning, the DT1 expands to form a digital twin DT2, as illustrated in Fig.8. The relation between the person and the environment is designed to be symbiotic; i.e., all partners benefit from the relation. To distinguish between the previous models DT, DT1 and DT2 or SDT1, the new digital entity DT2 is called symbiotic digital twin or a **symbion** for short.

Fig. 8: A Symbiotic Digital Twin (symbion).



In a formal way, our digital twin could come to represent both our skills, knowledge, and wisdom. It can also be flanked by applications taking into account the fading away of skills (what we lose when not practising) and knowledge (when we forget). This information about our degrading skills/knowledge can be the starting point for a proactive education program.

"The proposed Personalized Symbiotic Education and Learning Ecosystem (PSELES) has the promise of great impact on how we study, learn, acquire skills, interact with people and machines, discover new things, learn how to operate new things, and how to perceive and see reality much deeper."

Writing an article and presenting it at a conference, or attending a conference to listen to colleagues presenting their papers can also be mirrored by our digital twin. The same applies to the process of reviewing papers.

Many publishers allow ongoing discussion on their published papers that could be monitored by our digital twin.

Educational institutions, including IEEE, could contribute to the mirroring of their "students", and "members" into digital twins. These might be very useful in creating customized and personalized education programs.

An example of such a program is the personalized system of instruction (PSI) by Fred S. Keller (1899-1996; 97) [4] [47]. Since the manual administration of Keller's PSI is very tedious, we have developed a Computer-Aided PSI (CAPSI) that has been running at the University of Manitoba, Canada for many years [5] [54].

Our system is a **digital shadow** of an individual student, with the feedback provided to a struggling student by a human proctor (also a student) who has advanced through the material and is qualified to give assistance to the struggling student as assigned by CAPSI.

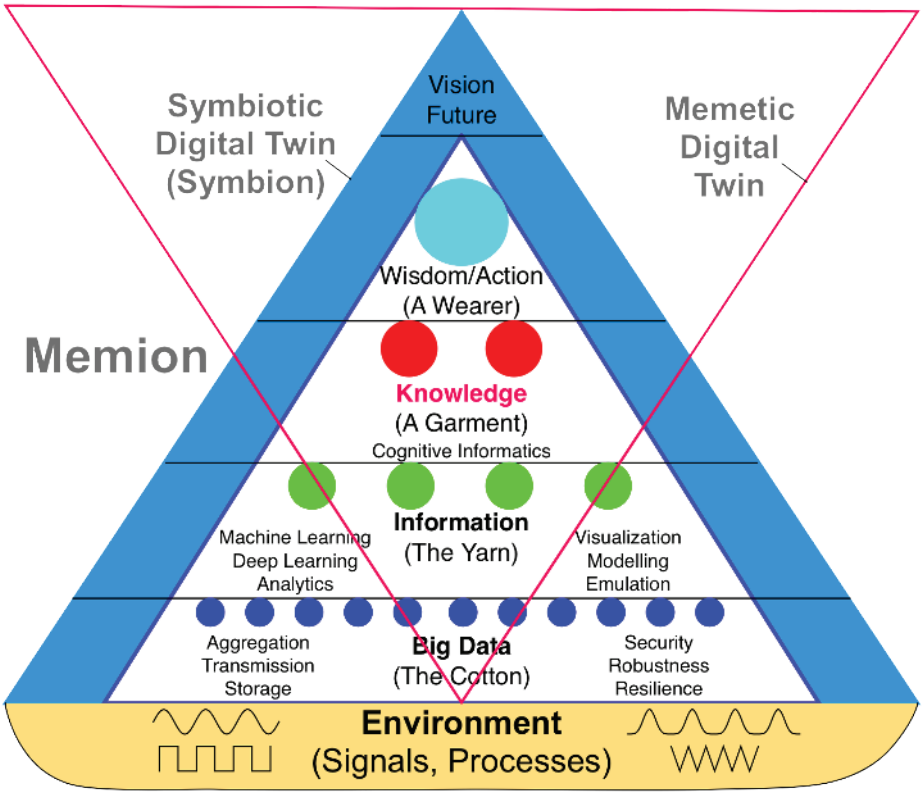
In a symbiotic autonomous system (SAS), the skills, knowledge and wisdom should be shared among its component subsystems to enhance the overall performance of the system.

Furthermore, the digital twin could start increasing (or decreasing) interaction between its parts. Notice that in dynamic complex systems, the whole is not necessarily the sum of its part. Through such nonlinear interactions, an emergent quality may appear that may not be found in any of its parts.

4.8. Memetic Symbiotic Digital Twin (Memion)

A memion is a symbiotic digital twin (SDT1≡DT2) combined with a memetic DT (MDT2≡DT3). It has the intertwined knowledge of the individual with the knowledge of a project team, work environment, community, organization, society and culture. Figure 9 illustrates a memion schematically.

Fig.9: A Schematic Representation of a Memion



4.9. Emergent Behavior of Symbions and Memions

Since sybmions and memions can interact with their twin, the person, and with one another, their interactions may lead to emergent behaviour, producing new behaviours that may be beneficial. This is an area of research.

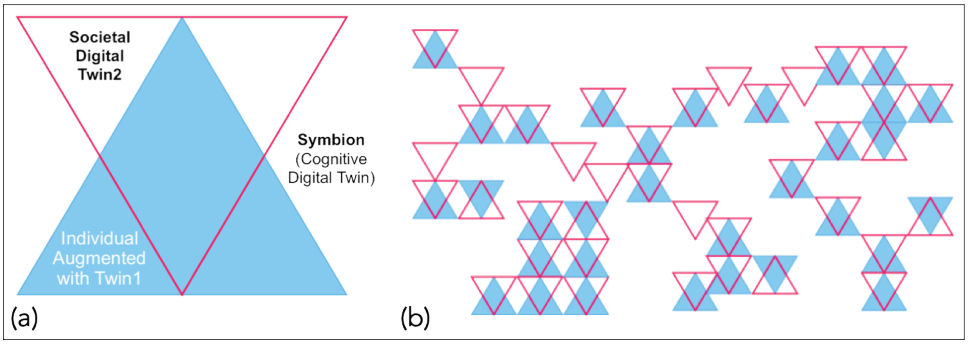
Learning through the symbiotic relationship between an individual and a digital twin is potentially much more beneficial to the individual than alternative learning methods.

The symbiotic pair (the individual and the digital twin) is called here a symbions.

It should be very clear that such individual symbions are connected with other symbions through the fundamental construct of a digital twin.

The individual symbions can enter into symbiotic relations with other symbions, forming teams, communities, and societies, as shown in Fig. 10.

Fig.10: A schematic representation of (a) a memions and (b) its self-affine stochastic groupings (communities).



4.10. Implementations of Digital Twins for Education

To succeed, this personalized symbiotic education must use sophisticated algorithms available today and might accelerate the development of better algorithms including:

- Machine learning and deep learning [6], [27];
- Cognitive systems [94], [Wang02];
- Generative and other appropriate AI [];
- Web intelligence [Deva11986], [26], [101], [71];
- Higher-order (HO) statistical signal processing [35];
- Intelligent signal processing [50], [36]];
- Compressive sensing [5];
- Fuzzy and granular computing [68];
- Multiscale (wavelet) analysis [98], [92];
- Polyscale measures and fractal signal processing [48], [53], [52]. [101], [Verh06];
- Long-range-dependence patterns in the data [53], [46], [78];
- Nonlinear time series analysis [35];
- Sifting our relevant information and knowledge [85]; [76], [Wolc17];
- Emergent dynamical systems concepts [83], [Deva1986]; and
- Dynamical systems and complexity measures such as learning entropies [7], [48].

4.11. Implementations of Digital Twins in Industry

Industrial digital twins have been implemented by many companies such as Siemens, Boeing, and NASA General Electric. New implementations are growing in numbers around the globe. One of them is intended to provide knowledge-as-a-service (KaaS) to members

of an organization [51]. Other examples include [61], [58], [20], [21], [44], [57], [60], [99], [4], [84], and [71].

5. Closing Remarks on Personalized Symbiotic Education

The proposed Personalized Symbiotic Education and Learning Ecosystem (PSELES) has the promise of great impact on how we study, learn, acquire skills, interact with people and machines, discover new things, learn how to operate new things, and how to perceive and see reality much deeper. This personalized symbiotic education can open up a new landscape for exciting new concepts and research projects.

We already know how to compete. Symbiotic education might help us learn how to compete fairly. While competition could improve fairness, we might also learn how to cooperate to the benefit of all involved.

Another important outcome of developing personalized cognitive digital twins is that they might help increase human security not just for the few who can afford them, but for all. Personalized cognitive digital twins may actually enforce the ethical use of the entire ecosystem by operating ethically in symbiotic relations with us.

Author's Contact Information
Email: witold.kinsner@umanitoba.ca

Bibiography

1. Ali Abedi, Mohamed Amin, Rosa M. Badia, Mary Baker, Greg Byrd, Mercy Chelangat Koech, Thomas Coughlin, Jayakrishnan Divakaran, Paolo Faraboschi, Nicola Ferrier, Eitan Frachtenberg, Ada Gavrilovska, Alfredo Goldman, Francesca Iacopi, Vincent Kaabunga, Hironori Kasahara, Witold Kinsner, Danny Lange, Phillip Laplante, Katherine Mansfield, Avi Mendelson, Cecilia Metra, Dejan Milojicic (Chair), Puneet Kumar Mishra, Chris Miyachi, Khaled Mokhtar, Bob Parro, Nita Patel, Alexandra Posoldova, Marina Ruggieri, Saracco Roberto, Tomy Sebastian, Saurabh Sinha, Michelle Tubb, John Verboncoeur, and Irene pazos viana. Technology Predictions for 2023. IEEE Computer Society Press Room, Jan 18, 2023. https://www.computer.org/2023-top-technology-predictions; https://www.computer.org/press-room/2023-news/technology-predictions-for-2023-released-ieee-computer-society-experts-gauge-the-future-of-techhttps://www.computer.org/press-room/news-archive?tag=cs-tech-trends-and-predictions; https://lnkd.in/gTUssZsM; https://lnkd.in/gRgHETe3
2. Anthony Aguirre, Brendan Foster, and Zeeya Merali, It From Bit or Bit From It?: On Physics and Information. New York, NY: Springer, 2015, 248 pages. {ISBN-13: 978-331912945-7; DOI: 10.1007/978-3-319-12946-4_17} https://link.springer.com/book/10.1007/978-3-319-12946-4
3. Terry Anderson (ed.), The Theory and Practice of Online Learning. Edmonton, AB: AU Press, 2008 (2nd ed.), 484 pages. {ISBN:9781897425077, PDF, free}http://www.aupress.ca/books/120146/ebook/99Z_Anderson_2008-Theory_and_Practice_of_Online_Learning.pdf
4. Anatol Badach, "Digital Twins in IoT," Technical Report, 24 pp., Dec 2022. {DOI: 10.13140/RG.2.2.16000.92161} https://www.researchgate.net/publication/366167747_Digital_Twins_in_IoT
5. Richard G. Baraniuk, Emmanuel Candes, Robert Novak, and Martin Vetterli, "Compressive sampling" IEEE Signal Processing, vol. 25, no. 2, pp. 12-20, March 2008.
6. Christopher M. Bishop, Pattern Recognition and Machine Learning. Cambridge, UK: Springer Science, 2004 (2nd ed.), 738 pages.
7. Ivo Bukovsky, Witold Kinsner and Noriyasu Homma, "Learning Entropy as a Learning-Based Information Concept," Entropy, vol. 21, no. 2, paper #166, 2019, 14 pages.https://www.mdpi.com/1099-4300/21/2/166; https://doi.org/10.3390/e21020166; https://www.linkedin.com/pulse/learning-entropy-learning-based-information-concept-connie-xiong/?published=t
8. *Cadmus*, The Russell-Einstein Manifesto: As relevant today as it was 65 years ago," *Cadmus* (Editorial), vol. 4, no. 2, May-Jun 2020. https://cadmusjournal.org/article/volume-4/issue-2/russell-einstein-manifesto-relevant-today-it-was-65-years-ago

9. Aakanksha Chowdhery, Sharan Narang, Jacob Devlin, Maarten Bosma, Gaurav Mishra, Adam Roberts, Paul Barham, Hyung Won Chung, Charles Sutton, Sebastian Gehrmann, Parker Schuh, Kensen Shi, Sasha Tsvyashchenko, Joshua Maynez, Abhishek Rao, Parker Barnes, Yi Tay, Noam Shazeer, Vinodkumar Prabhakaran, Emily Reif, Nan Du, Ben Hutchinson, Reiner Pope, James Bradbury, Jacob Austin, Michael Isard, Guy Gur-Ari, Pengcheng Yin, Toju Duke, Anselm Levskaya, Sanjay Ghemawat, Sunipa Dev, Henryk Michalewski, Xavier Garcia, Vedant Misra, Kevin Robinson, Liam Fedus, Denny Zhou, Daphne Ippolito, David Luan, Hyeontaek Lim, Barret Zoph, Alexander Spiridonov, Ryan Sepassi, David Dohan, Shivani Agrawal, Mark Omernick, Andrew M. Dai, Thanumalayan Sankaranarayana Pillai, Marie Pellat, Aitor Lewkowycz, Erica Moreira, Rewon Child, Oleksandr Polozov, Katherine Lee, Zongwei Zhou, Xuezhi Wang, Brennan Saeta, Mark Diaz, Orhan Firat, Michele Catasta, Jason Wei, Kathy Meier-Hellstern, Douglas Eck, Jeff Dean, Slav Petrov, Noah Fiedel, "PaLM: Scaling Language Modeling with Pathways," arXiv, Oct 5, 2022, 87 pages. https://arxiv.org/abs/2204.02311
10. Ariel Conn, "Benefits and risks of artificial intelligence," Future of Life Institute, Nov 14, 2015. https://futureoflife.org/ai/benefits-risks-of-artificial-intelligence/
11. Erik De Corte, "Historical developments in the understanding of learning," in Hanna Dumont, David Istance, and Francisco Benavides (eds.), The Nature of Learning: Using research to inspire practice. OECD Publishing, pp. 35–68, 2010, 340 pages. {ISBN: 9789264086487}http://www.keepeek.com/Digital-Asset-Management/oecd/education/the-nature-of-learning_9789264086487-en#page1; https://www.oecd-ilibrary.org/education/the-nature-of-learning_9789264086487-en
12. Evan Crothers, Nathalie Japkowicz, and Herna Viktor, "Towards ethical content-based detection of online influence campaigns," arXiv, Aug 29, 2019, 6 pages. https://arxiv.org/abs/1908.11030
13. S. Mason Dambrot, Derrick de Kerchove, Francesco Flammini, Witold Kinsner, Linda MacDonald Glenn, Roberto Saracco, Symbiotic Autonomous Systems White Paper II. IEEE Future Directions - October 2018, 227 pages. https://symbiotic-autonomous-systems.ieee.org/white-paper/white-paper-ii
14. Atsushi Deguchi, Chiaki Hirai, Hideyuki Matsuoka, Taku Nakano, Kohei Oshima, Mitsuharu Tai & Shigeyuki Tani, "What Is Society 5.0?," Ch. 1, in Society 5.0: A People-centric Super-smart Society.pp.1-25, 30 May 2020. {ISBN: 978-981-15-2989-4; ebk} https://link.springer.com/chapter/10.1007/978-981-15-2989-4_1; https://doi.org/10.1007/978-981-15-2989-4
15. Robert L. Devaney, An Introduction to Chaotic Dynamical Systems. Menlo Park, CA: The Benjamin-Cummings Publishing, 1986, 320 pages.
16. Stephen Downes, Connectivism: A Theory of Personal Learning. Dec 8, 2008, 97 pages. http://www.slideshare.net/Downes/connectivism-a-theory-of-personal-learning
17. Marcy P. Driscoll, Psychology of Learning for Instruction. New York, NY: Pearson, 2005 (3rd ed.), 496 pages. {ISBN-13: 9780205375196}. Chapter 1 http://ocw.metu.edu.tr/file.php/118/Dris_2005.pdf
18. Liam Dugan, Daphne Ippolito, Arun Kirubarajan, Sherry Shi, Chris Callison-Burch, "Real or fake text?: Investigating human ability to detect boundaries between human-written and machine-generated text," arXiv, Dec 24, 2022. https://arxiv.org/abs/2212.12672
19. Kristina Eriksson, Abdlkarim Alsaleh, Shervin Behzad Far, and David Stjern,, "Applying Digital Twin Technology in Higher Education: An Automation Line Case Study," in Proceedings of the 10th Swedish Production Symposium (SPS2022), A.H.C. Ng, A. Syberfeldt, and D. Högberg (Eds.), 13 pp., Apr 2022, 872 pages. {ISBN: 9781643682686} https://www.researchgate.net/publication/360152998_Applying_Digital_Twin_Technology_in_Higher_Education_An_Automation_Line_Case_Study
20. Rahatara Ferdousi, Fedwa Laamarti, and Abdulmotaleb El Saddik, "Artificial intelligence models in digital twins for health and well-being," in Digital Twin for Healthcare, Ch 6, pp. 121-136, Jan 2023. Open Review. {DOI: 10.13140/RG.2.2.23742.77121} https://www.researchgate.net/publication/367504395_Artificial_intelligence_models_in_digital_twins_for_health_and_well-being
21. Rahatara Ferdousi, Fedwa Laamarti, M. Anwar Hossain, Chunsheng Yang, and Abdulmotaleb El Saddik, "Digital twins for well-being: An overview," Digital Twin, col.1, no. 7, 21 pages, Feb 2022. {DOI: 10.12688/digitaltwin.17475.2} https://www.researchgate.net/publication/358656713_Digital_twins_for_well-being_an_overview; https://www.researchgate.net/publication/358656713
22. Rodolfo Fiorini, Carlos Alvarez Pereira, Garry Jacobs, Donato Kiniger-Passigli, Alberto Zucconi, Nebojša Nešković, Herwig Schopper, Vojislav Mitic, Hazel Henderson, Mariana Todorova, Witold Kinsner, Luigi Cocchiarella, "Global transformative leadership in the 21st century: A science, engineering, technology integrated and strategic perspective," *Cadmus*, vol. 4, no. 2P1, pp. 56-87, May 2020. https://cadmusjournal.org/article/volume-4/issue-2-part-1/global-transformative-leadership-21st-century; https://www.cadmusjournal.org/files/pdfreprints/vol4issue2/Global-Transformative-Leadership-in-the-21-century-RFiorini-etal-Cadmus-V4-I2-P1-Reprint.pdf
23. Future of Life Institute, "Pause giant AI experiments: An open Letter," Open Letter, Mar 22, 2023. https://futureoflife.org/open-letter/pause-giant-ai-experiments/
24. Future of Life Institute, "Value-aligned AI research landscape," Infographics, Nov 16, 2018. https://futureoflife.org/valuealignmentmap/
25. Future of Life Institute, "Asilomar AI Principles," Open Letter, Aug 11, 2017. https://futureoflife.org/open-letter/ai-principles/

26. Wensheng Gan, Zhenqiang Ye, Wan Shicheng, Philip S Yu, "Web 3.0: The Future of Internet," arXiv, Mar 23, 2023, 11 pages. {DOI: 10.1145/3543873.3587583}https://www.researchgate.net/publication/369753421_Web_30_The_Future_of_Internet

27. Ian Goodfellow, Yoshua Bengio, Aaron Courville, Deep Learning. Cambridge, MA: MIT Press, 2016, 800 pages. {ISBN: 978-026203561-3} https://mitpress.mit.edu/books/deep-learning; HTML form: http://www.deeplearningbook.org/

28. Michael Grieves, "Intelligent digital twins and the development and management of complex systems," Digital Twin, vol. 2, p. 8, Jun 2022, 24 pages. {DOI: 10.12688/digitaltwin.17574.1} https://digitaltwin1.s3.ap-southeast-1.amazonaws.com/manuscripts/18853/8e9d4e59-b664-4601-b1c9-dc83e83b7c6e_17574_-_michael_grieves_(2).pdf?doi=10.12688/

29. Michael Grieves, "Digital Model, Digital Shadow, Digital Twin," Technical Report, Digital Twin Institute, 24 pp., Apr 2023. https://www.researchgate.net/publication/369830792_Digital_Model_Digital_Shadow_Digital_Twin

30. Michael Grieves and John Vickers, "Digital twin: Mitigating unpredictable, undesirable emergent behavior in complex systems," Transdisciplinary Perspectives on Complex Systems, J . Kahlen, S . Flumerfelt, and A . Alves, Eds. Cham, Switzerland: Springer International, p. 85-113, 2017. {DOI: 10.1007/978-3-319-38756-7_4} https://link.springer.com/chapter/10.1007/978-3-319-38756-7_4

31. Fadwa El Guindi, "Reflections on future education: Ideas for a model," Cadmus, vol. 4, no. 2P3, pp. 273-281, Jul 2020. https://cadmusjournal.org/article/volume-4/issue-2/reflections-future-education-ideas-model; https://www.cadmusjournal.org/files/pdfreprints/vol4issue2/Reflections-on-Future-Education-FElGuindi-Cadmus-V4-I2-P3-Reprint.pdf

32. Yuval Noah Harari, Sapiens: A Brief History of Humankind. Oxford, UK: Signal, May 10 2016, 512 pages. {ISBN-13: 978-0771038518, pbk} https://www.amazon.ca/Sapiens-Humankind-Yuval-Noah-Harari/dp/0099590085; https://www.penguinrandomhouse.ca/books/237149/sapiens-by-yuval-noah-harari/9780771038518

33. Yuval Noah Harari, Homo Deus: A Brief History of Tomorrow. Oxford, UK: Signal, Oct 31 2017, 528 pages. {ISBN-13: 978-0771038709, pbk} https://www.penguinrandomhouse.ca/books/541782/homo-deus-by-yuval-noah-harari/9780771038709

34. Yuval Noah Harari, 21 Lessons for the 21st Century. Oxford, UK: Signal, March 31 2020, 416 pages. {ISBN-13: 978-0771048883, pbk} https://www.penguinrandomhouse.com/books/579741/21-lessons-for-the-21st-century-by-yuval-noah-harari/

35. Simon Haykin, José C. Principe, Terrence J. Sejnowski, and John McWhirter (eds.), New Directions in Statistical Signal Processing. Cambridge, MA: MIT Press, 2007, 514 pages.

36. Simon Haykin and Bart Kosko (eds.), Intelligent Signal Processing. Piscataway, NJ: IEEE Press, 2001, 573 pages.

37. Melissa Heikkilä, "Our quick guide to the 6 ways we can regulate AI," MIT Technology Review, May 22, 2023. https://www.technologyreview.com/2023/05/22/1073482/our-quick-guide-to-the-6-ways-we-can-regulate-ai/?truid=d6884d6d0690d356db5a8f77f3f20402&utm_source=the_download&utm_medium=email&utm_campaign=the_download.unpaid.engagement&utm_term=Active%20Qualified&utm_content=05-23-2023&mc_cid=e6162a68f3&mc_eid=9bc2b4df6a

38. 38. Shelby Hiter, "Generative AI Startups in 2023," eWeek, Apr 4, 2023. https://www.eweek.com/artificial-intelligence/generative-ai-startups/

39. Shelby Hiter, "Generative AI Companies: Top 12 Leaders," eWeek, Apr 17, 2023. https://www.eweek.com/artificial-intelligence/generative-ai-companies/

40. Shelby Hiter, "Top 9 Generative AI Applications and Tools," eWeek, May 2, 2023. https://www.eweek.com/artificial-intelligence/generative-ai-apps-tools/

41. Shelby Hiter, "Generative AI landscape: Current and future trends," eWeek, May 11, 2023. https://www.eweek.com/artificial-intelligence/generative-ai-landscape/

42. Christina Hinton, Kurt W. Fischer, and Catherine Glennon, Mind, Brain, Education: The Students at the Center Series. Report, Boston, MA: Jobs for the Future, 2012, 34 pages. Available Aug 15, 2018 at http://www.studentsatthecenter.org/sites/scl.dl-dev.com/files/Mind Brain Education.pdf

43. Eric Hawkinson, "Automation in Education with Digital Twins: Trends and Issues," International J. Open and Distance Education, vol. 8, no. 2, 9 pp., Dec 2022. {DOI: 10.58887/ijodel.v8i2.229} https://ijodel.com/index.php/ijodel/article/view/229; https://www.researchgate.net/publication/370233109_Automation_in_Education_with_Digital_Twins_Trends_and_Issues

44. Tetsunari Inamura, "Digital Twin of Experience for Human–Robot Collaboration Through Virtual Reality" International Journal of Automation Technology vol. 17, no. 3, pp. 284-291, May 2023. {DOI: 10.20965/ijat.2023.p0284} https://www.researchgate.net/publication/358656713_Digital_twins_for_well-being_an_overview; https://www.researchgate.net/publication/358656713

45. Yuchen Jiang, Xiang Li, Hao Luo, Shen Yin, and Okyay Kaynak, "Quo vadis artificial intelligence?," Discover Artificial Intelligence, vol. 2, ar. 4, Mar 7, 2022, 157 references. Open Access. {DOI: 10.1007/s44163-022-00022-8} https://doi.org/10.1007/s44163-022-00022-8; https://www.researchgate.net/publication/359078823_Quo_vadis_artificial_intelligence#fullTextFileContent

DOI: https://doi.org/10.17226/26863} https://nap.nationalacademies.org/catalog/26863/transforming-research-and-higher-education-institutions-in-the-next-75-years; https://nap.nationalacademies.org/download/26863

65. National Academies of Sciences, Engineering and Medicine, Foundations of Data Science for Students in Grades K-12. Washington, DC: The National Academies Press, 2023, 152 pages. {ISBN: 978-0-309-69815-3; DOI: https://doi.org/10.17226/26852} https://nap.nationalacademies.org/catalog/26852/foundations-of-data-science-for-students-in-grades-k-12; https://nap.nationalacademies.org/download/26852
66. National Academies of Sciences, Engineering and Medicine, Cybersecurity Issues and Protection Strategies for State Transportation Agency CEOs. Washington, DC: The National Academies Press, 2023, 109 pages. {ISBN 978-0-309-70272-0 | DOI 10.17226/27024} https://doi.org/10.17226/27024; https://nap.nationalacademies.org/download/27024
67. Paul Pallaghy, "More breakthroughs in LLMs / GPT / AGI 'just' occurred," Medium, May 9, 2023. https://medium.com/@paul.k.pallaghy/more-breakthroughs-in-llms-gpt-agi-just-occurred-95568de110db
68. Witold Pedrycz, Granular Computing: An Emerging Paradigm. New York, NY: Physica-Verlag HD, 2010 (2nd ed.), 403 pages. {ISBN: 978-3790824872}
69. Bernhard Reinsberg, Daniel O. Shaw, and Louis Bujnoch, "Revisiting the security–development nexus: Human security and the effects of IMF adjustment programmes," Conflict Management and Peace Science, Jul 6, 2022 (OpenAccess) https://journals.sagepub.com/doi/10.1177/07388942221111064; https://doi.org/10.1177/07388942221111064
70. Bernhard Reinsberg, Daniel O. Shaw, and Louis Bujnoch, "Replication Data for: Revisiting the security-development nexus: Human security and the effects of IMF adjustment programs," Harvard Dataverse, V1, UNF:6:RhK/gfAq6kB2eqsejrLuWg== [fileUNF] {https://doi.org/10.7910/DVN/GU8V2R} https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/GU8V2R
71. Alessandro Ricci, Angelo Croatti, Stefano Mariani, Sara Montagna, and Marco Picone, "Digital Model, Digital Shadow, Digital Twin," ACM Transactions on Internet Technology, vol. 22, no. 4, pp. 1-30, Nov 2022. {DOI: 10.1145/3507909} https://www.researchgate.net/publication/365428491_Web_of_Digital_Twins
72. Stuart Russell, Human Compatible: Artificial Intelligence and the Problem of Control. Penguin Books, 2020, 352 pages. {ISBN-13: 978-0525558637, pbk} https://people.eecs.berkeley.edu/~russell/hc.html
73. Bruno Salgues, "Society 5.0, Its Logic & Its Construction," Book Chapter, pp. 1 - 21, 2018. {ISBN DOI: 10.1002/9781119507314.ch1} https://ieeexplore.ieee.org/document/8607863
74. Lyman Tower Sargent, Utopianism: A very short introduction. Oxford,UK: Oxford University Press, 2010, 144 pages. {ISBN-13: 978-019957340-0, pbk; 978-019177761-5, ebk} https://academic.oup.com/book/452; https://doi.org/10.1093/actrade/9780199573400.001.0001; https://www.amazon.ca/Utopianism-Introduction-Lyman-Tower-Sargent/dp/0199573409/ref=sr_1_1?keywords=9780199573400&linkCode=qs&qid=1685034708&s=books&sr=1-1
75. Klaus Schwab, The Fourth Industrial Revolution. World Economic Forum, 2016. https://www.weforum.org/about/the-fourth-industrial-revolution-by-klaus-schwab/; https://www3.weforum.org/docs/WEF_The_Fourth_Industrial_Revolution.pdf
76. Ravid Shwartz-Ziv and Naftali Tishby, "Opening the black box of deep neural networks via information," arXiv, Mar 2, 2017, 19 pages. https://arxiv.org/abs/1703.00810; https://arxiv.org/pdf/1703.00810.pdf
77. David R. So, Chen Liang, and Quoc V. Le, "The evolved transformer," arXiv, Jan 20, 2019, 14 pages. https://arxiv.org/abs/1901.11117
78. Irene Solaiman, Miles Brundage, Jack Clark, Amanda Askell, Ariel Herbert-Voss, Jeff Wu, Alec Radford, Gretchen Krueger, Jong Wook Kim, Sarah Kreps, Miles McCain, Alex Newhouse, Jason Blazakis, Kris McGuffie, Jasmine Wang, "Release strategies and the social impacts of language models," OpenAI Report, arXiv, Aug 24, 2019, 71 pages. https://doi.org/10.48550/arXiv.1908.09203; https://d4mucfpksywv.cloudfront.net/papers/GPT_2_Report.pdf
79. George Siemens and Stephen Downes, Connectivism and Connective Knowledge. Online Course, 2009. Retrieved from http://ltc.umanitoba.ca/connectivism/
80. George Siemens and Tittenberger, P. Handbook of Emerging Technology for Learning. 2009. http://umanitoba.ca/learning_technologies/cetl/HETL.pdf
81. Julien Clinton Sprott, Chaos and Time-Series Analysis. Oxford, UK: Oxford Univ. Press, 2003, 507 pages.
82. John D. Sterman, "An integrated theory of the economic long wave," Futures, vol. 17, no. 2, pp. 104-131, Apr 1985. https://www.sciencedirect.com/science/article/abs/pii/0016328785900023s
83. Steven H. Strogatz, Nonlinear Dynamics and Chaos. Cambridge, MA: Westview/Perseus, 2000, 498 pages.
84. Max Tegmark, "Life 3.0: Being Human in the Age of Artificial Intelligence," Knopf, 2017, 384 pages. {ISBN-13: 978-1101946596, hbk} https://www.amazon.com/Life-3-0-Being-Artificial-Intelligence/dp/1101946598/ref=pd_vtp_h_vft_none_pd_vtp_h_vft_none_sccl_3/133-5930063-8272136?pd_rd_w=xHpBq&content-id=amzn1.sym.a5610dee-0db9-4ad9-a7a9-14285a430f83&pf_rd_p=a5610dee-0db9-4ad9-a7a9-14285a430f83&pf_rd_r=PSWEFC8RBYCQ282RRNGM&pd_rd_wg=hADQy&pd_rd_r=34f5c035-2fe4-467c-9bd9-39f77888d9ff&pd_rd_i=1101946598&psc=1

85. Naftali Tishby, Fernando C. Pereira, and William Bialek, "The information bottleneck method," arXiv, Apr 24, 2000, 16 pages. https://arxiv.org/abs/physics/0004057; https://arxiv.org/pdf/physics/0004057.pdf

86. Alvin Toffler, Future Shock. New York, NY: Bantam Books, 1970 (re-issue 1984), 576 pages. {ISBN-13: 978-0553277371}

87. Arnold Toynbee, Lectures on the Industrial Revolution. 1884, 28 pages. https://www.sjsu.edu/people/cynthia.rostankowski/courses/HUM2AF13/s3/Reader-Lecture-27-Industrial-Revolution.pdf

88. Jakob Trauer, Michael Mutschler, Markus Mörtl, and Markus Zimmermann, "Challenges in Implementing Digital Twins – a Survey," in Proc ASME 2022 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (St. Louis, Missouri; Aug 14–17, 2022),8 pp., Nov 2022. {DOI: 10.1115/DETC2022-88786} https://asmedigitalcollection.asme.org/IDETC-CIE/proceedings-abstract/IDETC-CIE2022/86212/V002T02A055/1150306; https://www.researchgate.net/publication/365340061_Challenges_in_Implementing_Digital_Twins_-_a_Survey

89. United Nations, "17 Sustainable Development Goals," UN, Department of Economic and Social Affairs, 2015. https://sdgs.un.org/goals

90. Ashish Vaswani, Noam Shazeer, Niki Parmar, Jakob Uszkoreit, Llion Jones, Aidan N. Gomez, Lukasz Kaiser, and Illia Polosukhin, "Attention is all you need," arXiv, Jun 12, 2017, 15 pages. https://arxiv.org/abs/1706.03762

91. George Veletsianos (ed.), Emergence and Innovation in Digital Learning: Foundations and Applications. Edmonton, AB: AU Press, 2016, 227 pages. {ISBN: 9781771991490, pbk; 978-1-77199-150-6 (PDF); doi:10.15215/aupress/9781771991490.01} Available (free) Aug 15, 2018 from Athabasca Univ http://www.aupress.ca/books/120258/ebook/99Z_Veletsianos_2016-Emergence_and_Innovation_in_Digital_Learning.pdf

92. Plon Verhagen, Connectivism: A new learning theory? 2006. Retrieved from https://www.scribd.com/doc/88324962/Connectivism-a-New-Learning-Theory

93. James Vincent, "AI-generated answers temporarily banned on coding Q&A site Stack Overflow," The Verge, Dec 5, 2022. https://www.theverge.com/2022/12/5/23493932/chatgpt-ai-generated-answers-temporarily-banned-stack-overflow-llms-dangers

94. Yingxu Wang, Du Zhang, and Witold Kinsner (eds.), Advances in Cognitive Informatics and Cognitive Computing. New York, NY: Springer, 2010, 316 pages. {ISBN: 978-3642160820}

95. Yingxu Wang, "On cognitive informatics," in Proc. 1st IEEE Intern. Conf. Cognitive Informatics (Calgary, AB; 19-20 August 2002), pp. 34-42, 2002.

96. WEF, The Future of Jobs Report 2023. Geneva, Switzerland: World Economic Forum, Report. May 2023, 296 pages. {ISBN13: 978-2-940631-96-4} https://www.weforum.org/reports/the-future-of-jobs-report-2023/

97. Natalie Wolchover, "New theory cracks open the black box of deep neural networks," Wired, Oct 8, 2017. https://www.wired.com/story/new-theory-deep-learning/; YouTube: Information Theory of Deep Learning. Aug 3, 2017, 57:54; https://www.youtube.com/watch?v=bLqJHjXihK8 Originally published in Quanta Magazine https://www.quantamagazine.org/new-theory-cracks-open-the-black-box-of-deep-learning-20170921/

98. Gregory W. Wornell, Signal Processing with Fractals: A Wavelet-Based Approach. Upper Saddle River, NJ: Prentice-Hall, 1996, 177 pages.

99. Adel Ben Youssef and Issam Mejri, "Linking Digital Technologies to Sustainability through Industry 5.0: A bibliometric Analysis," Sustainability, vol. 15, no. 9, ar. 7465, 23 pp., May 2023. {DOI: 10.3390/su15097465} https://www.researchgate.net/publication/370451241_Linking_Digital_Technologies_to_Sustainability_through_Industry_50_A_bibliometric_Analysis

100. Eliezer Yudkowsky, "Pausing AI developments isn't enough. We need to shut it all down," Time, Mar 29, 2023. https://time.com/6266923/ai-eliezer-yudkowsky-open-letter-not-enough/

101. Ning Zhong, Jiming Liu, and Yiyu Yao (eds.), Web Intelligence. New York, NY: Springer, 2010, 464 pages. {ISBN: 978-3642079368}

102. Shah Zeb, Aamir Mahmood, Sunder Ali Khowaja, Kapal Dev, Syed Ali Hassan, Nawab Muhammad Faseeh Qureshi, Mikael Gidlund, and Paolo Bellavista, "Towards Defining Industry 5.0 Vision with Intelligent and Softwarized Wireless Network Architectures and Services: A Survey," Draft, 45 pp., 246 refs, Nov 2022. {DOI: 10.1145/3507909} https://www.researchgate.net/publication/365428491_Web_of_Digital_Twins

103. Alberto Zucconi and Garry Jacobs, "The coming revolution in education," *Cadmus*, vol. 2, no. 2, pp. 5-6, May 2014. https://cadmusjournal.org/article/volume-2/issue-2-part-1/coming-revolution-education; https://cadmusjournal.org/files/pdfreprints/vol2issue2/reprint-cj-v2-i2-seed-idea-coming-revolution-in-education.pdf

CADMUS, Volume 5, No.2, August 2023, 74-89

Effective People Centered Health Education for Human Security

Alberto Zucconi
Chair, WAAS Board of Trustees; Secretary General, WUC;
President, Person Centered Approach Institute (IACP)

Abstract

Everybody needs to wake up to the reality of the Anthropocene. At present, humanity appears ill equipped to cope effectively with the mounting problems that it has itself created; we urgently need to update and upgrade the way we educate and train people since, at present, their competences to see the problems we have created and find effective ways to cope with them are badly insufficient and/or obsolete. The scenarios on our planet are fast worsening, and to help people cope with the mounting emergencies, we need to help them rise to the challenge. We need to create a Marshall Plan of Competences, a new paradigm of education, equipping everybody with the needed competences in how we see, how we know, and how we correctly apply our knowledge. More than anything, we need to learn new ways of being.

After much triumphalism over how humanity has steadily progressed across the centuries, we find ourselves in a tragic quagmire. We are lost in a world of our creation that resembles a nightmare; our so-called achievements have backfired; we have produced many goods but they are unequally distributed and quickly discarded in a consumerist frenzy that creates mountains of garbage that pollute the earth, the waters and the air, contaminating even the food we eat and seriously damaging our health and environment.

This is crazy; clearly, our mental health is at risk. We have lost our innate capacities for deep contact, empathic understanding, and respect for ourselves, others, and the living forms of life around us (Zucconi, 2021). We have been alienating ourselves from reality; we have lost touch with the basic fact that we are part of nature and part of the universe. This alienation, a painful divorce from the basic and scientifically proven reality that we, as everything else, are connected to the web of life, that we are literally made of star dust, and that the universe is our home, has created, like all forms of alienation do, serious consequences. Our alienation from ourselves, others, and the world has produced, and is producing right now, severe destruction of human security, serious existential threats, destruction of natural environments, depletion of precious resources, and even jeopardising the future.

We have inflicted on ourselves and the world so much damage that the Bulletin of Atomic Scientists warns us that our alienation has brought us to 90 seconds to midnight! As you probably know, the *Doomsday Clock*, created by the Bulletin of the Atomic Scientists to illustrate how close humanity has come to the end of the world, moved its "time" in January

2023 to 90 seconds to midnight, 10 seconds closer than it has been for the past three years. Midnight on this clock marks the theoretical point of annihilation. (Bulletin of the Atomic Scientists, 2023; Zucconi 2013).

> On May 30, 2023 a group of top AI researchers, engineers, and CEOs issued a new warning about the existential threat they believe AI poses to humanity.
>
> The 22-word statement, trimmed short to make it as broadly acceptable as possible, reads as follows: *"Mitigating the risk of extinction from AI should be a global priority alongside other societal-scale risks such as pandemics and nuclear war."*
>
> This statement, published by a San Francisco-based non-profit, the Centre for AI Safety, has been co-signed by figures including Google DeepMind CEO Demis Hassabis and OpenAI CEO Sam Altman, as well as Geoffrey Hinton and Yoshua Bengio, two of the three AI researchers who won the 2018 Turing Award (sometimes referred to as the "Nobel Prize of computing") for their work on AI.*

The Intergovernmental Panel on Climate Change (IPCC) in its 2022 Report forecast for 2021–2040 states: "*The number of people at risk from climate change and associated loss of biodiversity will progressively increase... In the near term, violent conflict and, separately, migration patterns will be driven more by socioeconomic conditions and governance than by climate change."* (IPCC, 2022, p. 13).

In 2016, I wrote: "*If we manage the 4th industrial revolution with the same blindness and forms of denial with which we managed the previous industrial revolutions, the negative effects will be exponential."*

Further on I added: "*Effective forms of education are crucial. The fourth revolution could be an unprecedented success if we are able to manage complex processes and at the same time assure that each innovation will not only bring change but also foster a more humane, sustainable, peaceful, and prosperous future for all. To meet these challenges, effective and scientifically validated person- and people-centred educational approaches are necessary. They will play a crucial role in enabling us to stop wasting our best resources—human and natural capital—and will facilitate us in achieving effective and sustainable governance."* (Zucconi, 2016, p. 1)

I still strongly believe that is true and that we can change the course of things, even create a New Renaissance, but time is running out. For example, effective education can and should be fruitfully employed to protect and promote Human Security and health if we just apply the scientifically sound guidelines offered since 1986 by the World Health Organisation (WHO); research shows that we will achieve significant results (Zucconi & Howell, 2003).

* If you wish, you can endorse the statement: https://www.safe.ai/statement-on-ai-risk

In 1986, WHO launched a revolution in the field of health with the Ottawa Charter, the manifesto of the bio-psycho-social paradigm of Health Protection and Promotion. With the Ottawa Charter, WHO urged all the nations part of the U.N. system to stop being blind and realise that we have to see health not just as an absence of illness—that is a dangerous mechanistic reductionistic obsolete frame of reference—we need to apply a scientifically sound and updated bio-psycho-social paradigm, a holistic/systemic frame of reference where "*Health is not just the absence of Illness but the development and actualization of human potentialities. There is no Individual Health without Social Health.*" (WHO; Ottawa Charter, 1986)

"With the Ottawa Charter, WHO urged all the nations part of the U.N. system to stop being blind and realise that we have to see health not just as an absence of illness—that is a dangerous mechanistic reductionistic obsolete frame of reference—we need to apply a scientifically sound and updated bio-psycho-social paradigm, a holistic/systemic frame of reference where "Health is not just the absence of Illness but the development and actualization of human potentialities. There is no Individual Health without Social Health.""

The health determinants are:

"Peace, Shelter, Education, Food, Income, a Stable Ecosystem, Sustainable Resources, Social Justice, and Equity" (Equal Opportunities, Gender Equity, Non-Discrimination, etc.) (WHO 1986, pp. 5).

Furthermore, the Ottawa Declaration states, "*The prerequisites and prospects for health cannot be ensured by the health sector alone. More importantly, health promotion demands coordinated action by all concerned: by governments, by health and other social and economic sectors, by nongovernmental and voluntary organisations, by local authorities, by industry, and by the media. People in all walks of life are involved as individuals, families, and communities."* (WHO 1986, pp. 6).

Sustainability is imperative according to the Ottawa Declaration: "*Our societies are complex and interrelated. Health cannot be separated from other goals. The inextricable links between people and their environment constitute the basis for a socio-ecological approach to health. The overall guiding principle for the world, nations, regions, and communities alike, is the need to encourage reciprocal maintenance—to take care of each other, our communities, and our natural environment. The conservation of natural resources throughout the world should be emphasised as a global responsibility." (WHO* 1986, p. 6).

Empowerment and education during the lifecycle are fundamental aspects of health promotion. "*Health promotion works through concrete and effective community action in setting priorities, making decisions, planning strategies, and implementing them to achieve better health. At the heart of this process is the empowerment of communities—their ownership and control of their own endeavours and destinies. Community development draws on existing human and material resources in the community to enhance self-help and social support and to develop flexible systems for strengthening public participation in and direction of health matters. This requires full and continuous access to information, learning opportunities for health, as well as funding support."* (WHO 1986, p. 7).

"No other institution in the world is as powerful in shaping our future as education."

The Ottawa Charter links all the above-mentioned processes, empowering people to learn how to develop personal skills to protect and promote health. *"Health promotion supports personal and social development through providing information, education for health, and enhancing life skills. By so doing, it increases the options available to people to exercise more control over their own health and over their environments and to make choices conducive to health."* (WHO 1986, pp. 7).

Brock Chisholm, the first Director-General of the World Health Organisation and one of the founders of WAAS, promoted from the very beginning of WHO a bio-psycho-social holistic vision; he stated that "*without mental health, there can be no true physical health*" (Kolappa, Hendersona, & Kishoreb, 2013, p. 3).

WHO continues to remind us that effective promotion of health and well-being needs to be carried out with actions of empowerment and needs to be person-centred. (WHO, 2008, 2009, 2015, 2016)

Health Education and Human Security in a holistic/systemic frame of reference are one since they are always interconnected and are primarily grounded on human rights, respect, and person-centred actions of empowerment (Zucconi & Rollè, 2013).

All life forms' survival depends on effective and rapid learning as to how to adapt their behaviours to environmental changes. If we want to survive, we need to adapt, retool, and upgrade all levels of our education system. Formal and informal education at every level needs to offer us the knowledge, skills, and attitudes that will enable us to survive and even prosper in the present period of change by learning the needed skills for coping with and governing in peaceful and sustainable ways in the turbulent scenarios of the Anthropocene Era (Zucconi 2016).

No other institution in the world is as powerful in shaping our future as education; it is during the educational process that much of the social construction of reality occurs. Education is the process by which the minds of the new generation are shaped about what is real (Dewey, 1897, 1924; Rogers, 1959, 1961, 1965, 1969, 1977, 1980, 1983; Freire, 1970; Rogers, Lyon, & Tausch, 2014; Zucconi, 2013, 2016).

Francis Bacon stated that knowledge is power. Also, the opposite is dramatically true: A community promoting faulty and obsolete knowledge is sabotaging itself with lethal actions of disempowerment. The present traditional education badly needs to be updated and offer effective tools to effectively address the present challenges. (Zucconi, 2016).

Another problem with traditional education is the unbalanced use of power. Traditional education is centred on the professor, who has a large power differential compared with the learner. In that way, that was a reflection of the past, where power was held by the privileged few (Zucconi, 2016).

The same power differential is found in traditional medicine and mental health, where the huge power differential created severe forms of learned helplessness in the service users who, not by chance, were described as patients (Zucconi & Howell, 2003).

The Bologna Process for transforming Europe into a knowledge society publishes a bulletin to monitor the results: The results are still lacking; education is still largely traditional, failing to engage more students in designing curricula and involving them in evaluation and self-evaluation. "*European higher education also faces the major challenge and the ensuing opportunities of globalisation and accelerated technological developments with new providers, new learners, and new types of learning. Student-centred learning and mobility will help students develop the competencies they need in a changing labour market and will empower them to become active and responsible citizens."* (Bologna Process 2009, p. 1)

A realistic evaluation of the present situation shows that the challenges for a more effective education are many; here are a few examples of what needs to be done:

Reorient the education and curricula of future professionals: To socially construe the professional profiles and equip them with effective tools to be part of the solutions and not of the problems, as obsolete education unfortunately persists in many parts of the world **(**Gurgulino de Souza et al., 2013; Jacobs & Zucconi, 2014; Zucconi, 2016). **Some examples:**

Economy: People graduating in economics still learn the importance of the Gross Domestic Product, but such measures are making them blind to see where prosperity is created or destroyed (Zucconi 2016, pp. 18).

Artificial Intelligence and Nanotechnology: People creating Artificial Intelligence do not have sound ethical guidelines and boundaries to avoid the risk of creating serious boomerang effects. The same is true for the lack of guidelines and ethical imperatives for the industry using nanotechnology. WAAS, through its projects on Human Security and Education, could facilitate the creation of an ethical code of ethics to be developed and adopted by the different stakeholders involved in Artificial Intelligence and nanotechnology.

People training in the field of health receive training that is, in many aspects, obsolete and mechanistic, missing the important links between health and environment. One of the best practices is not only prevention, which would necessarily include the prevention of illness, but since the Ottawa Charter of 1986, the cost-effective goal has been the empowerment of all the stakeholders in active protection and promotion of health. This includes eliminating

the health risks created by toxic waste, pollution, climate warming, ocean pollution, unsafe working conditions, stress at work, and other determinants of ill health like lack of human security, lack of human rights, gender discrimination, religious, political, and sexual orientation discrimination, racism, bigotry, violence, etc.

Mental Health: Students trained in mental health are still taught to see mental health as limited to the single individual or family, missing the fundamental link between individual and social mental health. We need to be aware that health and mental health are socially created and that the concepts of mental health change over time and from culture to culture (Rovesti et al. 2018).

Health protection and promotion means promoting change by empowering people and using person-centred approaches in order to protect and promote health. Human security has to be granted; it is the starting point, a secure base, and a prerequisite needed to promote health and well-being.

As stated in the Ottawa Charter, the prerequisites for health are *"peace, shelter, education, food, income, a Stable Ecosystem, Sustainable Resources, Social justice, and Equity (equal opportunities, gender equity, non-discrimination, etc.)."* (WHO 1986, pp. 5).

All the member-nations of the U.N. endorsed the Ottawa Charter, but nevertheless, many years later, some of their commitments remain mostly on paper. The sad reality is that there is still a lack of vision on the part of decision-makers who have largely failed to have foresight and to realise that it is crucial to empower people and grass-roots organisations to ensure the success of the needed change, a process strongly encouraged by WHO.

It has been calculated that, without the hard selling of pharmacology perpetrated by disease mongering, the savings would be significant, stopping a waste of financial resources and preventing iatrogenic damages. *"Genuine sustainable change, however, will not come until policymakers better understand the phenomenon of disease mongering and the potential benefits of responding against it. In Australia, for example, it has been estimated that winding back the public subsidy for inappropriate prescriptions of several high-profile drugs to people with milder health problems could save hundreds of millions of dollars per year."* (Moynihan & Murphy, 2002, p. 5).

Today, it is imperative to broaden our understanding of mental health by recognising the significance of our relationship with the natural environment. There is an urgent need to update and expand the concept of mental health to include the capacity for deep contact with all living organisms on the planet. It is very important to include ecopsychology in the training of psychotherapists and other helping professions, enabling them to address the profound interdependence between human well-being and ecological integrity (Zucconi, 2013; 2016).

In the Sundsvall Conference, the third International Conference on Health Promotion: Supportive Environments for Health, the WHO stated: "*Public action for supportive environments for health must recognise the interdependence of all living beings and must*

manage all natural resources, taking into account the needs of future generations." (WHO, 2009, *pp. 14*).

Not everybody likes to follow the leadership of the World Health Organisation; one of the reasons is that it gives priority to making money above anything else. If people became proactive in protecting and promoting their health, some members of the pharmaceutical industry fear that they will make fewer profits.

As Ivan Illic warned in 1976 that normal life events were medicalized (Illic, 1976), nowadays the pharmaceutical industry keeps investing in research; however, it spends more on marketing than innovation. About a third of the revenues and a third of the staff are used only to sell medicines (Angeli, 2004). Even worse is the practice of Disease mongering, focused not on health but on profits (Payer, 1992; Moynihan & Murphy, 2002; Moynihan & Cassels, 2005; Moynihan & Henry, 2006). Disease mongering is an intentional process promoted by some exponents of the pharmaceutical industry to turn "*healthy people into patients, waste precious resources, and cause iatrogenic harm. Like the marketing strategies that drive it, disease mongering poses a global challenge to those interested in public health, demanding in turn a global response."* (Moynihan & Henry , 2006, p. 1).

1. The Interconnectedness of Life: Deep Contact with All Living Organisms

Interdependence of Life Systems: The Earth's ecosystems operate as interconnected networks of relationships where every living organism plays a vital role. Recognising this interdependence allows us to understand that the well-being of human beings is intrinsically linked to the health of the planet and all its inhabitants.

Ecological Identity and Connection: Developing a sense of ecological identity involves feeling and accepting our interconnectedness with nature and recognising that our well-being is intimately tied to the health of the natural world. Deep contact with all living organisms fosters a profound sense of belonging, promoting mental, emotional, and spiritual well-being.

2. The Need for an Expanded Concept of Mental Health

Ecological Grief and Climate Anxiety: The accelerating ecological crisis and its consequences, such as species extinction, habitat destruction, and climate change, have significant psychological impacts on individuals and communities. Integrating the concept of deep contact with all living organisms into mental health frameworks acknowledges and addresses the ecological grief and climate anxiety experienced by many people.

Biophilia and Nature-Based Therapies: Biophilia, the innate human affinity for nature, underscores the importance of incorporating nature-based therapies into mental health practises. Exposure to natural environments and engaging with all living organisms can positively impact mental health, reducing stress, anxiety, and depression.

Ecopsychology, which has its roots in deep ecology and was first developed by the Norwegian ecophilosopher Ame Naess, abandons the notion of a boundary between self and the world.

It does not perceive the world as "other." In ecopsychology, mental health or effective human functioning demands a congruence between self and Nature. It demands an expansion of the notions of "self" and "self-realisation" not only to the species but to the whole of nonhuman reality. Subjective, individualised experience is acknowledged and valued as a manifestation of the "mind of the world." Ecopsychology explores the interrelationship between human psychology and the natural environment. It recognises that the well-being of both individuals and the planet is interconnected and seeks to integrate ecological principles into psychotherapeutic approaches (Naess, 1973; Neville, 1990).

Ecopsychology for Psychotherapists and Helping Professionals Training: Incorporating ecopsychology into the training of psychotherapists and other helping professions equips them with the knowledge and skills necessary to address the psychological implications of ecological degradation. It enhances their ability to support clients in cultivating a deep connection with nature, fostering resilience, and promoting eco-centric ways of being.

Benefits of Integrating Ecopsychology: Integrating ecopsychology into psychotherapist training offers numerous benefits, including improved mental health outcomes, increased ecological awareness, and enhanced therapeutic relationships. It allows for a more holistic and sustainable approach to mental health that aligns with the current environmental reality.

Challenges and Considerations: Integrating ecopsychology into psychotherapy practise poses challenges, such as the need for curriculum development, training resources, and a shift in therapeutic paradigms. However, these obstacles can be overcome through collaborative efforts among mental health professionals, educators, and policymakers.

In conclusion, the concept of mental health needs to be expanded to include the capacity for deep contact with all living organisms on the planet. This expansion recognises the interconnectedness of life and the importance of our relationship with the natural environment. Integrating ecopsychology into the training of psychotherapists plays a crucial role in addressing the psychological impacts of ecological degradation and promoting a more sustainable and holistic approach to mental health. By nurturing a deep connection with nature and fostering eco-centric perspectives, individuals can develop resilience, alleviate ecological grief, and contribute to the preservation of the planet for future generations. (Naess, 1973; Roszak, Gomes, & Kanner, 1995; Nelville, 1999; Mayer et al., 2009; Chalquist, 2014; Clayton & Myers, 2015; Kaplan & Kaplan, 2019; Searles, 2020; Zucconi, 2019, 2021; Zucconi & Wachsmuth, 2020; Zucconi & Rollè, 2023).

3. Traditional Education is Professor-centred and often Disempowers Learners

Student-centred, also called person-centred, education offers better results in learning by fostering critical thinking, fostering less absenteeism and dropout rates, fostering solid relationships outside the classroom, and encouraging active citizenship. (Zucconi 2016).

Learning does not happen only at school; learning starts when we are in our mother's womb. We learn from our parents, siblings, relatives, peers, and neighbours; from the

behaviours and beliefs of the members of our community; from our culture; from television, songs, and cartoons; and from the social construction of reality, or what is called consensus reality, or culture, traditions, or shared frames of reference that are of course socially construed (Berger & Luckmann, 1966).

For effective promoters of change, it is very important to be aware of the social construction of reality and to be able to plan change using reliable tools like Force Field analysis. (Lewin, K., 1951) Participatory research and evaluation (Cornwall & Jewkes, 1995; Zimmerman & Rappaport, 1988) and win-win negotiation approaches (Fisher, Ury, & Patton, 2011). By promoting change through person- and people-centred approaches, using the observational points offered by the sociology of knowledge, utilising scientifically sound measurement tools, and adopting participatory and evaluative approaches, we can promote social change that is grounded in evidence, driven by community needs, and aimed at transforming social realities. Empowering individuals and communities to actively participate in the change process not only enhances the effectiveness of interventions but also fosters sustainable and inclusive outcomes since people-centred approaches shift the focus from external interventions to internal capacity-building, nurturing individuals' and communities' ability to drive their own development and shape their social realities. In doing so, they contribute to the transformation of social norms, values, and power structures, creating a more inclusive and equitable society. Through their emphasis on dignity, autonomy, and collective action, person- and people-centred approaches contribute to the creation of inclusive and equitable societies, aligning with the broader goals of international declarations and sustainable development agendas (Huxham & Vangen, 2005).

International declarations such as the Universal Declaration of Human Rights, the Ottawa Charter on Health Promotion, and the United Nations Sustainable Development Goals have a profound impact on reality around the world. These frameworks create epistemic communities that foster knowledge sharing, shape values and attitudes, promote inclusivity and participation, and influence policies and practises globally. By embracing these international standards, societies can actively contribute to the transformation of social realities and work collectively towards a more just, equitable, and sustainable world (Alsop; Bertelsen & Holland 2006).

One significant way to promote change is to offer a compelling vision, like Martin Luther King did with his speech *I Had a Dream*, or Gandhi with the salt strike in colonial India, Nelson Mandela's Long Walk to Freedom, and more recently Greta Thunberg (Thunberg, 2019) and Malala Yousafzai, the girl who stood up for education and changed the world (Yousafzai, 2014).

Another significant way to promote change, offering not only a vision but also some specific guidelines, are the United Nations Universal Declarations, which not only offer a compelling vision but are also powerful ways to change reality and effective ways to impact formal and informal education. By fostering empowerment and self-responsibility, these declarations support and enable individuals and communities to actively participate

in decision-making processes, drive their own development, and transform social realities. Through their emphasis on dignity, autonomy, and collective action, they contribute to the creation of inclusive and equitable societies.

> *"Through person and people-centred approaches, individuals and communities become active agents of change, contributing to the transformation of social realities and embodying a sense of ownership and empowerment."*

Education is a fundamental pillar of society that plays a pivotal role in shaping individuals, fostering critical thinking, and driving social progress. While formal education systems have long been established as the primary means of knowledge dissemination, the emergence of informal pathways and epistemic communities has opened up new avenues for learning and knowledge exchange. Additionally, global declarations, charters, and campaigns by international organisations have significantly contributed to setting standards and values and promoting education on a global scale. Education can assume informal pathways through the creation of epistemic communities. Various international bodies and frameworks, such as the constitutions of nations, the Universal Declaration of Human Rights, the Ottawa Charter on Health Promotion of the World Health Organisation, and goal-setting campaigns like Sustainable Development by the United Nations, shape global education standards. Of great importance will be fostering the development of codes of ethics in emerging fields where they are not yet in place, for example, in the Artificial Intelligence (AI) and Nanotechnology industries, to address potential existential threats.

International Declarations and Formal Education: International declarations, such as the Universal Declaration of Human Rights (UDHR), influence formal education by promoting values of human rights, equality, and social justice. They advocate for the integration of these principles into educational policies, curricula, and teaching practises. By incorporating these values, formal education systems nurture individuals with a deep understanding of their rights and responsibilities as global citizens, fostering empathy, critical thinking, and social engagement.

Sustainable Goals and Informal Education: Sustainable goals, such as the United Nations Sustainable Development Goals (SDGs), extend their influence to informal education. They inspire and empower individuals and communities to engage in lifelong learning by raising awareness of pressing global challenges and promoting sustainable practises in everyday life. Informal education initiatives, such as community-based projects, awareness campaigns, and social media activism, provide opportunities for individuals to learn, share knowledge, and take collective action towards the achievement of sustainable goals.

International Standards of Best Practices: International declarations and sustainable goals contribute to the creation of international standards of best practises across various

professions. For example, the World Health Organisation (WHO) establishes guidelines and frameworks for healthcare professionals to ensure quality care, patient safety, and ethical practises. These standards foster collaboration, knowledge sharing, and innovation, promoting the development of interdisciplinary approaches to address complex health issues and improving the overall quality of healthcare globally.

"Promoting change requires more than just a vision; it necessitates effective leadership, strategic communication, mobilisation of stakeholders, and a commitment to overcoming challenges."

Shaping the Sociology of Professions: International declarations and sustainable goals shape the sociology of various professions by influencing the values, ethics, and social responsibilities of practitioners. They foster a shift towards person-centred and people-centred approaches, focusing on holistic well-being, inclusivity, and sustainability. Professionals across disciplines, such as healthcare, education, and business, are encouraged to embrace a broader societal perspective, addressing systemic challenges and contributing to social transformation through their practices and decision-making processes.

4. Creation of Worldwide Epistemic Communities

International declarations and development goals facilitate the creation of worldwide epistemic communities, bringing together individuals from diverse backgrounds, cultures, and disciplines. These communities form networks of knowledge exchange, collaboration, and shared learning that transcend geographical boundaries. By connecting researchers, practitioners, policymakers, and activists, they promote interdisciplinary understanding, facilitate the sharing of best practises, and foster innovation, ultimately leading to collective intelligence and enhanced problem-solving capacity.

Creation of Shared Interdisciplinary Knowledge: International declarations and sustainable goals drive the creation of shared interdisciplinary knowledge by encouraging collaboration and interdisciplinary approaches to address global challenges. They inspire the integration of multiple perspectives, expertise, and methodologies to tackle complex issues such as climate change, poverty, and inequality. This interdisciplinary knowledge promotes a more holistic understanding of interconnected global challenges, informing policy-making, guiding research agendas, and empowering individuals and communities with the tools to create sustainable and equitable solutions.

Empowering People: International declarations and sustainable goals empower individuals and communities by promoting person-centred approaches. These approaches prioritise the dignity, well-being, and participation of individuals, emphasising the importance of local contexts, cultural diversity, and community engagement. By fostering inclusive decision-making processes and empowering marginalised groups, these frameworks facilitate social

transformation and address power imbalances. They encourage a shift from top-down approaches to bottom-up, participatory approaches, giving voice to those directly affected by social issues. Through person and people-centred approaches, individuals and communities become active agents of change, contributing to the transformation of social realities and embodying a sense of ownership and empowerment.

International declarations play a significant role in shaping both formal and informal education, fostering the creation of international standards of best practises, empowering individuals and communities, and facilitating social transformation. By integrating the principles outlined in these global frameworks, formal education systems promote values of human rights, equality, and social justice, nurturing informed and engaged global citizens. Informal education initiatives driven by sustainable goals raise awareness, inspire action, and empower individuals and communities to address pressing global challenges. The creation of international standards of best practises fosters collaboration, knowledge sharing, and innovation across various professions, driving interdisciplinary approaches to complex issues. Moreover, these frameworks shape informal education, promote the creation of worldwide epistemic communities, and foster the collective intelligence and problem-solving capacity needed to create sustainable and equitable solutions created by processes that are person-centred, empowering individuals and communities to actively participate in decision-making, social transformation, and sustainable new ways of being (Zucconi 2016).

5. The World Academy of Art and Science is an International Epistemic Community

WAAS has been contributing to the process of change since its founding. Lately, WAAS has expanded its contribution in significant ways by growing in numbers and creating many significant partnerships with sister organisations that share similar values and goals. Just to mention a few examples:

WAAS has created a sister organisation. The World University Consortium has been carrying out significant work in the field of education and organising several international conferences on a new paradigm in Education.

WAAS has created partnerships with several University consortiums and networks like the Inter University Centre (212 universities) and the Black Sea Universities Network (2013 universities).

WAAS has been given special consultative status by the U.N. Economic and Social Council and consultative status by UNESCO.

Since October 2022, WAAS has been in formal collaboration with the United Nations Trust Fund for Human Security (UNTFHS) on a global campaign to promote Human Security for All (HS4A). It promotes a comprehensive, integrated approach to security that encompasses all the dimensions of the 17 SDGs, including peace and human rights.*

* https://worldacademy.org/human-security/

The World Sustainability Forum (WSF), a partner of WAAS led by Ken Stokes, a WAAS Fellow, has created a Declaration of Responsibilities of Present Generations Towards Future Generations. Many decision-makers and opinion-makers have endorsed the declaration.*

Another partner of WAAS, the Interparliamentary Coalition for Global Ethics, is led by Shoshana Nicole Berkerman, another WAAS Fellow. Following the successful Roundtable Conference on Strategy for a Joint Abraham Accords Model Curriculum for a Culture of Peace and the SDGs, held last February in Dubai, a second meeting was held at the University of Rome in March 2023, and we are successfully moving towards developing a model curriculum on education for the culture of peace and the SDGs to be used in the elementary schools of all the Abraham Accords nations.

The outline will be presented at the United Nations Headquarters as a best practices model to be available to parliamentarians, educators, media, religious leaders, and decision-makers to utilise in accordance with specific national and regional needs.†

6. The Trauma Informed Care Best Practices Project (TIC Project)

The Person-Centred Approach Institute (IACP), in collaboration with the World Academy of Art and Science, the World University Consortium, the Department of Psychology of the University of Torino, the University for Sustainability, Santa Fe, New Mexico, the Black Sea Universities Network, the Protect Our Planet Movement, and the Psychological Association of Ukraine, has created a worldwide project to support, connect, and assist all the professionals and public and private organisations operating in countries ravaged by violence and disasters that are in one way or another dealing with people, and in so doing, need to be trauma infomed. We decided to extend the free training and assistance to colleagues in the helping professions working in Turkey and Syria with survivors of the earthquake and to offer for free 25% of the available training courses at IACP headquarters to helping professionals that are in Italy as refugees. The costs of trauma are systemic; trauma damages individual and social health and, if untreated, may be passed on to the next generation. The high economic costs of trauma hit trauma survivors, their families, communities, and countries.

Trauma-Informed Care Best Practices are scientifically sound procedures that avoid the risks of retraumatization and can facilitate growth from trauma.‡

In conclusion, international declarations and sustainable goals not only shape formal and informal education but also promote change through person-centred approaches. By fostering empowerment and self-responsibility, these approaches enable individuals and communities to actively participate in decision-making processes, drive their own development, and transform social realities. Through their emphasis on dignity, autonomy, and collective action, person-centred approaches contribute to the creation of inclusive and equitable societies, aligning with the broader goals of international declarations and sustainable development agendas.

* If you share similar values and aims, you can sign it at https://www.worldsforum.org/letter-to-the-international-community.html

† http://ipcge.org/event-2023-june-united-nations.html

‡ If you wish to know more and donate to the project, visit https://worldacademy.org/support-ukraine/

Promoting change requires more than just a vision; it necessitates effective leadership, strategic communication, mobilisation of stakeholders, and a commitment to overcoming challenges. By understanding the principles and practices of people-centred participatory leadership, individuals and organisations can facilitate the badly needed transformative change.

Author's Contact Information
Email: azucconi@worldacademy.org

Bibliography

1. Alsop, R., Bertelsen, M. F., & Holland, J. (Eds.). (2006). *Empowerment in Practice: From Analysis to Implementation.* The World Bank.
2. Angell M. (2004). *The truth about the drug companies*, New York: Random House Trade Paperbacks. PMCid:PMC534578
3. Berger, P. L. & Luckmann, T. (1966). The social construction of reality. New York: Doubleday
4. Bologna Process. (2009). Leuven/Louvain-La-Neuve Communiqué. Leuven/Louvain-La-Neuve: Bologna Secretariat.
5. Bulletin of the Atomic Scientists (2023). 2023 Doomsday Clock Statement, Science and Security Board. https://thebulletin.org/doomsday-clock/current-time/Accessed May 28th, 2023.
6. Chalquist, C. (2014). Toward an ecopsychotherapy. *Ecopsychology, 6(1), 3-13.*
7. Clayton, S., & Myers, G. (2015). *Conservation psychology: Understanding and promoting human care for nature*. John Wiley & Sons.
8. Cornwall, A., & Jewkes, R. (1995). What Is Participatory Research? Social Science & Medicine, 41(12), 1667-1676
9. Dewey, J. (1897). My pedagogic creed. *The School Journal. LIV, 4. 77-80. pg. 77.*
10. Dewey, J. (1924). *Democracy and Education*. New York: Macmillan.
11. Fisher, R., Ury, W., & Patton, B. (2011*). Getting to Yes: Negotiating Agreement Without Giving In.* Penguin Books.
12. Freire, P. (1970). *Pedagogy of the Oppressed*. Transl. M. Ramos. First published 1968. New York: Bloomsbury.
13. Gurgulino de Souza, H.; Harish, J.; Garry Jacobs, G.; Nagan, W.; Šlaus, I.; Zucconi, A. (2013). Reflections on the Future of Global Higher Education - WAAS Conference Report. *Cadmus, Journal of the World Academy of Art and Science, Volume 2 Issue 1 Part 1. pp. 62-84.*
14. Huxham, C., & Vangen, S. (2005). *Managing to Collaborate: The Theory and Practice of Collaborative Advantage*. Routledge.
15. Illich, I. (1976) *Limits to medicine*. London: Penguin Books.
16. IPCC, 2022: Summary for Policymakers [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem (eds.)]. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3–33, doi:10.1017/9781009325844.001. https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryVolume.pdf Accessed on May 28th, 2023.
17. Huxham, C., & Vangen, S. (2005). *Managing to Collaborate: The Theory and Practice of Collaborative Advantage*. Routledge.
18. Yousafzai,M. (2014). Malala: The Girl Who Stood Up for Education and Changed the World (Young Readers Edition). Little, Brown Books for Young Readers.
19. Kaplan, R., & Kaplan, S. (2019). *The experience of nature: A psychological perspective.* Cambridge University Press.
20. King, M. L., & Carson, C. (2015). *The Autobiography of Martin Luther King Jr*. Grand Central Publishing.
21. Kolappa, K.; Hendersona, C. D. & Kishoreb, P. (2013). No physical health without mental health: lessons unlearned? . Bull World Health Organ 2013;91:3–3A | doi:10.2471/BLT.12.115063
22. Kriksciuniene, D. & Sakalauskas, V. Eds (2022). Intelligent Systems for Sustainable Person-Centered Healthcare.Springer Cham, https://doi.org/10.1007/978-3-030-79353-1
23. Mayer, F. S., Frantz, C. M., Bruehlman-Senecal, E., & Dolliver, K. (2009). Why is nature beneficial? The role of connectedness to nature. *Environment and Behavior, 41(5), 607-643.*
24. Mandela, N. (1994). Long Walk to Freedom: The Autobiography of Nelson Mandela. Back Bay Books.

25. Moynihan,R, Murphy, K (2002). Doctors causing a drug costs blowout. *Australian Financial Review: 1.*
26. Moynihan R, Henry, D. (2006). The Fight against Disease Mongering: Generating Knowledge for Action. PLoS Med 3(4): e191 doi:10.1371/journal.pmed.0030191
27. Moynihan R, Cassels A (2005). *Selling sickness: How the worlds biggest pharmaceutical companies are turning us all into patients*. New York: Nation Books.
28. Morin, E. (2001). *Seven complex lessons in education for the future*. Paris: UNESCO. 31
29. Morin, E. (2007). *On Complexity*. Cresskill, NJ: Hampton Press.
30. Naess, A. (1973). The shallow and the deep, long-range ecology movement: a summary. *Inquiry, 16,95-100.*
31. Neville, B. (1999). The Client.Centered Ecopsychologist. *The Percon-Centercd Jomrnal, Volume 6, Issue I , I 999. pp. 59-74. U.S.A.*
32. Payer, L. (1992). *Disease-mongers: how doctors, drug companies, and insurers are making you feel sick*. New York: J. Wiley. ISBN 978-0471543855.
33. Rogers, Carl R. (1959). Significant Learning in Therapy and in Education. *Educational Leadership 16 (1959): 232-242.*
34. Rogers, C. R. (1961). *On Becoming a Person*, Houghton Mifflin, ISBN 978-0-395-08409-0
35. Rogers, C. R. (1965). A humanistic Conception of Man. In: Farson, R. (ed). *Science and Human Affairs*. Palo Alto. : Science and Behavior Books.
36. Rogers, Carl R. (1967). The Facilitation of Significant Learning. In: *Contemporary Theories of Instruction.* Ed. L. Siegel. San Francisco: Chandler.
37. Rogers, C. R. (1969). *Freedom to learn: a view of what education might become*. Columbus, OH, Charles E. Merrill.
38. Rogers, C. R. (1977). *Carl Rogers on personal power*. N.Y. Delacorte Press.
39. Rogers, C. R. (1980). *A Way of Being, Boston*: Houghton Mifflin.
40. Rogers, C. R. (1983). *Freedom to learn for the 80s*. Columbus, Charles E. Merrill.
41. Rogers, C. R.; Lyon, C. H.; Tausch, R. (2014). *Becoming an Effective Teacher*. New York: Routledge.
42. Roszak, T., Gomes, M. E., & Kanner, A. D. (Eds.). (1995). *Ecopsychology: Restoring the earth, healing the mind*. Sierra Club Books.
43. Rovesti M, Fioranelli M, Petrelli P, Satolli F, Roccia MG, Gianfaldoni S, Tchernev G, Wollina U, Lotti J, Feliciani C, Lotti T. Health and Illness in History, Science and Society. Open Access Maced J Med Sci. 2018 Jan 25; 6(1):163-165
44. Searles, E. (2020). Bringing the Earth into psychotherapy: A synthesis of ecotherapy and psychosynthesis. *Australian Psychologist, 55(1), 29-38*.
45. Thunberg, G. (2019). *No One Is Too Small to Make a Difference.* Penguin Books.
46. United Nations. (1948). Universal Declaration of Human Rights. Retrieved from https://www.un.org/en/universal-declaration-human-rights/
47. United Nations. (2015). Transforming our World: The 2030 Agenda for Sustainable Development. Retrieved from https://sustainabledevelopment.un.org/post2015/transformingourworld
48. Retrieved from WHO (1986) Health Promotion Charter. Health Promotion and Health EducationUnit. CH, Geneve, Suisse.
49. World Health Organization. (2008). People-Centred Health Care: A Policy Framework. World Health Organization.
50. WHO- World Health Organization (2009). Milestones in Health Promotion Statements from Global Conferences 20 Avenue Appia Ch 1211 Geneva 27 Switzerland. https://www.who.int/publications/i/item/WHO-NMH-CHP-09.01 accessed on May 27th,2023.
51. World Health Organization. (2013). Transforming and Scaling Up Health Professionals' Education and Training: World Health Organization Guidelines 2013 Geneva: 20 Avenue Appia Ch 1211 Geneva, 27, Switzerland.
52. WHO (2015) global strategy on people-centred and integrated health service: interim report. Geneva: World Health Organization. 20 Avenue Appia Ch 1211 Geneva 27 Switzerland https://apps.who.int/iris/bitstream/handle/10665/155004/WHO_HIS_SDS_2015.7_eng.pdf;jsessionid=4F0DFA640B585A2E6B96A8452DC060C1?sequence=1
53. WHO (2016). Framework on integrated, people-centred health services. Report by the Secretariat. Sixty-Ninth World Health Assembly, 15 April 2016. https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_39-en.pdf?ua=1 accessed May 28th, 2023
54. World Health Organization. (2018). Mental health: Strengthening our response. Retrieved from https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response
55. Zimmerman & Rappaport,(1988). Citizen Participation, Perceived Control, and Psychological Empowerment. *American Journal of Community Psychology, 16(5), 725-750.*

56. Zucconi, A. Howell, P. (2003). *Health Promotion: A Person-Centred Approach to Health and Well-being.* Bari, La Meridiana.
57. Zucconi, A. (2008). Effective Helping Relationships: Focus on illness or on health and well being? In B. Lewitt (Ed.). *Reflections of Human Potential: The Person-Centered Approach as a positive psychology*. PCC Books, U.K.
58. Zucconi, A. (2011). The Politics of the helping relationships: Carl Rogers contributions. *Journal of the World Association for Person- Centered Psychotherapy and Counseling, Volume, 10 N.1, March 2011. pp. 2-10.*
59. Zucconi, A. (2013). The Psychology of Denial: Forms of Self-Inflicted Blindness in the Anthropocene Era In: Serageldin, I. & Mohammed, Y. Eds. *New Life Sciences: Linking Science to Society. BioVisionAlexandria* 2012. Alexandria, Egypt: Bibliotheca Alexandrina, 2013.
60. Zucconi, A. (2016). The need for Person Centered Education. *CADMUS, Volume 3, Issue1, pp.1-26.*
61. Zucconi, A. (2019). A compass for sustainable person-centered governance. In: Süss, D.; Negri, C. (Ed.), *Angewandte Psychologie Beiträge zu einer menschenwürdigen Gesellschaft.* pp. 123-133. Berlin: Springer-Verlag
62. Zucconi, A; Wachsmuth, J. (2020). Protecting and Promoting Individual, Social and Planetary Health with People Centered and Sustainable Leadership Styles. *CADMUS, Volume 4, No.2, May 2020, 105-117.*
63. Zucconi, A. (2021). How to promote people centered and person centered sustainable relationships. *CADMUS Volume4 Issue 4, pp.49-5.*
64. Zucconi, A. & Rollè, L. (2023). The health and economic burdens inflicted by human security destruction. *CADMUSVolume 5, Issue 1.* http://cadmusjournal.org/article/volume-5-issue-1/health-economic-burdens-inflicted-by-hs-destruction

CADMUS, Volume 5, No.2, August 2023, 90-99

Towards a 'Life-turn' in Education:
A Thought Experiment

Olivia Bina
Instituto de Ciências Sociais, Universidade de Lisboa, Portugal
Fellow, World Academy of Art and Science

Abstract

This article explores the need for transformative change in higher education institutions (HEIs) to help address the complexity and existential risk resulting from multiple interconnected crises. First, it acknowledges that the rate and direction of change in HEIs have been inadequate and that, despite well-rehearsed obstacles and enablers, much more needs to be done to ensure HEIs can deliver human security. It then explores the rising calls for a renegotiation of the human-nature relationship (HNR) and renewed awareness and respect for all forms of life on Earth, emphasising that bold thinking and a departure from the dominant culture that disregards life are urgently needed. Such calls could be central to a repurposing of learning and education that views human security as intrinsically linked to the security of all life and life-supporting systems. Finally, it builds on notions of systems change theory linked to Donella Meadows' leverage and uses the device of a 'thought experiment' to identify three questions for the present and future of HEIs, in line with Meadows' three highest leverage points.

1. Introduction

> *The diversity of cultural expressions is an extraordinary opportunity to understand how biodiversity is perceived across the globe, learn from each other and to imagine solutions… to understand and change the way we relate to nature. Making peace with nature is a matter of behavioral change, ethics and values… For this, we believe in the power of social and human sciences and education.*
>
> – **Audrey Azoulay**, Director-General, United Nations Educational, Scientific and Cultural Organization (cited in: IPBES 2022)

As abstract concepts such as the Anthropocene, Capitalocene, and Chthulucene become almost mainstream (Haraway 2016), our material reality has kept pace with layers of 'synchronous failures' (Homer-Dixon *et al.* 2015), and the litany of multiple crises, from rising inequality to loss of biodiversity and climate disruptions, is becoming all too familiar. The combined crises have led the United Nations Development Programme to frame the notion of a new uncertainty complex, calling for the need to address human development by looking beyond improving people's wealth or health and acknowledging the need to protect the planet and provide people with the tools they need to feel more secure (UNDP 2021).

Indeed, the Synthesis Report of the Sixth Assessment of the Intergovernmental Panel on Climate Change could not be more explicit in its warnings about the implications of the changing climate for human security (IPCC 2023). In summary, the socio-ecological impacts of the dominant growth model (Moore 2017; Oxfam 2023) are making the Anthropocene an era of existential risk where the fate of the planet and of its life-support systems is inextricably linked to that of all humanity (Brand *et al.* 2021; Myers 2022).

> *"Sustainability is often treated as a specialised field or limited to certain programmes rather than being integrated into the core curriculum. This compartmentalization hinders the holistic understanding of sustainability and its interconnectedness with various disciplines."*

Against this shifting background, higher education institutions (HEIs) play a role that comes with both great responsibility and potential: ideas shape cultures, feed our imaginaries, and ultimately shape our future(s) (Vervoort *et al.* 2015). The choices of what and whose knowledge is taught and what research is encouraged and funded have a direct impact on the kinds of futures that become possible (Bina *et al.* 2017; Luksha *et al.* 2017). Most men and women occupying roles of responsibility and power will have studied for a degree in HEI, and this highlights the potentially far reaching impact and thus high responsibility of HEIs across the world. In 2019, this author completed a major inquiry into the future of universities and, with Tim O'Riordan, edited a special issue on the subject (O'Riordan *et al.* 2020).* One of the main findings of the review of HEI future discourses was that for universities to shift from being part of the problem (i.e., contributing to the multiple crises above) to becoming part of the solution, they had to embark on deep transformative change, starting with their overall purpose and ethos (Bina and Pereira 2020).

Yet, despite the evident speed of change and deteriorating conditions for human thriving, the rate—and often the direction—of change in HEIs leaves much to be desired. The well-rehearsed obstacles to deep changes in the overall purpose and ethos and in related pedagogy and content persist to this day (see Box 1) (Fazey *et al.* 2020; Huckle and Wals 2015), perhaps confirming the observation that HEIs are not, themselves, good at learning (Connell 2019). Globally, the United Nations '*Decade on Education for Sustainable Development'* fell short of its aims (UNESCO 2014). This, despite findings of the *World in 2030 Survey* (UNESCO 2021) showing that two of the major threats to ecological sustainability, climate change and loss of biodiversity, were by far the most-selected challenges (chosen by 67% of respondents) and that respondents were concerned with the following threats to human security: increasing natural disasters and extreme weather, biodiversity loss, the risk of

* Such an inquiry was part of INTREPID, a European Union (EU) network of scientists and practitioners from 32 countries, which was chaired by this author. The overall aim of INTREPID was to advance the understanding and effective application of interdisciplinarity, which is considered an essential way of producing knowledge for sustainability and sustainability science (see Fokdal *et al.,* 2021).

conflict or violence, and the impacts on oceans. In this context, respondents emphasised the need for education on sustainability and for building trust in science, as well as investment in green solutions and promoting international cooperation (UNESCO 2021). This suggests much more needs to be done, but what?

Box 1: Asking Chat GPT Why is Higher Education failing to deliver more Sustainable Development?

Higher education is often criticised for failing to deliver more sustainable development due to several reasons:

1. **Lack of Integration:** Many higher education institutions struggle to integrate sustainability across disciplines and departments. Sustainability is often treated as a specialised field or limited to certain programmes rather than being integrated into the core curriculum. This compartmentalization hinders the holistic understanding of sustainability and its interconnectedness with various disciplines.
2. **Siloed Approach**: Higher education institutions are often organised into separate faculties and departments that operate independently. This siloed approach can inhibit collaboration and the interdisciplinary efforts necessary to address complex sustainability challenges. Limited communication and cooperation between departments can result in fragmented approaches to sustainability rather than comprehensive, systemic solutions.
3. **Outdated Curriculum**: The curriculum in higher education institutions can be slow to adapt to the changing needs of society. Sustainability issues, such as climate change, social inequality, and environmental degradation, require interdisciplinary knowledge and skills that may not be adequately incorporated into traditional academic programmes. The focus on traditional disciplines and specialisation may overlook the broader understanding of sustainability and its practical application.
4. **Insufficient Focus on Practical Application**: Higher education often prioritises theoretical knowledge over practical skills and real-world application. While theoretical understanding is crucial, translating that knowledge into action and developing practical solutions is equally important. There is a need for more experiential learning opportunities, internships, and community engagement initiatives that allow students to apply sustainability principles in real-world settings.
5. **Limited Faculty Expertise**: Many faculty members may lack the necessary expertise in sustainability and sustainable development. Limited faculty training and professional development in sustainability-related topics can hinder their ability to effectively incorporate sustainability principles into their teaching and research. Building faculty capacity and promoting interdisciplinary collaborations are vital to addressing this gap.
6. **Market-driven Priorities**: Higher education institutions are often influenced by market-driven priorities, focusing on employability and economic competitiveness.

Sustainability, although gaining recognition, may not always align with immediate market demands. This can result in limited resources and attention devoted to sustainability education and research.

7. **Limited Institutional Commitment:** The commitment of higher education institutions to sustainability varies widely. While some institutions have made sustainability a core value and embedded it in their strategic plans, others may view it as an add-on or optional component. Lack of institutional commitment, leadership, and dedicated resources can hinder efforts to prioritise sustainability in higher education.

To overcome these challenges, higher education institutions need to embrace systemic change. This includes integrating sustainability across the curriculum, fostering interdisciplinary collaboration, prioritising practical application and experiential learning, providing faculty training and support, and demonstrating a strong institutional commitment to sustainability. By addressing these issues, higher education can better prepare students to contribute to sustainable development and meet the challenges of a rapidly changing world.

Source: https://chat.openai.com (accessed 29 May 2023)

2. A Relationship that 'Matters to the Earth'

There is a vast scholarship on the importance of education for human development as well as on what can and ought to be done. The remainder of this contribution explores the question 'what more can be done' by taking inspiration from a trend, a change occurring as we write, that appears to hold special promise: a rising call for taking a new look at human-nature relationships (HNRs) as the root cause of our multiple crises (IPBES 2019) and key to greater security for all life on Earth. In fact, our crises are intimately connected to 'our (non) relationship with nature' (Bina 2013: 1041); the United Nations report '*Making Peace with Nature*' (UNEP 2021) is a measure of how mainstream this HNR theme is becoming and how it is being linked to the need to change, transition, and transform culture and systems towards a more sustainable future, including education systems, which still largely draw on the insights and blind spots of the Western scientific revolution and its dichotomous view of 'man and nature' (Pereira and Bina 2020).

Today's human (and more-than-human) condition can be framed by the combined realisation of: 1) the Anthropocene, whereby humans and technology are now a force capable of planetary-scale disruption (Steffen *et al.* 2007), driven by the Capitalocene's dominant socio-economic model (Moore 2017); and 2) the Gaia Hypothesis (Lovelock and Margulis 1974), which has challenged dominant western cosmology, shifting our attention from infinite universes to the realisation that Earth is a unique home capable of supporting life: life transforms its environment, and Earth is what it is because life transformed it into a habitable home (Latour 2021; Wahl 2018). (N.B., the term 'life' is used in this chapter as a synthesis term for all human and other-than-human life and its supporting systems.) These two understandings of today's conundrum are intimately connected, crucially, because the

first points to what is happening (the Anthropocene) and why (the Capitalocene), while the second (the Gaia Hypothesis) provides a rich story about why it matters that we should care for all of life on Earth: no one can be secure until we are all secure.

As people and nations across the world, from the South to the North, East and West, try to adapt to living with existential risk, there is a growing call for renewed awareness and respect for all forms of life on Earth, beyond the western dichotomy of human-nature divides. This rising tide responds to a need to find new ways of making meaning in times of existential risk: it carries with it voices from the 'semi-peripheries' (viz., globalised capitalist economies, e.g., the *Buen Vivir* movement) and from disillusioned 'cores' (e.g., beyond growth, degrowth movements), building bridges across disciplines, across cultures, traditions, languages, and worlds (Boaventura de Sousa 2016). In between these persistent divides of worldviews, struggles, and aspirations, there is the emerging possibility that learning about global citizenship becomes a path to a more just, sustainable, and thus secure future.

> 'The history of humanity…courses adopt the radical strategy of setting human and planetary history… [to offer] a more expansive and interdisciplinary perspective on today's world [that] can galvanize the Great [see: https://greattransition.org/] by reorienting the thinking, attitudes, and motivations of billions of people… As the astronauts learned, seeing Earth from space can shock us into a new appreciation of the home we all share... Teaching the history of humanity can be equally transformative by helping us see ourselves as citizens of humanity.... a sense of global citizenship can help motivate and mobilize most people on Earth behind the challenges of the Great Transition' (Christian 2023).

It is in the liminal space between the unravelling of the global capitalist project and the shifting attention to Gaia and to our place with/in/as her that we can find a lever to 'change everything' (to echo Klein 2015). As Beling and others argue, 'a "new Great Transformation" of contemporary societies and their development patterns on a Polanyian scale in the coming decades is likely inevitable, be it "by design or by disaster" (Reißig, 2011)' (Reißig cited in: Beling *et al.* 2018: 305).

The suggestion of this contribution therefore builds around the need for a shift towards a new story about humanity's relationship with the wider community of life and its dependence on the planet's life support system (Kimmerer 2013; Wahl 2016), its intrinsic aliveness (Weber 2013), its intelligence and evolutionary ingenuity, and the life-giving role of its plant kingdom (Lovelock and Margulis 1974; Mancuso 2021):

> 'So far, we've lived by the grace of green plants, and we owe both our lives and our lifestyles to them. Consider that everything we consume… is the product of plants turning sunlight into chemical energy. Our cars, our computers, our Christmas tree lights all feed on photosynthesis as well, because the fossil fuels they use are merely the compressed remains of 600 million years' worth of plants and animals that grew their bodies with sunlight… other than rocks and

> metals, it's hard to find any raw material we use that was not once alive, owing its ultimate existence to plants.' (Benyus 1997 60-61)

And yet, such is the depth of the 'non-relationship' with the nature of our mainstream socio-economic model (Bina 2013)—itself cultivated and reproduced by the education model—that it suffers from 'plant blindness' (Mancuso 2021). In the next section, I build on notions of systems change theory linked to Donella Meadows' insight on the three highest leverage points to intervene in a system: the goal of the system', 'the mindset or paradigm after which the system arises which concerns thinking and knowledge (the way we represent and know the world) and 'the power to transcend paradigms which concerns the ability to acknowledge that every paradigm is a 'limited understanding of the world' (Meadows, 1999: 17) thus demanding radical pluralism in our ways of knowing. I combine her work with Abson and colleagues' (2017) reading of leverage points, emphasising the need to re-connect with nature as a high leverage strategy, in order to argue for a 'life-turn' in learning.

"A renewed focus on life, or 'life-turn' in learning and education, would require a new lens on all subjects and disciplines, acknowledging and embracing interconnectedness and interdependence as a default interpretative lens."

---

3. What if HEIs Embraced a 'Life-turn'?

'One thing is very clear: never has bold thinking about what matters in the world been more urgent'

– Bill Adams (2020)

> *What happens when human exceptionalism and bounded individualism, those old saws of Western philosophy and political economics, become unthinkable in the best sciences, whether natural or social? Seriously unthinkable: not available to think with.*
>
> (Haraway 2016)

Many scholars and activists, including those cited above, have already argued that a dominant culture based on (and reinforced by) learning and education and socio-economic systems that disregard life can only drive humanity away from security and towards collapse, along a path littered with interconnected crises. This status of alienation from life itself was beautifully expressed by Robin Wall Kimmerer's account of her experience with language. She discovered that her indigenous roots and Potawatomi language had a word to describe 'the force which causes mushrooms to push up from the earth overnight', and it is the word 'Puhpo-wee', and she explained:

> 'As a biologist, I was stunned that such a word existed. In all its technical vocabulary, Western science has no such term, no words to hold this mystery. You'd think that biologists, of all people, would have words for life. But in scientific language our terminology is used to define the boundaries of our knowing. What lies beyond our grasp remains unnamed' (Kimmerer 2013: 49).

The 2023 E4HS conference acknowledged that education for human security must include the whole biosphere since our security depends not just on that of individuals and nations but on that of all life on the planet. The suggestion here is that we take a step further, even beyond the imperative of reconnecting humans and nature, as Abson and colleagues (2017) recommend in their exploration of leverage for transformative change. Using the device of a 'thought experiment[*] combined with the futures studies tradition of asking 'what if', I ask three questions of the present and future of HEIs, in line with Meadow's three highest leverage points:

1. **What if** our learning and education systems were repurposed so that their main purpose, in line with the most progressive interpretations of the United Nations' '*Transforming our World: 2030 Agenda for Sustainable Development*' (UNGA 2015), was to secure a socially just and ecologically sustainable world, from local to global (i.e., Leverage point 3: Goals)?
2. **What if** this repurposing was inspired by a mindset and paradigm that foreground the notion that our beautiful world works thanks to its aliveness, ensuring that learning is first-and-foremost about an understanding and a celebration of all Life, letting go of the reductionist lens of human exceptionalism (i.e., Leverage point 2: Paradigms, Mindsets)? and
3. **What if** the overriding ethos of such learning institutions was radical humility through the embracing of plural ways of knowing, where the best of epistemologies from the global south meet with the best of western science to help us frame new meanings, new narratives, new words; a space where, in Meadow's own words, we learn to keep ourselves 'unattached in the arena of paradigms, to stay flexible, to realise that NO paradigm is "true," that every one, including the one that sweetly shapes your own worldview, is a tremendously limited understanding of an immense and amazing universe' (i.e Leverage point 1: The power to transcend paradigms)?

Human security, for all, demands global social justice, which in turn is not possible without global cognitive justice, ending centuries of western domination that has profoundly marginalised other knowledge and wisdom traditions (Boaventura de Sousa 2016), with increasingly evident consequences for all life (IPBES 2019) and life-supporting systems (Steffen *et al.* 2015; Homer-Dixon *et al.* 2022). A renewed focus on life, or 'life-

* A test in which one imagines the practical outcome of a hypothetical situation in which a hypothesis or a principle is explored to help one think through its consequences (Webster's New World College Dictionary, 4th Edition, 'https://www.collinsdictionary.com/dictionary/english/thought-experiment' (accessed: 2/3/23)), (see also Brown and Fehige 2022)

turn' in learning and education, would require a new lens on all subjects and disciplines, acknowledging and embracing interconnectedness and interdependence as a default interpretative lens. Even before the global pandemic of 2020, there were calls for changes to the systems of governance and organisation of human knowledge deemed inadequate to address the threats to planetary health (Whitmee *et al.* 2015); our seemingly endless cycle of crises makes a compelling case as to why such a life-turn' might be a desirable, indeed non-negotiable, change in HEI learning and education.

Author's Contact Information
Email: bina@edu.ulisboa.pt

Bibliography

1. Abson, D. J., Fischer, J., Leventon, J., Newig, J., Schomerus, T., Vilsmaier, U., von Wehrden, H., Abernethy, P., Ives, C. D. and Jager, N. W. (2017) Leverage points for sustainability transformation, Ambio, 46, 30-39.
2. Adams, B. (2020) Green Development?, Thinking like a human. Conservation for the 21st century, Posted on June 26, https://thinkinglikeahuman.com (accessed: 2/7/20).
3. Beling, A. E., Vanhulst, J., Demaria, F., Rabi, V., Carballo, A. E. and Pelenc, J. (2018) Discursive synergies for a 'great transformation'towards sustainability: pragmatic contributions to a necessary dialogue between human development, degrowth, and buen vivir, Ecological Economics, 144, 304-313.
4. Benyus, J. M. (1997) Biomimicry: Innovation inspired by nature, Morrow, New York.
5. Bina, O. (2013) The green economy and sustainable development: an uneasy balance?, Environment and Planning C-Government and Policy, 31, 1023–1047; 10.1068/c1310j.
6. Bina, O., Mateus, S., Pereira, L. and Caffa, A. (2017) The future imagined: exploring fiction as a means of reflecting on today's Grand Societal Challenges and tomorrow's options, Futures, 86, 166-184.
7. Bina, O. and Pereira, L. (2020) Transforming the role of universities: from being part of the problem to becoming part of the solution, Environment: Science and Policy for Sustainable Development, 62, 16-29.
8. Boaventura de Sousa, S. (2016) Epistemologies of the South: Justice against epistemicide, Routledge, Abingdon, Oxon.
9. Brand, U., Muraca, B., Pineault, É., Sahakian, M., Schaffartzik, A., Novy, A., Streissler, C., Haberl, H., Asara, V., Dietz, K., Lang, M., Kothari, A., Smith, T., Spash, C., Brad, A., Pichler, M., Plank, C., Velegrakis, G., Jahn, T., Carter, A., Huan, Q., Kallis, G., Martínez Alier, J., Riva, G., Satgar, V., Teran Mantovani, E., Williams, M., Wissen, M. and Görg, C. (2021) From planetary to societal boundaries: an argument for collectively defined self-limitation, Sustainability: Science, Practice and Policy, 17, 265-292.
10. Brown, J. R. and Fehige, Y. (2022) Thought Experiments. In The Stanford Encyclopedia of Philosophy (Winter 2022 Edition) (Eds, Zalta, E. N. and Nodelman, U.) https://plato.stanford.edu/archives/win2022/entries/thought-experiment/ (accessed: 12/1/23).
11. Christian, D. (2023) New Ways of Seeing the World: Big History and Great Transition, Opening essay for a GTI Forum, May.
12. Connell, R. (2019) The Good University. What Universities Actually Do and Why It's Time for Radical Change, Zed Books, distributed by The University of Chicago Press.
13. Fazey, I., Schäpke, N., Caniglia, G., Hodgson, A., Kendrick, I., Lyon, C., Page, G., Patterson, J., Riedy, C., Strasser, T., Verveen, S., Adams, D., Goldstein, B., Klaes, M., Leicester, G., Linyard, A., McCurdy, A., Ryan, P., Sharpe, B., Silvestri, G., Abdurrahim, A. Y., Abson, D., Adetunji, O. S., Aldunce, P., Alvarez-Pereira, C., Amparo, J. M., Amundsen, H., Anderson, L., Andersson, L., Asquith, M., Augenstein, K., Barrie, J., Bent, D., Bentz, J., Bergsten, A., Berzonsky, C., Bina, O., Blackstock, K., Boehnert, J., Bradbury, H., Brand, C., Böhme, J., Bøjer, M. M., Carmen, E., Charli-Joseph, L., Choudhury, S., Chunhachoti-ananta, S., Cockburn, J., Colvin, J., Connon, I. L. C., Cornforth, R., Cox, R. S., Cradock-Henry, N., Cramer, L., Cremaschi, A., Dannevig, H., Day, C. T., de Lima Hutchison, C., de Vrieze, A., Desai, V., Dolley, J., Duckett, D., Durrant, R. A., Egermann, M., Elsner, E., Fremantle, C., Fullwood-Thomas, J., Galafassi, D., Gobby, J., Golland, A., González-Padrón, S. K., Gram-Hanssen, I., Grandin, J., Grenni, S., Lauren Gunnell, J., Gusmao, F., Hamann, M., Harding, B., Harper, G., Hesselgren, M., Hestad, D., Heykoop, C. A., Holmén, J., Holstead, K., Hoolohan, C., Horcea-Milcu, A.-I., Horlings, L. G., Howden, S. M., Howell, R. A., Huque, S. I., Inturias Canedo, M. L., Iro, C. Y., Ives, C. D., John, B., Joshi, R., Juarez-Bourke, S., Juma, D. W., Karlsen, B. C., Kliem, L., Kläy, A., et al. (2020) Transforming knowledge systems for life on Earth: Visions of future systems and how to get there, Energy Research & Social Science, 70, 101724.

14. Fokdal, J., Bina, O., Chiles, P., Ojamäe, L. and Paadam, K. (Eds.) (2021) Enabling the City: Interdisciplinary and transdisciplinary encounters in research and practice Routledge, New York and Abingdon, https://www.taylorfrancis.com/books/9780367277390
15. Haraway, D. (2016) Tentacular Thinking: Anthropocene, Capitalocene, Chthulucene, e-flux Journal, September, https://www.e-flux.com/journal/75/67125/tentacular-thinking-anthropocene-capitalocene-chthulucene/ (accessed: 2/1/23).
16. Homer-Dixon, T., Renn, O., Rockstrom, J., Donges, J. F. and Janzwood, S. (2022) A call for an international research program on the risk of a global polycrisis, Cascade Institute, 2022-2, version 1.0, https://cascadeinstitute.org/technical-paper/a-call-for-an-international-research-program-on-the-risk-of-aglobal-polycrisis/ (accessed: 12/12/22).
17. Homer-Dixon, T., Walker, B., Biggs, R., Crépin, A.-S., Folke, C., Lambin, E. F., Peterson, G. D., Rockström, J., Scheffer, M. and Steffen, W. (2015) Synchronous failure: the emerging causal architecture of global crisis, Ecology and Society, 20, 6.
18. Huckle, J. and Wals, A. E. (2015) The UN Decade of Education for Sustainable Development: business as usual in the end, Environmental Education Research, 21, 491-505.
19. IPBES (2019) Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, (Eds) E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo. IPBES Secretariat, Bonn, Germany.
20. IPBES (2022) Summary for Policymakers of the Methodological Assessment Report on the Diverse Values and Valuation of Nature of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Pascual, U., Balvanera, P., Christie, M., Baptiste, B., González-Jiménez, D., Anderson, C.B., Athayde, S., Barton, D.N., Chaplin-Kramer, R., Jacobs, S., Kelemen, E., Kumar, R., Lazos, E., Martin, A., Mwampamba, T.H., Nakangu, B., O'Farrell, P., Raymond, C.M., Subramanian, S.M., Termansen, M., Van Noordwijk, M., and Vatn, A. (eds.). IPBES secretariat, Bonn, Germany. https://doi.org/10.5281/zenodo.6522392
21. IPCC (2023) The IPCC Sixth Assessment (AR6) Synthesis Report (SYR) Summary for Policymakers, The Intergovernmental Panel on Climate Change (IPCC), https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_SPM.pdf (accessed: 23/3/23).
22. Kimmerer, R. W. (2013) Braiding sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants, Milkweed Editions.
23. Klein, N. (2015) This changes everything: Capitalism vs. the climate, Simon and Schuster.
24. Latour, B. (2021) Interview with Bruno Latour, Arte.tv, https://www.arte.tv/en/videos/106738-001-A/interview-with-bruno-latour/
25. Lovelock, J. E. and Margulis, L. (1974) Atmospheric homeostasis by and for the biosphere: the Gaia hypothesis, Tellus, 26, 2-10.
26. Luksha, P., Cubista, J., Laszlo, A., Popovich, M. and Ninenko, I. (2017) Educational Ecosystems for Societal Transformation, Global Education Futures (GEF) Report, http://globaledufutures.org/images/people/GEF_EducationalSystemsforSocietalTransformation_report.pdf (accessed: 2/5/18).
27. Mancuso, S. (2021) The Nation of Plants: A radical manifesto for humans, Profile Books, Kindle version.
28. Moore, J. W. (2017) The Capitalocene, Part I: On the nature and origins of our ecological crisis, The Journal of Peasant Studies, 44, 594-630.
29. Myers, S. (2022) Samuel Myers - Planetary Health: Protecting Nature to Protect Ourselves | Bioneers, https://www.youtube.com/watch?v=gfH0v2zpQYI&t=394s (accessed 26/12/22).
30. O'Riordan, T., Jacobs, G., Ramanathan, J. and Bina, O. (2020) Investigating the Future Role of Higher Education in Creating Sustainability Transitions, Development, Environment: Science and Policy for Sustainable Development, 62, 4-15.
31. Oxfam (2023) Survival of the Richest. How we must tax the super-rich now to fight inequality, Oxfam briefing paper – January, https://www.oxfam.org/en/research/survival-richest (accessed: 19/1/23).
32. Pereira, L. and Bina, O. (2020) The IPBES Conceptual Framework: enhancing the space for plurality of knowledge systems and paradigms. In Non-Human Nature in World Politics: Theory and Practice (Eds, Pereira, J. C. and Saramago, A.) Springer Nature, Switzerland, pp. 311-335.
33. Steffen, W., Crutzen, P. J. and McNeill, J. R. (2007) The Anthropocene: are humans now overwhelming the great forces of nature, AMBIO: A Journal of the Human Environment, 36, 614-621.
34. Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., Biggs, R., Carpenter, S. R., De Vries, W. and de Wit, C. A. (2015) Planetary boundaries: Guiding human development on a changing planet, Science, 347, 1259855.
35. UNDP (2021) Human Development Report 2021-22. Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World, United Nations Development Programme, New York.
36. UNEP (2021) Making Peace With Nature: A scientific blueprint to tackle the climate, biodiversity and pollution emergencies, Key Messages and Executive Summary, United Nations Environment Programme, Nairobi, https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/34949/MPN_ESEN.pdf.

37. UNESCO (2014) Shaping the Future We Want: UN Decade of Education for Sustainable Development (2005-2014), UN Educational, Scientific and Cultural Organization (UNESCO), http://unesdoc.unesco.org/images/0023/002301/230171e.pdf (accessed: 2/1/15).

38. UNESCO (2021) The World in 2030 Survey report, UNESCO, Paris, https://unesdoc.unesco.org/ark:/48223/pf0000375950.locale=en.

39. UNGA (2015) Transforming our world: the 2030 Agenda for Sustainable Development, UN General Assembly, Resolution adopted by the General Assembly on 25 September 2015, Geneva.

40. Vervoort, J. M., Bendor, R., Kelliher, A., Strik, O. and Helfgott, A. E. R. (2015) Scenarios and the art of worldmaking, Futures, 74, 62-70.

41. Wahl, D. (2018) Human and Planetary Health: Ecosystems Restoration at the dawn of the Century of Regeneration, Transcript of Wahl's 'Findhorn Talk' on October 13th, https://www.resilience.org/stories/2018-12-05/human-and-planetary-health-ecosystem-restoration-at-the-dawn-of-the-century-of-regeneration/ (accessed: 2/2/22).

42. Wahl, D. C. (2016) Designing Regenerative Cultures, Triarchy Press.

43. Weber, A. (2013) Enlivenment. Towards a fundamental shift in the concepts of nature, culture and politics, Heinrich böll Foundation, Series Ecology Volume 31, Berlin.

44. Whitmee, S., Haines, A., Beyrer, C., Boltz, F., Capon, A. G., de Souza Dias, B. F., Ezeh, A., Frumkin, H., Gong, P. and Head, P. (2015) Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–Lancet Commission on planetary health, The lancet, 386, 1973-2028.

CADMUS, Volume 5, No.2, August 2023, 100-109

Cultural Orientation of the New Era

Natalia Rojcovscaia-Tumaha
Composer, conductor, pedagogue, linguist, writer;
Board member of the Center for Russian Science and Culture

Abstract

In order to ensure security in the education system and, thereby, educate a creatively thinking and acting person, it is necessary to reform education, filling it with a cultural component. The modern educational program urgently needs cultural content and should include an in-depth study of ethics, aesthetics, world cultural traditions and heritage, examples of high classical and professional contemporary art, and the practical application of creative skills. Art is the highest manifestation of culture; imbued with it, we will become the creators of the best versions of ourselves, as well as the entire harmonious reality around us. It is necessary to adhere to the firm conviction that the security and harmonious progress of humanity must be based on the enhancement of the significance and value of culture. This should be a new cultural and creatively oriented era. And the builders of this new epochal time should embody the spiritual and moral principles, serving as the direct bearers of these principles.

Culture is the main thing that makes us truly Human. Only Homo culturalis or a cultural person, which means spiritually elevated, can build that perfect bright future to which we all aspire. A cultured person is a peaceful person in the world, who has positive, broad, unordinary and creative thoughts and who actively participates in building a peaceful and open society, acting in the interests of people and within the framework of global partnership and unity. Everything is created, projected and embodied by us, because a person has unlimited abilities. And in order to direct them for the good, we must look for a source for change within ourselves, starting with self-knowledge, self-improvement, self-discipline, self-control and selflessness in our thoughts and actions. All of us who want change must acknowledge our responsibility for the world in which we live, for those with whom we are close and for what is given to us by nature. It's a journey of self-discovery. Culture means cultivation, an act of creation, veneration of the world by a person, and above all this comes through upbringing, education, enlightenment and, as a result, knowledge of oneself, and through oneself while simultaneously comprehending the whole world.

And it is not necessary for every person to think globally, it is enough to organize our microcosm inside ourselves, our own lives, while adhering to the path of kindness, honesty, love and wisdom in order to achieve harmony, which, like diverging waves, will impact the lives of other people and the whole world order as a whole. Each of us has creative energy and everyone can make an important contribution to the construction, development and improvement of our common life in our beautiful home—planet Earth. Each of us can bring into this world something of our own—unique, inimitable and, therefore, invaluable.

Therefore, with every child's birth on this planet, prosperity should increase more and more. Every person is a bearer of a special purpose and a source of inspiration for other people. He is a necessary element of the micro- and macrocosm, interconnection, balance, consonance, unity and harmony of the entire Universe. We, along with everything that surrounds us, are united by one mind and together constitute the wholeness of the entire Universe.

"Culture is the basis of art studies, linguistics, political science, economics, ethnology, history, philosophy, psychology, pedagogy and everything else."

The modern term "culture" is based on a term used by the ancient Roman orator Marcus Tullius Cicero in his Tusculanae Disputationes, where he wrote of the cultivation of the soul or "cultura animi", using an agricultural metaphor for the development of a philosophical soul, understood teleologically as the highest possible ideal for human development. He also spoke about the culture of spirit and mind, which are equivalent to love of wisdom, the definition of philosophy. No wonder in ancient schools, along with the exact sciences and the humanities, rhetoric, music, painting, philosophy were obligatory. Without these subjects, it is impossible to form an integrated and harmonious personality. The modern educational program urgently needs cultural content and should include an in-depth study of ethics, aesthetics, world cultural traditions and heritage, examples of high classical and professional contemporary art, and the practical application of creative skills. And since art is the highest manifestation of culture, it allows us to become the creators of the best versions of ourselves, as well as the entire harmonious reality around us. Unlike the scientific method of cognition, which divides the world into separate parts for analytics, the artistic sphere follows the path of a holistic and synthesized display by creating some complex models, where the established accents of the opposition of "good and evil" are placed (that which contributes to the unification and understanding). Also, this is the atmosphere of high spirituality, beauty and creativity that is native to the child's soul, in which he feels happy, free, protected and confident. Also, when the child becomes more developed intellectually and spiritually, more emotionally responsive, sincere, sensitive, inspired, his insight and intuition develop highly.

Samuel Pufendorf took over this metaphor in a modern context, meaning something similar, but no longer assuming that philosophy was man's natural perfection. His use, and that of many writers after him, "refers to all the ways in which human beings overcome their original barbarism, and through artifice, become fully human."

Because only an increase in the level of culture can stop the spiritual decline and discord in society. Culture is what makes a person civilized, highly spiritual and opens the whole breadth of his soul, expands his thinking, helps him realize the whole potential of the individual and unites all people on earth, making them loving and caring about each other and about his planet. A cultured person will be honest both to the outside world and to himself.

He will be reasonable and will take good care of the environment and climate; his choice will be a healthy lifestyle, rational consumption and responsible restoration of all resources of the earth, promoting the development of agriculture, caring for people.

> *"Culture and spirituality are inseparable; culture cannot separate people by pushing them against each other but should bring them together."*

All this will help to make the world humanistic, which by itself will solve the problems of violence and save present and future generations from the threat and scourge of war, this will eradicate crime and inequality within and between countries, including gender inequality, and will be expanding rights, freedoms and opportunities for women of all origins, religions and ages.

Therefore, only an increase in the level of culture can stop the spiritual decline, discord in society. A cultural person will be honest both to the outside world and to himself. He will be reasonable and his choice will be a rational consumption and responsible restoration of all resources of the earth and caring about people. All this will help to make the world truly humanistic, in which the problems of violence will be solved by themselves and this will save present and future generations from the threat and disaster of aggression and destruction.

This is where culture leads and this is the surest way and key to all the challenges facing humanity today. And if we underestimate or lose sight of the fundamental importance of culture, we will never fully achieve and realize the noblest goals, which are the 17 Sustainable Development Goals. And there is such a danger. In due time, Immanuel Kant saw the rapid development of civilization, already then alarmingly noted its separation from culture, which also goes forward, but much more slowly. According to him, it is this disproportion that is the cause of many of the troubles of mankind, since the cultural space is essentially inextricably linked to the social.

Culture is a comprehensive notion that has an enormous amount of meanings in various areas of human life and has an unusually beneficial effect on all aspects of our life. And the source of culture is thought activity, spirituality and creativity, which, in turn, is a source of individual and social well-being.

Culture is the basis of art studies, linguistics, political science, economics, ethnology, history, philosophy, psychology, pedagogy and everything else.

The modern educational program urgently needs cultural content and must include examples of high art with the addition of arts subjects to the educational program, since art is the highest manifestation of culture, this is what makes us creators of ourselves and of all the reality around us.

A humanistic approach is key to solving not only security problems, but also raising the level of education and student engagement. I would like to add a small but important clarification related to the question whether culture is a divisive or unifying force.

> *"At the global level, there are extraordinary individuals, geniuses, who serve as messengers of higher knowledge and through their exceptional art, enlighten and connect us on a profound spiritual level."*

Indeed, culture is a very broad concept and can include both local cultures and traditions, and the concept of a global order. In the first sense, culture is one of the main features, which makes people different. Different countries have different national peculiarities, according to which people differ, but these differences should not be the reasons for divisive attitude towards other nations. Due to a misunderstanding of the importance of this diversity, intolerance towards each other, or the conscious manipulation of it, multi-ethnic conflicts can arise, dividing countries, breaking nations. But this is actually unnatural for culture. In fact, all existing national cultures create a diversity of beauty and grandeur of the entire human society as a whole. And this leads to a unifying culture of the human spirit. Culture and spirituality are inseparable; culture cannot separate people by pushing them against each other but should bring them together.

On the contrary, it teaches them the basic moral values that are universal in the world. So, culture is not division, but diversity! It is people who want either to unite or to divide nationalities, not cultures. There are some countries which do their best in uniting different nationalities under one culture in the measures of one state. For example, my multinational country is also like such countries. Every culture has its own peculiarities, but these different features should first of all unite people in the sense that opportunities to understand the other culture should serve as the adhesive factor in the relation between cultures.

And, above all, education helps to understand this. It is impossible to be regarded as an educated person if only one culture is studied, and the peculiarities of other nations are omitted. All ethical and religious programs teach students to live together peacefully, without conflicts and wars. The very educational process comprises programs where students are taught to live and work together, they are taught to respect the culture of other students and to support others in their desire to study. There are a lot of international Universities where students from different countries get their education. Is this not proof of the cultural unifying function of education? I strongly believe it is! People's aspiration to explore the mysteries of other cultures serves as an argument in favor of a universal culture as a unifying factor of different nationalities. Culture is unifying, and the aforementioned reasons do not provide any confirmation of its divisive nature.

So, culture is what distinguishes people, but it does not necessarily have a divisive nature, as some people may believe. Education, books, state policy—all these are reasons for uniting people of different nationalities and their safe and harmonious Commonwealth.

"Our brighter future lies with our children, who, inspired by our wisdom, will embrace our ideals, carry forward our important endeavors, and pass them on to subsequent generations in a world filled with prosperity. This vision can be realized through heightened awareness and global recognition of the profound significance of culture worldwide."

In support of the above, as a musician, I can say that there are many national schools of composers from different countries, where there is a centuries-old heritage, traditions and continuity of generations among talented composers, but not all of them have reached the level of world classical music, although we all respect and honor them. At the global level, there are extraordinary individuals, geniuses, who serve as messengers of higher knowledge and through their exceptional art, enlighten and connect us on a profound spiritual level. And that is why we, speaking from such a high platform, which the World Academy of Art and Science has so generously provided us with, must raise themes to a global creative level in order to move towards UNIVERSAL progress.

As someone who works in the Guild of Young Art Creators, I can say that our educational activities are aimed at teaching people of all ages, particularly at a young age, to think creatively, broadly, and peacefully. And, of course, we support them in realizing their fullest potential, opening new horizons for them, and fostering their ability to act collectively for the benefit of people and our planet. We organize interdisciplinary and multi-cultural educational projects and events related to the interaction of different types of art. Additionally, we develop new methods to effectively study and understand our complex and diverse world in its entirety.

Working with like-minded people, we have achieved tangible positive results in this direction. For example, the culture-oriented ArtWay method for learning languages through music has established itself very well. This approach helps reduce the time required for language learning, enhances the retention of acquired knowledge, and provides aesthetic, spiritual, and moral enlightenment.

We are improving all the time and increasingly include international cooperation in our activities. This primarily concerns our cooperation with the MusiCaribe Project International and the International Alliance for Women in Music based in the United States. As part of these initiatives, we managed to implement many valuable educational and cultural projects that only strengthened the mutual understanding, solidarity and consent in the minds of people, as well as human security as a whole.

Our brighter future lies with our children, who, inspired by our wisdom, will embrace our ideals, carry forward our important endeavors, and pass them on to subsequent generations in a world filled with prosperity. This vision can be realized through heightened awareness and global recognition of the profound significance of culture worldwide. At its core, culture is the cultivation of the soul. It gives us the ability to hear, deeply understand and feel each other and the nature around us, returning us to our main purpose—to be here, on this earth, as CREATORS. Art is called to serve this, which from the first educates us, elevates our consciousness, developing our individual and leadership abilities.

Almost all prominent figures, scientists, activists were related to music, and this says something in its favor! For example, Nobel laureates. We need to pay more attention to creative, cultural-educational projects that will be based on the entire cultural heritage of mankind along with modern achievements and innovations. It is necessary to involve people around the world in them, especially young people.

Art, by definition, is a form or a specialized sphere of culture, the functional tasks of which include the intellectual and sensual reflection of being in artistic images. Unlike the scientific method of cognition, which divides the world into separate parts for analytics, the artistic sphere follows the path of a holistic and synthesized display by creating some complex models, where the established accents of the opposition of "good and evil" are placed (that which contributes to unification and understanding).

Art in all its diversity is necessary for mankind, especially in development and education, and music should play a particularly important role in this.

Everything has a wave nature and sound vibrations are the building material of reality. The perfection of the world depends on their harmonies. And in this eternal striving, music is born. The music of our life, our planet, which grows into the sounding of the entire visible and invisible Universe. Albert Einstein's words: "I see my life in terms of music", "It occurred to me by intuition, and music was the driving force behind that intuition. My discovery was the result of musical perception." The more enlightened and elevated the soul is, the more subtle it feels, the closer it is to God and through music it is able to speak with Him... and receive knowledge... and create. Each person is created in the likeness of God and is essentially the Creator from the very beginning. "The vibrations on the air are the breath of God speaking to man's soul. Music is the language of God. We musicians are as close to God as man can be. We hear his voice, we read his lips, we give birth to the children of God, who sing his praise. That's what musicians are", – so Ludwig van Beethoven said.

Music reflects our whole life and all the laws by which it moves.

All children are born musicians, endowed with excellent musical inclinations. This is a scientific fact. Any child, even in his prenatal development, responds to the sound of his mother's and father's voices, and after his birth, long before he learns to speak, he reacts to music, its rhythm, melody, tonality, etc. That is why many adults intuitively communicate with children using various sounds and melodic intonations.

But music is not only for pleasure, it is a powerful tool for child development. Engaging with music is a special sensory experience. Scientists have found that there is no separate area in our brain responsible for the perception of music. Therefore, when we study music, both hemispheres of the brain work. When we learn music, we stimulate the activity of a huge number of nerve cells—neurons, as well as establish interneuronal and interhemispheric connections.

Even in antiquity, people knew that the letter and the note are the sisters of education, which are united by sound. In ancient Greece, music was included in the compulsory curriculum. The traditional subjects of the ancient school are rhetoric, dialectics or logic, dance, philosophy, astronomy, where music also takes the main place. According to the ancient Greeks, the seven liberal arts of the "Artes liberales" taught the cultivation of a worthy citizen of the polis—mentally, morally and physically developed, striving for perfection in everything.

According to Pythagoras of Samos, music creates the same order and harmony within a person as in the Universe. And Plato believed that music brings harmony to the souls of people and makes them beautiful. The sooner children start learning about art, the better. Music, singing and dance classes have the most beneficial effect on a child's psychological state, mental activity and physical health. This is the atmosphere of high spirituality, beauty and perfection that is native to the child's soul, in which he feels happy, free, protected and confident. It creates a fertile ground for his self-expression, creative experiments, improvisations and, as a result, amazing discoveries and achievements. It's such a joy to know the world through art! Through direct communication with music, he comprehensively develops as a personality, expands his worldview, deepens his intellect, fully reveals his potential, which is the key to successful educational activities throughout all further school and student years, and then successful professional and personal self-realization.

Here are just a few of the qualities and abilities that a child acquires when receiving musical education:

- multilateral intellectual and spiritual development;
- acquisition of ethical skills and aesthetic perception of the world, culture of behavior;
- kindness, emotional responsiveness, calm and peaceful nature;
- figurative, logical and extraordinary thinking;
- spatial and temporal representations;
- high auditory and visual memory;
- control and execution of many tasks simultaneously;
- insight and intuition;
- disciplined manner with increased workability;
- ability to concentrate and relax;
- correction of speech defects, development of articulation and diction;

- good coordination of movement;
- social skills (through collaboration in music-making process, in choral singing and co-creation);
- acquisition of the qualities of a leader;
- the ability to set high goals for oneself and achieve them;
- cultivating positive emotions, attitudes and self-confidence;
- being in harmony with the world and with oneself;
- a spiritual state and a desire to create.

We, adults, those who have already embarked on our own path, must help the child remain a miracle, feel him and guide him to the world of beauty. Then the little man will open his heart, and it will never become callous even during periods of major challenges, he will be filled with noble and high ideas and will be able to create a happy life not only for himself and loved ones, but also make his contribution to improving the life of all mankind. It is especially important to give this main impulse from childhood, maintaining in the child the pure, divine light of his soul throughout his life. This is the main task and responsibility for people.

The arts are a mystery. And music is the highest of all arts. I tell the students from the first lesson: music is vivid; it has a beating heart. Music can speak, it has its own special language, understandable to the soul. Treat music as a friend, listen to it, feel it, and empathize with it and it will tell you a lot. For a child, this attitude to the world is natural. He easily enters into kinship with things, toys, animals and plants, reviving and spiritualizing them. With age, this valuable natural property, unfortunately, hides in the depths of the soul or leaves us forever.

Under what conditions is it possible to awaken the artist in a child? Knowledge and skills are extremely important things, but only as an aid to the most important thing—to encourage the awakening of a Human Being through creativity. Because at the moment of creation only one law acts on us, the paramount law—the law of Love.

By contributing to the spiritual growth of young people through art, especially music—as the highest and most powerful of all arts, together we can make possible the most beneficial, positive and sustainable changes in the life of all society on a global level.

To fully comprehend this vision, children need integrated school subjects where teachers of various specializations talk about the same phenomenon from different perspectives, demonstrating different planes of the same subject of discussion and thereby showing all the multidimensionality and interpenetration of the factors of this phenomenon or historical period, etc. For example, they can talk about what is common between music and physics, poetry, painting, literature, psychology, geometry, chemistry and much more. When students see it in understandable forms, as well as in similar patterns everywhere, the concept of dry theory disappears, knowledge enters into them naturally, deeply and forever.

Thanks to this approach in training, we achieve:

- elimination of information fragmentation, often requiring useless mechanical memorization of the material;
- interpenetration and complementarity of each other's educational disciplines, contributing to a better understanding of the subjects of study;
- single subjects are being replaced by integrated lessons in interdisciplinary synthesis. As a result, children receive logically connected highly variegated knowledge, where everything is collected in a single historical, scientific and cultural layer.

In addition, children freely experiment in practice with the knowledge gained, independently attracting a wide arsenal of tools from various fields to achieve their goals, learn to think outside the box.

Our joint efforts will make possible many transformations in the upbringing and education of children and youth, give them even greater incentive and motivation for the most complete creative personal realization and professional growth.

So, it is precisely culture in the broadest sense of the word, all kinds of art led by music and innovative education based on them, like nothing else, that are capable of intensively stimulating global Sustainable Development:

- to establish a deeper contact, understanding, interpenetration and mutual enrichment of cultures and traditions of peoples by organizing a larger and more diverse number of intercultural events;
- to help build peaceful, inclusive and participatory societies;
- contribute to the improvement of the legal field and public order, ensuring openness and security;
- develop, enrich and transform the education system into a comprehensive, fair, high-quality and accessible for people of all ages and capabilities, making it flexible and responsive to the needs of the modern world;
- actively stimulate the creation of conditions for the growth of innovation, including the development of reliable, environmentally friendly and affordable energy sources for all, as well as sustainable infrastructure and industrialization;
- to balance consumption and production, achieve economic stability in countries, having eradicated hunger, unsanitary conditions and poverty everywhere, and finally resolve the problem of lack of employment opportunities and social inequality;
- to provide a worthy place of work and stable housing for every person, because creative skills and the ability to think flexibly, quickly and innovatively are extremely important and necessary, especially in our time.

So, let's summarize that:

Any of the Sustainable Development Goals—17 Goals to Transform Our World, drafted and adopted by all United Nations Member States in 2015 can be most effectively achieved by building on culture.

Culture is meant here both as a global heritage and as a culturally oriented inhabitant of our planet, individually and as a whole. In such a broad, all-embracing form, culture creates a "cultural field" that connects us, establishing our harmonious interaction with each other and with the outside world.

If we introduce the catalytic transformative word "culture" into each of the Goals, then thanks to this, each Goal will become closer, which will put into it an even greater energy impulse for progressive movement, and a guaranteed positive charge of success. The word "cultural" here can be interpreted in the broadest sense, including such words as: "reasonable", "competent", "intelligent", "humanistic". After all, everyone knows paradigms such as "food and drink culture", "culture of life", "culture of relationship", "cultural behavior", "cultural economics", "culture of work", "management culture" and much more. In relation to art, there are also many similar reference concepts and benchmarks: "art of communication"; "art of business", "art of education"; "art of thinking"; "art of self-expression", "art of being Human."

By connecting culture with each of the Goals, we will see how the crucial "fifth element" will be added to it, linking everything together. And it is imperative to build all the concepts and strategies that prioritize the integration of the cultural component within each Goal.

I am absolutely sure that if we urgently activate the work of the Department of Culture in collaboration with all other UN Departments, where culture will serve as a unifying force, facilitating cross-cultural understanding, then we can achieve full success and meet the timelines outlined in the 15-year plan until 2030, which was adopted by all United Nations Member States to achieve all the Sustainable Development Goals.

Author's Contact Information
Email: natrojcovscaia@gmail.com

CADMUS, Volume 5, No.2, August 2023, 110-117

From US to Qatar University Teaching:
Contextualized Knowledge Communication for Future Education

Fadwa El Guindi
University of California, Los Angeles and El Nil Research;
Trustee, World Academy of Art and Science

Abstract

While the overall theme selected by the World Academy of Art and Science (WAAS) for the 2023 6th Future Education Conference was that of Human Security, the particular panel in which I contributed the presentation upon which this article is based focused more explicitly on Education and less obviously on Security, with a particular emphasis on experimental ways in which anthropology can contribute better to education. However, the link between anthropology and human security may not be immediately obvious. I contend that the very character of anthropology, being the study of humankind, cannot but be related to a notion labelled human security†, albeit such a relationship must be more clearly stated. Human Security Goals concern Humans, but the way by which Human Goals can be aligned to Humans needs to be specified. The most effective path, or bridge, towards such alignment would be one carved by anthropology that weaves the anthropological gaze and its iconic perspective, which requires immersion in and full engagement with people's lives. It must be stressed, however, that anthropology does not stop with immersion and engagement but necessarily moves to analysis, which cumulatively produces knowledge that increases understanding of humans as a whole—in the sense of the German notion of Gestalt, that a whole is more than the sum of its parts. Anthropology is, after all, the study of humankind, its past, present, and future. It is, I contend, the physics of the human universe. Its building blocks, however, come from humans themselves, not their physical universe, their lives, their biology, their developmental history, or their shared cognitive ability. This article recounts two real-life cases of higher education classroom teaching for the purpose of seeking insights for future education, and clarifies what is meant by the phrase 'anthropological gaze and perspective'.*

1. What is the 'Anthropological Gaze and Perspective'?

It is the gaze that very uniquely or almost uniquely characterises what anthropologists 'see' when they look at 'anything'. Let us imagine a situation, an artefact, or a happening,

* This article is based on an earlier version presented virtually at the 6th International Conference on Future Education, which was organised as an online conference by the World Academy of Art and Science (co-sponsored with its partners) and was held for three days, March 7-9, 2023. The panel I joined was primarily organised by anthropologist Marta Neskovic, Associate Fellow of WAAS, who also performed as co-moderator of the panel with Steven Hartman, who is Founding Executive Director of the Bridges Sustainability Science Coalition in UNESCO's Management of Social Transformations programme, based at Arizona State University's Julie Ann Wrigley Global Futures Laboratory. The Bridges Coalition is a partner of the World Academy of Art and Science. The panel was held on Tuesday, March 7, 2023, titled 'Learning with (not about) the World: Anthropological Methods for a Resilient Future', and consisted of three panelists: Luci Attala (UK), Vesna Vuini (Serbia), and Fadwa El Guindi (US and Egypt).

† I do have reservations about how the concept of Human Security is assumed to be satisfactorily defined. More work is needed in order to "relativize" the concept to make it more applicable cross-culturally without homogenising the world in the shadow of the West.

and several observers are looking intently at it: a political scientist, a journalist, a chemist, a psychologist, a historian, even a sociologist, and one properly trained anthropologist. There is no question that the anthropologist will "see" something different from what all the others will see. On problematizing "seeing" versus looking," see my analysis of the Mead-Bateson conversation on the use of the camera (El Guindi 2004: 61–73). One cannot overemphasise the uniqueness and significance of anthropology's gaze.

This has to do with the nature of the field of anthropology, its special kind of training, its extended and immersive field methods, its perspective on humankind, and the access to the accumulated systematic knowledge built over centuries on every aspect of human life and almost everything that has to do with humankind. This broad and inclusive view of humans is the reason the discipline of anthropology traditionally developed into four constituent 'fields' to cover humankind's prehistory, biology, linguistics, and social-cultural In accordance with this feature, large, established departments of anthropology traditionally trained their doctoral students in the four fields*, even though their future research activity would probably focus on one of the four. So what is the meaning of four-field anthropology if individual anthropologists ultimately focus their own research on only one of the sub-fields? It means that irrespective of the subfield you conduct your research in, any conclusions reached cannot violate established conclusions in any way. It also means that research generalisations in one area must be situated within the knowledge space of all four. As this dimension got dropped in some US post-graduate training over time (for many reasons), the field strained and pulled in different directions, with social and cultural constituents eventually turning closer to 'culture study' than anthropology.

My own immersive, long-term research experience in the field for the purpose of primary data-gathering spans three cultural regions among the Nubians of Egypt in their homeland (1963–1955) (Callender and El Guindi 1971; El Guindi 1955–1963, El Guindi 1966; El Guindi 1978) prior to resettlement due to the rising level of Nile water, which the government saw as threatening Nubian livelihoods as a result of the construction of the High Dam as part of national development and water security. Another immersive field area was among the Valley Zapotec of Oaxaca, Mexico, spanning many years between 1968 and 1980 (El Guindi 1972 [1980]; El Guindi 1973; El Guindi 1977a; El Guindi 1977b; El Guindi 1982; El Guindi 1983; El Guindi 1986a; El Guindi 2010; El Guindi and Read 1979a; El Guindi and Read 1979b; El Guindi and Read 1980; El Guindi and Selby 1976). The most recent immersive field research experience was among Gulf Arabians in Qatar (2006–2015) (El Guindi 2018a; El Guindi 2019; El Guindi 2020; El Guindi 2011; El Guindi 2012a; El Guindi 2012b; El Guindi 2012c; El Guindi 2013; El Guindi 2018b; El Guindi 2018c; El Guindi and al-Othman 2013). Pertinently, these immersive anthropological field projects consist of systematic data gathering leading to analysis and professional-standard research publications.

* In my own doctoral training in the Department of Anthropology at the University of Texas, Austin, known for its stellar Latin American Studies focus and having the best Latin American Collection at a US University, established itself as a four-field anthropology department. As students, we were expected to be examined in all four subfields in written and oral defence examinations, in addition to a minimum of a whole year in the field immersed to gather data, in order to successfully obtain a doctorate. In those days, the average number of years of study and research required to obtain a doctorate was 10 years.

2. A Word about Objectivity and Subjectivity

While intermittently raised as an either/or issue, it has been, in my view, mostly a distraction from real issues. People living anywhere experience life; they don't ordinarily theorise it or make abstract models of it. Just like ordinary folk who speak a language, no matter how fluent they are in speaking it, they cannot necessarily articulate its grammar. Anthropologists need to take their observations of human experiences gained in the terrain of data gathering beyond the experiential level. The immersion has to do with the quality of the data gathered, determined in large part by how anthropologists live in the communities of study, armed with the mastery of the local conversational language, for extended periods until they are able to penetrate the barrier normally built between insiders and outsiders. Ethnographers strive to reach a level of comfort by immersing themselves in local lives. Some onlookers see this as a romanticised safari-type adventure. The reality is far from this. It is very hard work and often involves high risks to their health and lives. Additionally, it is a challenging task to learn how to be accepted without losing one's position as an observer and analyst. It is a kind of immersion in people's lives until ethnographers reach a level of mastery of the way local populations do things, interact with each other, deal with the institutions that they built, regard the outside world, respond to natural events, and increasingly, today, to global interventions. The anthropologist records systematic observations and interviews. The record is kept and archived. Data are subjected to professional scrutiny and are employed in anthropological analysis.

So where does the issue of objectivity, subjectivity, or insider/outsider come in, and what is its relevance to the anthropological project? How does a trained expert anthropologist avoid collapsing local views, practices, and anthropological analyses and thus blurring boundaries? Does one deliberately choose to be an insider or an outsider? Can an insider study the inside? Interestingly, US anthropology gave the latter a label,—indigenous anthropologist, and confined the term to non-Anglo-Saxon anthropologists studying their own culture, a practice that I saw being encouraged by some US and UK mentors, which is contrary to the canons of anthropology since this orientation most certainly produces sophisticated 'informants' of their own cultural traditions but does not necessarily turn them into anthropologists.

The point of the anthropological endeavour is not that the outsider (the anthropologist) would become an insider but rather to develop a mastery of what Pierre Bourdieu labelled "participant objectification" (Bourdieu 2003), which "undertakes to explore not the lived experience of the knowing subject but... the effects and limits of that experience" (El Guindi 2004: 190).

This is what objectification is about. It is therefore too idealistic to expect a total removal of the distance between 'observer and observer'. As Bourdieu makes clear, rather than the status of being an observer versus being observed, such distance is determined by one's relation to the world. identifying two relations, "one theoretical, the other practical" (Bourdieu 1990), or, as I prefer to rephrase the difference, analytic versus experiential.

The internality of the anthropologist is a crucial factor that enables a deep look at the inside, while externality, equally crucial, allows analysis. The position of externality, it must

be noted, is not inherently or exclusively that of the 'foreign' anthropologist. Rather, it can be achieved by locals if they are able and willing to acquire "the instruments of objectification*, that is, the tools for achieving the kind of distance necessary for an analytic mode of relationship with the object of study.

"The results showed unambiguously that students were employing words without understanding their meaning or significance in particular contexts. Often, they were unable to address the questions asked without the 'dependence' on such empty jargon. It was the beginning of a challenge that led students to learn the subject matter at hand."

Since anthropologists are ordinary human beings living within their own cultural contexts, the other side of the coin is that every anthropologist is a native. However, if the "native" that resides in any observer is unable to achieve such a relation, it would not be possible to produce an anthropological analysis, perhaps only a record of experiential living or some kind of distorted reality. In other words, it is the nature of one's relationship to the world of observation that matters.

Good, long-term training in anthropology† and the command and mastery of local dialects can provide the means for reaching such an analytic state, the tools that enable the anthropological gaze and perspective. Analytic authority is that of anthropology, irrespective of the kind of data being considered: literary, visual, historical, archaeological, religious, oral, written, and so on. So the anthropologist goes beyond local views and voices, beyond local interpretations and ways of knowing, and so on, to subject the gathered materials to anthropological analysis. Here is where cumulative anthropological knowledge is pertinent. There is a wealth of ethnographic materials gathered over centuries that are located in books, articles, the Human Relations Area Files, the national and academic libraries, and in anthropologists' recounted tales and stories. This knowledge is derived from anywhere and everywhere and is referred to as cross-cultural. To gain insight from observations in one part of the world, the anthropologist deploys observations from different parts of the world. The

* For a detailed story of the case I was involved with during my Zapotec study was that of the kind of training given to my informant/assistant/compadre Abel Hernandez Jimenez upon his request in both anthropology and linguistics to the point where he was able to collaboratively produce a 'native' ethnography of Zapotec ritual activities which he wrote in both Spanish and Zapotec, a methodologically very significant contribution. On this see El Guindi, Fadwa 1986b The Myth of Ritual: A Native's Ethnography of Zapotec Life-Crisis Rituals.. . Tucson, Arizona: University of Arizona Press.

† Here is where the immersive training I experienced in the field in Nubia, remaining in the field for an extended period of one year with only one break, prior to learning anthropology formally, became the key influence in my orientation to anthropology. The project studying Nubia was organised by the Social Research Centre of the American University in Cairo and funded by the Ford Foundation. It was a major anthropological expedition covering three linguistic areas in the south of Aswan, Egypt, until the Sudan border. Three anthropology teams, each led by an anthropologist, led a group of research assistants selected by and employed at the Centre. I was assigned to a team led by the late Charles Callender to study the Mettokki-speaking region of Nubia, just south of Aswan. It amounted to ethnographic training, data-gathering assistance, and, in my case, the path to becoming an anthropologist. I do fully appreciate now the fact that my then mentors in Cairo guided me to select my doctoral research in an area different from 'the homeland'. Though a hard choice, this became the "key" in my methodological orientation to anthropology, the way to acquire the gaze and the perspective.

question becomes whether a particular phenomenon is unique or is shared by other people across the world. The perspective gained from such a query is a cross-cultural perspective.

"Higher education is not simply about providing skills for the job market. Acquiring specific skills for employment can be attained through vocational training, which can be an alternative but parallel path to traditional higher education."

3. Teaching for Learning: Two Cross-Cultural Cases

It is instructive to share two cases of teaching in higher education, one from the United States, where my higher education teaching spans over 30 years, and the other from Qatar, where I was invited as part of a sustainability reform project by Qatar University, the major national university in Doha, to bring reform to the Social Sciences programme and, as a Distinguished Professor, to teach in classrooms of men and women (separately) in the Department of Social Sciences (2006–2012). These two contrastive cases challenge any simplistic notions and assumptions about teaching and learning, particularly concerning new technologies and the different roles they might play in Future Education when examined in different settings.

3.1. The US Case

At some point in the 1980s, students in the US adopted certain (literary) jargon to express themselves in academic settings. It reached a point when it became difficult to figure out whether students understood what they were uttering, so I and some colleagues at the university decided to gather oft-repeated words and phrases that seemed to us to be empty of precise content. We shared our lists, and I narrowed the list according to my own pertinent list of terms that were ambiguously repeated by students in responses to essay questions, which gave the impression of an intellectual grasp of the content but seemed to be used vaguely and ambiguously. At the top of Essay Examination Questions, I included the list which ranged from 12-20 words that students were instructed not to use in their answers to test questions. The results showed unambiguously that students were employing words without understanding their meaning or significance in particular contexts. Often, they were unable to address the questions asked without the 'dependence' on such empty jargon. It was the beginning of a challenge that led students to learn the subject matter at hand. They had to think and express more clearly what they wanted to write. I was happy with the result of this experiment, although a number of students seemed unable to dispense with 'crutch' usage of jargon.

3.2. The Case of Qatar

Perhaps we need to be reminded that Qatar's prosperity is relatively recent, but the youth I encountered at the University were already born into wealth and high technology. As part of

the reform project at Qatar University, there was, among other changes, a shift to integrating the most current technology into classroom teaching. Unlike faculty, students were very comfortable with smart watches, smart mobiles, laptops, etc. They were comfortable employing PowerPoints in their classroom presentations. During my teaching, I began to discover that technology, while assisting in certain areas, also created a dependency by students in a way that became an impediment to learning. Students used PowerPoints for all class presentations but showed no comprehension of the materials they presented. They seemed detached from the content and unable to engage with it when asked.

"General education is a human right for all."

Accordingly, I removed all high-tech tools from my classrooms and asked students not to use laptops or make PowerPoint presentations. I simultaneously requested the installation of a chalkboard to be used by students in their classroom presentations. As faculty, I employed a number of ways to communicate materials, including slides, films, and writing on the board. Students, however, were expected to make their presentations using the board. The result was very visible to me. Students in the classroom engaged more with the presenter, and the presenter was forced to 'explain' materials. This process of engagement was that of thinking and comprehension, not only robotic performance. I saw that 'learning' was beginning to happen as engaged thinking and interaction entered the process. It was a satisfying experiment. This was applied in both languages of teaching, Arabic and English, and for both men and women students.

4. Concluding Remarks on Future Education

The educational method discussed in this article consists of an equation that includes teacher and learner. Higher Education is not perceived as simply vocational training for the job market. The teaching component is necessarily characterised by authority over knowledge, responsibility for communication, flexibility in the mode of teaching, and creativity in considering factors of relevance for different contexts of learning. Often, educational institutions in search of resilience steer education away from its real purpose. Many higher education institutions, especially in the United States in the past few decades, have opted to adopt a business model in order to enable universities to 'measure': time, quality, learning, and rule compliance, among other aspects. Whether the quality of teaching and learning can be measured in this fashion becomes questionable. Nevertheless, the business model was widely adopted. Higher administration personnel used business metaphors, such as students becoming products. Measurement replaced teaching and learning as the main focus. Resilience can come at the expense of flexibility. But, in my view, measuring the quality of teaching neither does justice to teaching nor can it tell us about what students learn. In the estimation of many, this 'measurement' orientation has not done justice to the education project.

Another orientation was to use certain approaches used in some countries but assumed to fit all cases as the 'model'. Qatar University had opted to use the 'American model' but was curious about the model adopted in Finland. Finland became a popular example. There was no consideration for a difference in cultural traditions, the demographics of different

countries, or the levels of economic development of different nations. This 'imported model' approach, particularly the one tailored to Finnish culture and society, could not possibly have been applied with success to most developing nations of the world. Perhaps certain insights from such an experiment can be integrated with insights from other models in the context of differences in cultural traditions, demographic structures, and stages of development, which would be more productive.

Neither the business model of evaluation nor the wholesale adoption of a particular country-based model of education can work universally. Without such scrutiny, we are faced with the kind of scepticism prevalent today regarding Education. The business model provides resilience in some aspects of running institutions of education but cannot provide the flexibility needed to empower teachers to creatively adapt methods of teaching to particular contexts and link educational materials to specific societal needs.

Higher education is not simply about providing skills for the job market. Acquiring specific skills for employment can be attained through vocational training, which can be an alternative but parallel path to traditional higher education. As I understand, in its current educational reform movement, Egypt is establishing this kind of dual-track education, which begins in middle school. Considering the demographics of Egypt, one has to wait and see if such a dual-track educational system will work for what Egypt needs in this phase of its development.

Perhaps Higher Education should continue to provide the knowledge that opens minds, unlocks human potential, and allows learners to achieve rigour in thought. General education is a human right for all. But an environment of higher education and scientific research to unleash rigour in human minds must be a crucial aspect of any educational system today, even though it limits participation to a portion of the population.

Author's Contact Information
Email: felguindi@gmail.com

Bibliography

1. Bourdieu, Pierre
1990 The Logic of Practice. Stanford, CA: Stanford University Press.
2003 Participant Objectivation. The Journal of the Royal Anthropological Institute (Man) 9(2):281-294.

2. Callender, C., and Fadwa El Guindi
1971 Life-Crisis Rituals among the Kenuz Cleveland: Case Western Reserve University Press. El Guindi, F
2018a Milk Kinship. *In* The International Encyclopedia of Anthropology. Oxford: John Wiley & Sons, Ltd.
2019 Elicitation of Kinship Data: Reflections on the Case of Arabian Kinship. Kinship Algebra (Russian Journal of the Russian Academy of Sciences) (17):203-211.
2020 Suckling: Kinship More Fluid. London: Routledge.

3. El Guindi, F.
1963-1965 El Guindi Papers on Nubia. *In* El Guindi Papesr on Nubia. El Guindi Nubian Kenuz Papers. Los Angeles, CA: El Nil Research.
1966 Ritual and the River in Dahmit, Nubia. *In* Contemporary Egyptian Nubia: A Symposium of the Social Research Center, the American University in Cairo (Dar el-Thaqafa, Aswan, 1964), Volume II. R.A. Fernea, ed. Pp. 239-256. New Haven, Connecticut: Human Relations Area Files.
1972 [1980] The Nature of Belief Systems: A Structural Analysis of Zapotec Ritual (Ph.D. Dissertation). HRAF Monographs, New Haven, Connecticut: Human Relations Area Files, 1980.

1973 The Internal Structure of the Zapotec Conceptual System. Journal of Symbolic Anthropology 1(1):15-34.
1977a Lore and Structure: Todos Santos in the Zapotec System. Journal of Latin American Lore 3(1):3-18.
1977b The Structural Correlates of Power in Ritual. . *In* The Anthropology of Power. R. Fogelson and R.N. Adams, eds. Pp. 229-307 New York: Academic Press.
1978 The Angels in the Nile: A Theme in Nubian Ritual. *In* Nubian Ceremonial Life: Studies in Islamic Syncretism and Cultural Change. J.g. Kennedy, ed. Pp. 104-113. Berkeley, Cairo: The University of California Press & The American University in Cairo Press.
1982 Internal and External Constraints on Structure.
In The Logic of Culture: Advances in Structural Theory and Methods. I. Rossi, ed. Pp. 176-193. New York: J. F. Bergin Pubs., Inc.
1983 Some Methodological Considerations for Ethnography: Concrete Fieldwork Illustrations. *In* The Future of Structuralism. J. Oosten and A. de Ruijter, eds. Germany: Edition Herodot.
1986a The Myth of Ritual: A Native's Ethnography of Zapotec Life-Crisis Rituals. Tucson, Arizona: The University of Arizona Press.
2004 Visual Anthropology: Essential Method and Theory. Walnut Creek, California: Altamira Press.
2010 The Cognitive Path through Kinship. Journal of Behavior and Brain Sciences 33(5):384-385.
2011 Kinship by Suckling: Extending Limits on Alliance. Anthropologicheskii Forum (Forum for Anthropology and Culture) Peter the Great Museum of Anthropology and Ethnography ((Kunstkamera), Russian Academy of Sciences, Special Forum on Kinship, Forum No 15(7):381-384.
2012a Milk and Blood: Kinship among Muslim Arabs in Qatar Anthropos A.107:2:545-555.
2012b Suckling as Kinship. Anthropology Newsletter (American Anthropological Association) 53(1).
2012c Suckling, adoption and the incest taboo: Significance of studying kinship for social science and for Qatar. Annual Research Forum Proceedings (Bloomsbury Qatar Foundation Journals) 201242P.
2013 Inceste, Adoption et Allaitement: Logiques et Dynamiques de L'évitement. . Incidence Revue (19):121-137.
2018b Properties of Kinship Structure:
Transformational Dynamics of Suckling, Adoption and Incest *In* Focality and Extension in Kinship: Essays in Memory of Harold W. Scheffler. W. Shapiro, ed. Australia: ANU Press.
2018c Turning Cousins Into Siblings. Kinship Algebra (Russian Journal of the Russian Academy of Sciences) (16):184-198.

4. El Guindi, F. , and D. W. Read
1979a Mathematics in Structural Theory. Current Anthropology 20(4):761-782.

5. El Guindi, F., and D. W. Read
1979b Reply to Comments on Mathematics in Structural Theory Current Anthropology 20(4):782-790.
1980 Reply to 'On Mathematics in Structural Theory'. Current Anthropology 21(3):389-391.

6. El Guindi, F., and H. A. Selby
1976 Dialectics in Zapotec Thinking. In . , eds. Pp. 181-196. Albuquerque: University of New Mexico Press. *In* Meaning in Anthropology. K. Basso and H.A. Selby, eds. Pp. 181-196. Albuquerque: University of New Mexico Press.

7. El Guindi, Fadwa
1986b The Myth of Ritual: A Native's Ethnography of Zapotec Life-Crisis Rituals.. . Tucson, Arizona: University of Arizona Press.

8. El Guindi, Fadwa, and Wesam al-Othman
2013 Transformationality and Dynamicality of Kinship Structure. Structure and Dynamics: eJournal of Anthropological and Related Sciences 6(1).

CADMUS, Volume 5, No.2, August 2023, 118-124

Educational Security, Existential Security, and Sociology

Ullica Segerstrale
Chair, Social Sciences Department, Illinois Institute of Technology;
Fellow, World Academy of Art and Science

Abstract

This article addresses existential security, an aspect of security that has to do with the sustaining of the individual as a physical and mental being as well as the larger context of this individual. The 'larger context' can mean many things, including physical reality at different scales, socioeconomic realities, cultural conventions, the political state of the world, the development of technological power, etc., which are in turn perceived by a given individual with his or her own unique world of experience, knowledge, beliefs, values, and sense of self. In other words, threats to existential security can be expected to have consequences of ontological, epistemological, moral, and political kinds. Here I look at some aspects of existential security and some ways in which threats to this security system might be addressed by education. I focus especially on the fields of sociology and social psychology and their power to make sense of the world and provide coping tools.

1. Formal and Informal Educational Security

Teaching and learning are uniquely well-developed characteristics of the human species, something we do spontaneously at a very young age. This is why education, in its various forms, is such an important avenue for social progress and is constantly taking place in both informal and formal contexts. Focusing here on formal education, one can distinguish between content and pedagogy and between the explicit and implicit curriculum; the latter is the knowledge and skills a student acquires or develops as a side product while attending a formal course of learning.

Everything that education achieves by its very existence can be related to some aspect of human security. The recent Education for Human Security Conference held in March 2023 explored how each of our respective academic areas may be able to accommodate some of the most basic of these factors, such as security from bodily harm, food security, economic security, health security, and, of course, peace—an umbrella under which other securities become more possible.

I will highlight here two aspects of educational security: the many implicit ways in which formal education helps students become capable members of society and how particularly the field of sociology can provide helpful Big Picture systemic explanations of social events. Then I will turn to the important category of existential security, which overlaps with but is not completely covered by the other types of security.

At school, the informal aspect of education starts immediately. It ranges from such things as making friends, daring to raise one's hand, and daring to speak—all extremely basic social abilities—to more advanced capabilities such as leadership and teamwork skills. This starts early. In fact, class attendance already requires initiative, risk-taking, and resilience in the face of possible adversity. At the same time, school is also a good place for the development of one's self and one's "internal" security for handling life's surprises. It could be said that an important function of the formal educational security offered by the school is that it underwrites a growing individual's existential security, and this is independent of curriculum content.

These opportunities for self-development, invisible as they may be to students themselves, actually represent a rare chance for generating what the French sociologist Pierre Bourdieu called 'symbolic capital', an umbrella term for various types of social know-how and good manners that will serve the students well in their lives after school. This is the kind of "capital" that Bourdieu believes the children of well-established families unfairly possess, giving them an invisible social advantage, but this is clearly also knowledge that can be acquired.

And here the teacher may be playing a particularly important role by informing students about various opportunities and services offered by the school and encouraging them to take advantage of them. Students are often ignorant about what kind of assistance, services, or programmes are actually available and may not know how to ask about them.

2. Sociology as a Sense-making Tool

Meanwhile, there are certain academic subjects that can particularly contribute to educational security because they do more than just impart knowledge. Their very nature combines factual knowledge with broader explanatory frameworks, emphasizing a systemic way of looking at reality. Here, I think especially of sociology. Sociology does a kind of double duty. As a fact-gathering and systemic science of social reality, sociology naturally orients students to problem areas that coincide with this conference's identified security areas. Sociologists like to find problems and solve them. This is of course true of many fields, but in this case, this ambition is closely linked to the birth of sociology itself as a science of society, which took place during a time of crisis and transition. It is not accidental that sociology's basic concepts and theories relate to the question of security in a time of social unrest. Social security is its existential rationale.

So here we have Emile Durkheim, who coined the concept of anomie—normlessness—afflicting the uprooted masses during industrialization and urbanization. Durkheim was looking for avenues to increase 'social solidarity', the important "social glue" binding people together, which he saw as being based on what he called "social conscience" (or consciousness), a pre-existing moral bond. Max Weber, too, worried that this kind of social and moral bond had weakened due to the ongoing trend of 'rationalization' and the increase of calculation in everyday life. Even Karl Marx lamented at one point that the money economy under capitalism had destroyed pre-existing human relationships, but for him, the exploitation of the working class was the cause of social upheaval and part of the historical class struggle. By this time, the general thinking about society had safely moved away from its earlier support of the estate system, but one new theory worrying sociologists was Herbert

Spencer's Social Darwinism, which legitimized social inequality by referring to the supposed workings of nature in society.

> *"Social psychology, a social science between sociology and psychology, comes in handy with vivid illustrations of how our minds can play tricks on us. Our biases can make us jump to conclusions or believe in false cause and effect. Our memories can play tricks on us. We love to find evidence for what we already believe. Students also need to be aware of how easily they may be persuaded or succumb to various types of situational and group pressures."*

3. The Sociologist as a Natural Reformer

A typical approach in sociology is to invite students to use "the sociological imagination". This moves the search for explanations away from the individual to the level of social arrangements ("social facts") of various kinds, beyond the control of the individual. Upon closer scrutiny, it becomes apparent that many "social facts" demonstrate a deficiency in basic securities, which in turn help sustain existing inequality. A good example, made visible during the COVID epidemic, was the lack of food security, as evidenced by surprisingly large "food desert" areas within main cities. The epidemic also made it clear how prevailing housing and transportation arrangements were making everyday life much harder and more exhausting for lower-income city dwellers.

Emphasizing the uneven access to various securities, which should be everyone's rights, fits well with the professional attitude of the sociologist, who is a natural reformer. But more importantly, this is a particular way to look at reality—not as full of good and bad individual human beings, but rather as influenced by larger "social facts", some of which negatively affect people's lives—related to prevailing social norms, bad planning, or crumbling infrastructure. This also means that, although the problems are experienced at the individual level, the solutions are typically not at that level; they typically involve social-level measures, like new appropriate engineering solutions. This is one reason why sociologists are so pleased to invite students from all fields to engage in "structural" reasoning about social problems and have engineers and architects consider the social implications of even fully technical-seeming projects.

4. Developing a System of Defense

So we see how educational security is indeed a key security that encompasses a lot of other securities, how students can be directly or indirectly taught about these things, and how this, in turn, can encourage further thought about the role of larger factors in generating

social inequalities and "insecurities". What about existential security? Concern for human well-being is obviously part of its very base. But there is more to this security concept. Another central aspect is freedom from fear—not necessarily some concrete fear but a type of diffuse "metaphysical" anxiety, a sense of general uncertainty about the world, the future of humankind, or the universe itself. Such fear may actually be the outcome of too much stressful input from the sensationalist media. Whatever the source, we are not meant to live in fear and anxiety.

"The most popular projects in my classes have involved futuristic technologies identified and chosen by the students themselves."

This is why it is important that the educational system help us develop defences of various kinds. It is good to know our particular human weaknesses so that we can do something about them. We need to be aware of the typical cognitive and reasoning biases of the human brain, and this is something that can be easily taught in courses and discussed in classes. Here especially, social psychology, a social science between sociology and psychology, comes in handy with vivid illustrations of how our minds can play tricks on us. Our biases can make us jump to conclusions or believe in false cause and effect. Our memories can play tricks on us. We love to find evidence for what we already believe. Students also need to be aware of how easily they may be persuaded or succumb to various types of situational and group pressures. A bias with socially disrupting effects is our deep-seated tendency to divide the world into Us and Them and side with the in-group. The good thing is that students "get" these biases and feel empowered because they can easily relate them to their own experiences.

5. Sociology as a Study of the Conditions for Making Something Happen

Sociology could actually be described as some type of "social" chemistry. Just like we do in chemistry, we are often looking for the specific (social) conditions under which a particular outcome (behavior) becomes likely at the same time as we study existing (social) structures and typical reaction patterns (behavioral regularities) at both a micro and macro level. To do it right, however, we need to point out that sociology is as interested in understanding people's lives and subjective interpretations as it is in any apparent objective social reality. We can approach matters on the micro level of individuals in situations and on the macro level of different geographic conditions. If we succeed, we can make students co-explorers of social reality and investigators of ways in which the various securities can be improved for all.

A statement by a student in my recent Introduction to Sociology class expressed the feeling that I would like all students to attain:

"This course entirely reframed my perspective of the world around me. I now feel that I have a superpower and can dissect people's behavior, habits, events and history as it happens around me. I know so much that I didn't even know existed."

6. Working on Existential Security

One of the most important things to achieve in education is for students to feel comfortable coming to class, both with each other and with the teacher. For this to happen, students need opportunities to get to know each other early on, and here the teacher is an important facilitator because she has the power to create the right conditions for this to happen. (See my article "The Teacher as Catalyst", Eruditio, 2018). A good class atmosphere will help everybody learn better and have a sense of togetherness.

My students often comment that the most interesting part of a course was getting to hear the opinions of other students. I take that as evidence of success. They typically refer to small group discussions about some video we have just watched, organized around a set of questions I write on the board, or class discussions around some book we have analyzed. Students can get very engaged, especially with videos, and having watched the same video together creates a certain commonality when it comes to answering questions and voicing opinions. Of course, small group discussions can also be completely ad hoc and about anything; the point is for such discussions to happen at all and early on in a course in order to quickly make the class and classmates look less "alien".

Group work is the best way to help students develop their "social selves," including speaking clearly and confidently. This may be one of their last chances to fix their speaking, if it is a problem. With the right teacher, encouragement and tacit group support from a newly formed "home group", novel, confident sides of individuals can be brought out. Group work is also a way for like-minded students in the class to find each other and work together on projects of common interest. The confidence and pride experienced through such meaningful collaborations can be seen in the students' smiling final group presentations to the class.

The most popular projects in my classes have involved futuristic technologies identified and chosen by the students themselves. Each student group has been directed to research both the technical feasibility and the potential social implications of its self-chosen topic. It is a special pleasure for students to work on a project that they have chosen and that really intrigues them. Accordingly, students tend to look for the most provocative-seeming technical novelties but are typically able to valiantly consider the required potential technical and moral aspects and answer questions from the "audience"—their keenly interested classmates.

What, then, about existential security? Often, the presented new technologies appeared quite dangerous. Well, that was just the point! When it came to existential worry—which cutting-edge ideas ought to trigger—such worry seemed rather absent, judging from the joyful presentations. One can think of these projects as creating conditions for students to take the bull by the horns—choosing an extremely new technology and taming it—by turning existential angst into research.

7. But will it work online?

But today, some educational establishments may consider moving more towards online courses. How well will my recommendations for group discussions and group projects hold up under electronic conditions? Can group projects at all become part of an online curriculum?

The answer is yes, and surprisingly well. In fact, I found myself testing the group work idea during the recent COVID epidemic in two of my online sociology courses. In these cases, the final group projects involved a detailed analysis of some student-chosen built environments (about half of the students were architecture majors). The students responded well to my invitation to form interest groups around some ideas we generated during a preliminary class brainstorming; these ideas then became nuclei for small project proposals for six student groups that were invited to self-organize during part of our regular class time. All this was done live on Google Meet, using the chat function for continuous messaging and group compositions. The groups were finalized later in an email exchange, and over the next month or so, part of each scheduled formal class session was dedicated to group work with me as a standby adviser. Meanwhile, the regular class work continued as usual with lectures and discussion of small homework tasks. The student groups worked on their final presentations with each other online on their own time, but prepared small progress reports at my request.

"Science is an unusual system in that it recognizes that it can be wrong. It is actually designed to find its own errors and correct them, and it has established its own control systems to do this. Science is the best tool we have as a guarantor for the aspect of existential security connected to empirical and logical truth."

The students had been instructed about the basic principles of teamwork and the need to communicate if there were difficulties. We ran into several cases of internet failure, especially for some students who had returned to live at home. I also had some students from outside the U.S., so there were some challenges with time zones, but it was always possible to send them recordings afterwards. In general, I was extremely pleased with the creative project choices and the collaborative online presentations that the students themselves had organised and rehearsed. It was a learning experience for us all, which went well, considering that many students were originally strangers to each other and then met only online. It seems to me that group discussions and group projects can work well online but need some coordination and supervision by the teacher, just as they would under classroom conditions. In principle, I favour in-class education because of the stronger sense of presence and "atmosphere" it enables, but I found our students to be remarkably creative, helpful, and inclusive as they took on this considerable challenge. They also helped me with some technical things during my lectures. All students checked in and out and were visible on the screen.

Reflecting on this experience, I think that the use of precious class time for generating ideas, managing group formation, and driving projects forward was well worthwhile and not that different from what I do when I teach in regular classrooms. Except that I am physically present for consultation, and the groups and group members can experience each other's presence in the same room. This has been the case for all the projects in my classes and

has worked very well. Meeting each week in person may be helpful for groups, even if most of their work will be done outside class at times that suit them, because it can speed up consideration and catch possible misunderstandings. We have to remember that today's students, even when minimally electronically equipped, are very adept at communication: contacting each other, coordinating group meetings, preparing collaborative project presentations, or whatever is needed. They also improve performance by picking up various technical tricks from each other. Project work, whether online or not, and often with students from quite different fields, is yet another chance for students to grow and discover what excites them.

8. Natural Science – A Cosmic Security Specialist

At the same time, we should not forget that the cosmic security specialist is really natural science, which has valiantly dealt with big existential matters ever since (and long before) the Copernican revolution. With Newton, science seemingly resolved the mathematical system of the universe (with laws good enough for space travel), and later it continued working on ever deeper cosmological understanding. Science toils on in an exploratory but also cautiously self-critical fashion. That is what it does. Humanity has come a long way because of science as an organized way to establish material truth. This is why this collective truth-finding system needs protection against various types of attacks and misrepresentations (see, e.g., Segerstrale, 2000, Beyond the Science Wars). Science is an unusual system in that it recognizes that it can be wrong. It is actually designed to find its own errors and correct them, and it has established its own control systems to do this. Science is the best tool we have as a guarantor for the aspect of existential security connected to empirical and logical truth.

Author's Contact Information
Email: segerstrale@iit.edu

References

1. Segerstrale, U. (2018). The teacher as catalyst, *Eruditio* Vol 2, Issue 4, 147-154.
2. Segerstrale, U. (2000). *Beyond The Science Wars*. Albany, NY: SUNY Press.

CADMUS, Volume 5, No.2, August 2023, 125-135

Imagination, Science and Education:
How to liberate ourselves from the prison of rationality and create a secure future for humanity

Thomas Reuter*
Trustee of WAAS;
Professor, University of Melbourne, Australia

Abstract

Achieving Human Security For All (HS4A) is a process that depends on our ability to imagine a future state that is different to present conditions, under which HS4A remains elusive. Only a very few eminent thinkers have recognised, however, that imagination is its own unique and important noetic or cognitive function independent of rationality, giving us access to an ontological sphere that otherwise remains closed to us. Meanwhile, for rationalist science philosophy, which has dominated our education systems since the Enlightenment period, imagination has long been understood as nothing but a preoccupation with the unreal, the mythic, the marvelous, the fictive, and fanciful—entertaining perhaps, but of no serious consequence. In this paper, I argue that rationalist modernism, along with a mass education system designed in keeping with this modernist 'spirit of the times', has led to our collective imprisonment within the real, the concrete, and robbed us of the capacity to reflect and transform ourselves and our relationship to the world and each other. This state of affairs will ensure humanity's rapid demise given the mounting security challenges we now face, that is, unless we can reinstate the faculty of imagination within scientific epistemology and in education, and thus escape our entrapment.

1. Introduction: Imagination as a Key to Understanding Consciousness and Action

Henri Corbin is one of a very few western thinkers who never tired of reminding us of a self-imposed poverty in our present civilisation.† He notes that,

> *"western philosophy… drawn along in the wake of the positive sciences, has [long] admitted only two sources of Knowledge. There is sense perception, which gives the data we call empirical. And there are the concepts of understanding, the world of the [rational] laws governing these empirical data."*

* Prof Reuter's research is supported by the Australian Research Council.

† Henri Corbin (1903-17) was Professor of Islam & Islamic Philosophy at the Sorbonne in Paris and at the University of Teheran. In addition to his outstanding contribution as a scholar of Shi'ite Islam, he was the first French translator of Martin Heidegger and Karl Barth. He introduced the concept of the *mundus imaginalis* into contemporary thought and his work has provided much of the intellectual foundation for archetypal psychology as developed by James Hillman. There are many parallels between Corbin's *mundus imaginalis* and Carl Jung's understanding of the collective unconscious as the objective world beyond the reach of rational consciousness.

As Corbin further notes, however, there is also,

> *"Active Imagination… [which has] its own noetic or cognitive function, …[that] gives us access to a region and a reality of Being which without that function remains closed and forbidden to us… [and] whose disappearance brings on a catastrophe of the Spirit" (Corbin 1989:1-2).*[*]

Corbin's understanding of the 'active imagination' is difficult to grasp because it has so few cognates in western thought, with the exception perhaps of the concept of *imaginatio vera* or 'true imagination' in the work of Paracelsus. It resonates more easily with the notion of *kalpana* or 'creative imagination' in Indian Vedanta philosophy, wherein it is seen as the 'world creating faculty of the mind' (Skt. *manahkalpitajagat*).

"A vivid imagination is the best insurance against unintended outcomes because it reveals what really matters and must be prioritised. Nothing matters more than human security."

For Corbin, the imagination is what enables us to create our own future, as well as providing access to parallel dimensions of reality and associated theophanic (spiritual) human experiences. There is of course the more modest and uncontroversial argument of phenomenology, which rightly reminds us that our experience of the mundane world does not emerge directly from the data provided by our sense organs, but that mundane experience too is a product of an 'imaging' process—a cognitive process of mental image formation, followed by rational understanding. How are we to understand the other, 'imagining' function of the mind, however, which Corbin alerts us to? From where does creative imagination arise if not from sense data, and how does it relate to the rational faculty, the dominance of which—I shall argue—has led to the current, late modernist malaise in science and education? These questions are the central focus of this paper.

This paper proposes that 'image formation' is the foundation of all conscious and meaningful subjective experience in animals and in humans. Furthermore, that there are two kinds of images, those 'of' the past (which includes images of the so-called 'present' that are in actual fact only images of the extremely recent past) and those 'for' the future. Such temporally bidirectional image formation lies at the heart of conscious experience, which thus can be characterised as a bidirectional engagement with the stream of events across time. Rationally interpreting the sequence of images we have seen at different times in the past and creating never before seen images of the future through imagination are both vital functions—for the everyday subjective experience of change and for the coordination of

* Corbin, Henri 1989. 'Towards a chart of the imaginal.' Prelude to the 5th printing of *Spiritual Body & Celestial Earth: From Mazdean Iran to Shi'ite Iran*. Princeton: Princeton University Press, pp. 1-8. First edition 1977.

action respectively.* The two functions are balanced in a healthy human being, I argue, while a lack of future-directed imagining leads to an entrapment in the past.

Entrapment in the past is not just a 'catastrophe of the Spirit', as Corbin has suggested, but it is also a most profound security risk. As living beings, we are immersed within a world whose most fundamental feature is change. In a world where nothing remains the same, human security is a moving target and not a fixed state. Security is an emergent property because our survival is contingent on an intelligent, adaptive relationship with the environment of which we, like all life, are a part. On a more concrete level, this means that we must monitor change and draw rational conclusions, but we must also act. Action, however, takes place on the basis of our ability to project ourselves into imagined future states that lie beyond sensory perception.

Values come into play here because the evaluation of a future state as desirable and worth pursuing or undesirable and to be avoided at all cost, and the taking of appropriate action, is necessarily based on what we value. Values may be held consciously in the form of certain normative concepts or, more often, unconsciously in the form of various motivational complexes. In any case, what we genuinely value is revealed in our actions, which are always taken with a particular imagined future outcome in mind. † A lack of imagination is thus a threat to human security also because it is by projecting ourselves into utopian or dystopian futures that we are forced to reflect about what really matters. A vivid imagination is the best insurance against unintended outcomes because it reveals what really matters and must be prioritised. Nothing matters more than human security.

2. Imagination and Science

Corbin, drawing inspiration from the philosophy of Shi'ite Islam and more specifically from the works of Ibn Arabi, saw the active imagination as a mediator between the rational intellectual world of ideas and the quotidian world of sense perception, and as constitutive of a distinct realm of existence, the *mundus imaginalis* (Corbin 1998).‡ He stresses the complementarity of 'rational' and 'imaginal' mental faculties in humans. While I recognise the same complementarity, I do not think granting imagination a mediating function between senses and intellect and associating it with an objective archetypal realm of symbols captures very well what imagination does for us from moment to moment. To explore the role of imagination in daily life, and situate it more securely in science, I turn instead to an important and somewhat poorly appreciated piece of behavioural research on the basic mechanisms of cognition; mechanisms that emerged early on in the evolution of life.

The two classes of mental images discussed—past- and future-oriented—correspond to memory-based reason and active imagination respectively, and it turns out that both are vital and very basic cognitive functions. The behavioural researcher's Alan Baddely and Graham

* The imagination is vital for envisaging future states and acting in ways to realise or avoid such futures, and in this paper, I largely focus on this vital attribute. Imagination, however, can also be used to create images of a hypothetical past or indeed of other, 'imaginal' worlds, as Corbin notes.

† It is beyond the scope of this paper to discuss in detail the relationship between action and values, or even to map out the vast literature available on this topic.

‡ Corbin, Henry 1998. *Alone with the Alone: Creative Imagination in the Sufism of Ibn Arabi*. Bollingen Series, No. XCI. Princeton: Princeton University Press / Bollingen. First published in French in 1958.

Hitch were the first to propose the concept of working memory in the 1970s, inspired by Vygotsky's notion of internalised speech, and hoping to understand what we actually do with the stream of images we perceive in the now, and how such image processing relates to consciousness.* They built on earlier work, in the 1950s, by the physiologists Erich von Holst and Horst Mittelstaed, which held vital cues.† The latter had made an important discovery about how animals perceive change or motion in the environment, which is something all animals must do in order to stay alive, irrespective of whether they are hunters or hunted. They found that animals continuously create a multisensory mental 'image' of what has been happening just now, store that image, at least briefly, in working memory and then compare it with the next image, created from the split-second processing of what is perceived in the next 'now'. Animals thus create an internal loop through the past with the help of a continuous imaging and image storage function designed to detect change in the environment over time, namely by comparing one image to the next. And by extension, certainly in humans but to a degree also in animals, this process of apperception of images also allows for the rational post hoc analysis of causal relationships within a sequence of events. Without a degree of apperception, sense perceptions would carry no meaning, as the phenomenological epistemology of Husserl and Schuetz similarly notes. In the words of Schuetz (1945:535), "meaning […] is not a quality inherent to certain experiences emerging within our stream of consciousness but the result of an interpretation of a past experience looked at from the present Now with a reflective attitude."‡

Why would that be? Put simply, attributing meaning and conducting rational causal analysis would not be possible without the ability to detect the change between images over time. We live in a relational world, and cognition is designed to map, rationally interpret, evaluate, and imaginatively engage with such a world.

Together the imaging techniques of conscious beings such as animals and humans identified by Holst and Mittelstaed are known as 'afference copy mechanisms', and the specific mechanism concerned with storing observations of the outside world and thus creating a loop through the past is called 'ex-afference'. You could say that ex-afference is what gives us the impression of a passage of time that lies behind us. Our memory of the past helps us notice when something new appears, a new sight, sound, or smell that could indicate a risk to our security or an opportunity to become more secure.§ Furthermore, the cognitive function of ex-afference resonates strongly with the basic procedure of science: new empirical observations are evaluated against an earlier description or model of reality, and thus the model is continuously adjusted or updated. This is also how we instruct students to use the scientific method.

* Baddeley, Alan D. & Hitch, Graham 1974. Working Memory. In G.H. Bower (ed.), *The psychology of learning and motivation: Advances in research and theory* (Vol. 8). New York: Academic Press, pp. 47-89.

† Holst, Erich von & Mittelstaedt, Horst 1950. 'Das Reafferenzprinzip.' *Naturwissenschaften* 37, 464–476.

‡ Schuetz, Alfred 1945. 'On Multiple Realities.' *Philosophy and Phenomenological Research* 5(4):533-576. Published by International Phenomenological Society, online at https://www.jstor.org/stable/2102818

§ In human perception vision dominates, but of course we also remember sound, texture, smell and taste. When I speak of 'images' in this paper, it is a simplification for the sake of presenting the argument I make about imagination, and it also serves to highlight the relationship to perception implicitly suggested by the etymology of the word 'imagination'. In fact, however, when I say 'images' I am really thinking of clusters or arrays of multisensory data, irrespective of whether they are images within imagination or memory.

The much overlooked and intriguing matter, however, is that the two physiologists found a second looping process which they called 'pre-afference'. Apart from the need for registering change, a second problem arises for all animals which their perception must somehow solve: While what an animal does may depend on what it has seen, the image the animal will see next depends on what the animal does. For example, when it moves its head, the image of the world the animal sees will change, even though nothing has moved in the environment. Therefore even simple animals have evolved so-called re-afference mechanisms to predict what image they should perceive in the future as a result of their own action so that this 'imagined' image can be compared with what is actually observed by the senses as the action is undertaken. Action would be utterly impossible to monitor and control without this second loop; think of the hand-eye coordination required for catching a ball, for example. A motion in the environment can be detected reliably, even by a subject that is itself in motion, only because the potentially confounding effect of the subject's own action has been compensated for by creating an imaginary loop through the future.

According to contemporary neuroscience, remembered images are stored in the brain in the non-localised form of neural ensembles, that is, neurons conditioned to fire together. According to the 'mental synthesis theory' (Vyshedskiy 2014),* images of an imagined future state never before seen involve the simultaneous activation of elements of different neuronal ensembles. This act of imaginative 'mental synthesis' is coordinated by the pre-frontal cortex, and is aided by differential degrees of myelination, which largely takes place in childhood and makes it possible to temporally synchronise neural ensembles located at different distances from the pre-frontal cortex. How exactly the cortex does this is still being explored (Pearson 2019),† as is the role of the brain's default system in the process (Raffaelli et al. 2020).‡ It remains unclear, moreover, how the human nervous system evolved from more basic imaginative processes already present in simple organisms, as described earlier. What we do know is that the human ability to imagine is exceptionally strong and is a large part of what makes us human.

> The philosophical implications of the re-efference mechanism present in all animals, and of associated higher cognitive functions in humans, have been largely ignored. One partial exception is Paul Ricoeur (1975, no. 9:1),§ whose hermeneutics—opposing Hume—recognises the role of imagination in perception, noting that "we can no longer oppose […] imagining to seeing, if seeing is itself a way of imagining, interpreting, or thinking." The action and future-creating function of imagination, however, remains to be fully explored in

* Vyshedskiy, Andrey 2014. 'The Mental Synthesis Theory: The Dual Origin of Human Language.' In Erica A. Cartmill, Seán Roberts, Heidi Lyn & Hannah Cornish (eds.), *The Evolution of Language*, Singapore: World Scientific, pp. 344-352.

† Pearson, Joel 2019. 'The human imagination: The cognitive neuroscience of visual mental imagery.' *Nature Reviews Neuroscience* 20:624–634.

‡ Raffaelli, Q., Wilcox, R., & Andrews-Hanna, J. (2020). 'The Neuroscience of Imaginative Thought: An Integrative Framework.' In A. Abraham (ed.), *The Cambridge Handbook of the Imagination*. Cambridge: Cambridge University Press, pp. 332-353.

§ Ricoeur, Paul 1975. 'Lectures on Imagination.' Transcript of a series of lectures, delivered by P. Ricoeur at the University of Chicago in 1975, produced by the Document Technology Centre, University of Pittsburgh School of Law, in 2005.

philosophy.* While ex-afference evolved into a higher function of memory-based *rational* analysis in humans, designed for the post hoc 'interpretation' of sensory-empirical observations, re-afference evolved into a higher *imaginal* function allowing us not just to monitor external events from moment to moment, but also to plan and monitor action by contemplating the various futures our different optional actions could create.

The creative use of the imaginal function is well-recognised in evolutionary science, however, notably in the context of niche construction. This is a process whereby organisms modify their environment in ways that effectively respond to selective pressures. The human ability for niche creation, more specifically, is unparalleled in its scope and speed, enhanced by our natural capacity for language and symbolic thought (Fuentes 2017).† We can literally see a new niche, a new possibility of being, before setting out to make it real.

"We still tend to see the world in this Anthropocene age as an objective natural reality rather than what it really is: the sediment of subjective values and actions."

Cultural systems of knowledge storage (e.g. in writing) and knowledge transfer (training and education) arose from and enhanced this ability, allowing us to accumulate and share a vast store of ideas based on past experience. It further allows us to jointly imagine a desired future state and coordinate collective actions by which we shape the environment gradually to realise that future, or to avoid undesirable futures. Scientific creativity and technological innovation are part of this cultural system, and are all reliant on imagination much more than we give it credit for (Polanyi 1966).‡

3. The Current Crisis as a Lack of Imagination

Admittedly, we do not always foresee or intend all of the consequences of our actions. Whenever we do realise that our actions are leading to an undesirable dystopian future, however, it certainly is possible to change patterns of action (behaviour) that were informed by limited past experience, obsolete scientific paradigms, or by dysfunctional education systems. Human security depends on it.

It is all the more curious, therefore, that contemporary humanity should be so unable to collectively imagine a positive, desirable future and to act accordingly in the present. If

* Van Leeuwen (2016) and Nanay (2016) have begun to explore the link between imagination and actions but do not look deeply into the epistemological relevance of imagination. They focus on decision-making and, somewhat similar to my argument, do suggest imagination helps us to explore the probability and value of actions' possible outcomes, but do not seem to recognize imagination as a necessary precondition for action. See Nanay, Bence 2016. 'Imagination and Perception.' In Amy Kind & Peter Kung (eds.) 2016, *Knowledge Through Imagination*. New York: Oxford University Press, pp. 124–134; and Van Leeuwen, D.S. Neil 2016. 'The Imaginative Agent.' In Amy Kind & Peter Kung (eds.) 2016, *Knowledge Through Imagination*. New York: Oxford University Press, pp. 85–109.

† Fuentes, Agustin 2017. *The Creative Spark: How Imagination Made Humans Exceptional*. New York: Penguin Random House.

‡ Polanyi, Michael 1966. 'Creative Imagination.' *Chemical & Engineering News* 44(17): 85–94,104.

our current actions are transgressing planetary boundaries and leading to ecocidal and self-annihilating outcomes, as they evidently are,* why do we persist with our destructiveness? Why are we so powerless to imagine and commit to creating a future world wherein the planet's predicted peak human population of ten billion people will be secure and prosperous? Achieving this outcome, admittedly, is no mean feat on a practical level but reason tells us it is feasible.† The major cause of our failure so far to enact a secure future is rather that we have failed to do justice to the second and complementary 'imaginal' function of the subjective mind, which has a crippling effect on our capability to act creatively on a collective level, though of course there is a small minority of highly imaginative people. This crippling effect of an undeveloped imagination, based on its dismissal by modern rationalism as something fanciful, unreal and unimportant—is replicated in each generation as children fall into the clutches of a modernist system of education with an over-emphasis on rationalist objectivism. We thus suffer a self-objectification or, in other words, an entrapment in the manifest reality of the past.

> *"We must remind ourselves that we are creators, and that successful and responsible action is not just about science and technology but about the conscious application of values and holistic wisdom to anticipate and avoid unintended consequences."*

For the sake of simplicity, I would like to rename the two afference operations of the nervous system that give temporal depth to our inner experience as retrospective 'imaging' and prospective 'imagining', and the associated higher cognitive functions as rational and imaginal. All experiences that we 'image' and store are of the objective past (apperceptive interpretations of objective sensory or instrumental data), whereas 'imagining' is about creating virtual images that are not observations at all, but part of an inner stream of projections of possible future states reflecting the expected differential impact of our actions as subjects. The future is a result of our active engagement with the environment and each other, and what future we want is a matter of individual (subjective) as well as cultural (intersubjective) values.

Modernist rationalist science has serious difficulties accommodating the 'futuring' and 'world-making' imaginal function within its objectivist worldview, often seeing it as the realm of phantasies and falsehood and thus unrelated to reality. The consequences of this failure to remember that, from the beginnings of the human journey and ever increasingly so, we are inhabiting a world created by ourselves, are devastating. We still tend to see the world in this Anthropocene age as an objective natural reality rather than what it really is: the

* The concept of 'planetary boundaries' is based on the work of researchers at the Stockholm Resilience Centre, see https://www.stockholmresilience.org/research/planetary-boundaries/the-nine-planetary-boundaries.html

† See for example: Flannery, Tim 2020. *The Climate Cure: Solving the climate emergency in the era of COVID-19*. Melbourne: Text Publishing.

sediment of subjective values and actions. And unfortunately, this hyper-realist objectivism is deeply entrenched within and reproduced by our flawed, modernist systems of education. In the absence of a more appropriate pedagogy, we cannot fully develop our individual capacity to imagine—much less our ability to collective imaginative and shape the future together, through a common vision and social collaboration, at the next higher level of complexity that is now urgently called for.

"Children's imagination must not be disciplined into silence but developed to become a force for active, conscious and responsible creation."

---

4. Modernist Education and the War Against Imagination: A Personal Perspective

When I was about 4 years old, I made an observation that filled me with trepidation. In those days, most children grew up in small communities or neighbourhoods where preschool children of different ages socialised together, largely in the absence of adult supervision and free of the influence of 'early education' institutions. At that time, I observed how my slightly older friends, who had commenced school at the age of six years, came back transformed in a most horrifying way. Having been 'disciplined', trained to sit still and forced to renounce so-called magical thinking, they became unable to engage in imaginative play. They seemed somehow dead inside. "School must be a truly evil place," I concluded, and when I was forced to enter that place myself, I entered it as one would enter a battleground, ready to fight for my life. I was determined not to let anyone beat my creative freedom of imagination out of me. And yes, my resistance was certainly noted and often sorely tested. School, I concluded, was a place for turning lively children into passive memorizing machines, whose minds were being stuffed with non-debatable facts about a non-debatable 'reality' determined by objectivist science. They also were trained to be the obedient citizens of a modern society that had no time for individuals with waking dreams, but at the same time was heedlessly unleashing its own unconscious dreaming, and in the course of that, was manifesting a future wherein everything everywhere was brutalised and trampled in the name of progress, from the last vestiges of healthy ecosystems, sustainable traditional food systems and community life in the region where I grew up to the bull-dozing of tropical forests in distant lands. Everywhere I looked I could see evidence of the inhumanity and violent destructive character of modernity, with the brilliant clarity of unbiased seeing given to children. I could also see clearly that people created this reality with their choices, that it was not inevitable, "a price to pay for progress", as many of my teachers claimed. And I can still see that now. I survived education.

Much later, during my higher tertiary studies at honours and PhD level, creativity and imagination were suddenly expected of me and appreciated. Luckily, I had held on to it, and how nice for it to be appreciated at last! By the same token, it much saddened me to

observe, a few years later again, how many of my PhD students were harbouring a deep-seated fear that they would be penalised if they showed much creative imagination. It took a year of regular personal mentoring conversations to convince them that imagination is indeed a scientist's best friend.

> *"Whatever our future will be individually, or nationally, it will be necessarily embedded in a wider social and global context."*

The backroom status of imagination in science is also evident in the way science rewards its own. For example, when a Nobel Prize is awarded, the focus is on the real, the object of study, the aspect of reality uncovered by the award-winning research. Only in retrospect and as an aside do we acknowledge the creative subject, the imaginative powers that characterise the most path-breaking scientists, and more rarely still, the special circumstances that may have led them to develop such imaginative powers. And when we do ask, it often turns out that highly creative individuals like Alfred Einstein or Nicola Tesla, or Alfred Nobel himself, were often rather eccentric individuals,* dreamers, misfits even—in short, survivors of education.

5. Secure Human Futures: How to Develop Imagination in Science and General Education

Our senses are great at telling us what is, out there and equally within our own body. Reason is great at analysing post hoc how elements of the world relate, the order of things, and reality as it is. But it is imagination that helps us picture and choose between different futures, which also entails a recognition of the fact that the past could have been different. Imagination is thus also a prerequisite of critical historical consciousness. Reason remains tied to what was, the truth, the manifest state of nature. The exclusive worship of reason, however, has led us into an entrapment within a kind of hyperrealism: 'Hyper' in that we tend to forget that this 'real world' we inhabit is in fact a world created by an inner act of apperceptive interpretation, and also one that has been shaped physically by the cumulative impact of past actions by sentient beings, particularly humans, upon the environment.

This risk, of forgetting our own freedom and responsibility as creators, was once better known than it is today. We would do well, for example, to recall the ancient dictum *Sicut hic mundus creatus est*, which is mentioned in the 'Emerald Tablet' (or *Tabula Smaragdina)*, a 2nd century alchemical text.† Or, in Henry Corbin's words,

> *"we live in a scientific civilization that is extending its control… even to images. It is commonplace today to speak of a "civilization of the image" (thinking of our*

* Alfred Noble blew up his own laboratory in his quest to develop dynamite, but his willingness to make mistakes and learn from them eventually led to success.

† Steele, Robert & Singer, Dorothea W. 1928. 'The Emerald Table.' *Proceedings of the Royal Society of Medicine* 21: 41–57 & 485–501.

> *magazines, cinema, and television). But one wonders whether […] this does not conceal a radical misunderstanding [...] For instead of the image being elevated to the level of a world […] there is […] a reduction of the image to the level of sensory perception pure and simple, and …the more successful this reduction is, the more the sense of the imaginal [the creative faculty of imagination] is lost." (1964:8)*.*†*

We have lost and must remind ourselves that we are creators, and that successful and responsible action is not just about science and technology but about the conscious application of values and holistic wisdom to anticipate and avoid unintended consequences. Imagination needs to be reinstated and properly understood as the faculty of higher-order thinking par excellence, and some steps have been taken in this direction. A beginning was made with the demise of a behaviourist paradigm in psychology, which for decades had portrayed human action as determined solely by external inputs and thus prevented any serious consideration of the imagination as a cognitive faculty (Perkins 1981; Hunt 1982).‡

There is some truth in the biblical claim that we humans were "created in the image", for indeed, such is the nature of the human mind. We are not knowers of images, but also image creators, and world makers—for better or worse. Imagination is the creative spark in us, and to recognize it is to recognise ourselves once more as moral subjects, as creators, as makers of images and of new worlds. Imagination is the mental loop into the future that makes conscious action possible. It is so fundamental that it defines us, and in its simplest form, it is present in all sentient life.

We thus do not need to learn imagination. Nor can we exist without it. The problem is rather that the imaginal faculty is poorly developed in many people so that they find it difficult to contemplate the prospect of a systemic transformation toward a 'new world', which we now need to imagine and create if human security is to be improved or even maintained at the present level.

On a practical level, here is one recommendation for educators. I noted earlier that Ph.D. students are expected to be creative, imaginative, and to break new ground in their projects. This suggests that one way to change earlier stages of education would be a shift away from canonical learning to more explorative, open-ended project work. The kind of projects I am thinking of do not come with a right or wrong answer, the outcome is not known in advance, even by the teacher. An exploratory project, rather, is an open-ended process of creative discovery, though it may also entail observation, trial and error. Such a pedagogical approach is currently largely confined to the teaching of art and design but should become part of every educational endeavour. Children's imagination must not be disciplined into silence but developed to become a force for active, conscious and responsible creation, a loop into the future from within the now.

---

* Corbin, Henri 1964. 'Mundus Imaginalis.' *Cahiers Internationaux de Symbolisme* 6:3-26, Brussels 1964. Based on a paper delivered at the Colloquium on Symbolism at the Sorbonne in Paris in June 1964.

†In Corbin's terminology, 'imaginal' refers to what I call 'imagining' – the creation of never seen images, as opposed to the mere 'imaging' of perceived visual data.

‡ Perkins, D.N. 1981. *The Mind's Best Work*. Harvard University Press; and Hunt, Morton M. 1982. *The Universe Within: A New Science Explores the Human Mind*. Brighton (UK): Harvester Press.

In order to reinstate imagination in education, learners need to be provided with an environment rich in opportunities to exercise their imaginal faculty, as well as opportunities to learn how to share our personal imaginings with others. Children and young people generally delight in the imaginal exploration of future possibilities. It is not simply about personal futures, however, for which we have established procedures of vocational advice, but about learning to imagine shared futures together within moral and conscious communities of actors. Whatever our future will be individually, or nationally, it will be necessarily embedded in a wider social and global context.

A well-developed imagination is one that takes wider concerns into consideration, and thereby becomes inclined to choose a future that brings security to all, not just some. This is quite the opposite to the dominant paradigm of political realism that has been defining security as a zero-sum game, with often devastating consequences. Instead, a developed imagination is cognisant of interdependence and thus naturally follows the principles of the United Nations Development Programme's Human Development Report of 1994, which defines human security as "freedom from want" and "freedom from fear" *for all persons*.*

Author's Contact Information
Email: thor2525@gmail.com

* https://hdr.undp.org/content/human-development-report-1994

CADMUS, Volume 5, No.2, August 2023, 136-146

The Promise of Peace and Nuclear Abolition:
Has large power aggression destroyed Common Security?

Alyn Ware
Director, Basel Peace Office; Global Coordinator for Parliamentarians for Nuclear Non-proliferation and Disarmament; Fellow, World Academy of Art & Science

Abstract

The UN Secretary-General is currently preparing a New Agenda for Peace, which is expected to broaden the traditional framework of security as it relates to relations between nations, to also include the notion of Human Security which focuses on well-being of individuals and communities. This Human Security framework integrates traditional peace and security approaches with achievement of the Sustainable Development Goals. However, Human Security is difficult, if not impossible, to implement when nations are at war, when they continue to rely for their security on the threat of force and when they continue to focus national resources on preparations for war. In order to succeed, a Human Security framework has to be complemented with a Common Security framework. This would ensure that the threat or use of force in international relations is replaced by diplomacy, conflict resolution and international law, liberating resources for sustainable development. This common security framework works well when nation states adhere to it. But what happens when powerful countries—especially the nuclear-weapon States—flout the law, ignore common security approaches to a conflict, and take aggressive military action? Since the end of the Cold War, this has happened a number of times, most notably the US-led invasion of Iraq in 2003 and the Russian invasion of Ukraine in 2022. This article focuses on opportunities for States and civil society to make more effective use of existing common security mechanisms, and to strengthen common security through upcoming UN Summits. This could help to prevent war, phase out the reliance on nuclear deterrence, and shift national resources from militarism to human security, facilitating achievement of the sustainable development goals.

> *"Common Security relies on diplomacy, negotiation, mediation, arbitration and on the application of international law to ensure fairness and human security for all."*

1. The Common Security Approach

Common security is an approach to achieving national security by taking into account one's own security needs and also the security of other nations, including one's adversaries. It is based on the assumption that sustainable national security cannot be obtained by

undermining or threatening the security of others, but rather on resolving conflicts with one's adversaries and ensuring the security of all is upheld. It relies on diplomacy, negotiation, mediation, arbitration and on the application of international law to ensure fairness and human security for all.

Common security does not rule out national defence and some reliance on military power for security. However, a common security framework places a much greater emphasis on conflict resolution and international law, reserving military approaches to a last resort if all other methods fail.

2. The United Nations: A Promise and Potential for Peace, Common Security and Nuclear Abolition

The United Nations was established in the wake of World War II as a global common security organization. The Charter prohibits the threat or use of force in international relations* and requires the peaceful resolution of international conflicts.† It also outlines a number of approaches to resolving conflicts peacefully including diplomacy, negotiation, mediation, arbitration and adjudication.‡ And it establishes mechanisms to facilitate the peaceful resolution of conflicts and the application of law, including through the Security Council, UN General Assembly, UN Secretariat and the International Court of Justice.

In addition, the UN Charter requires the Security Council to adopt a plan for global disarmament in order to ensure that there is the least diversion possible of resources to militaries from economic and social development.§ And the very first resolution of the UN established the obligation to achieve the global elimination of nuclear weapons and other Weapons of Mass Destruction.¶

UN member states have made use of these approaches and mechanisms in numerous occasions in order to resolve conflicts, prevent or end war and facilitate lasting peace. However, the full employment of these common security mechanisms has been hampered by:

- A reluctance by member states—especially the nuclear-armed states—to cede sufficient sovereignty to UN bodies to enable them to effectively facilitate common security approaches in all conflicts. This reluctance is in evidence, in particular, in the veto power given to the five permanent members of the Security Council in order to persuade them to join (and stay in) the United Nations, and in the fact that only 73 of the 197 UN members have accepted the compulsory jurisdiction of the International Court of Justice.**
- Most countries in the world continuing to place much greater emphasis on national defence and military security than on common security. This is evidenced by very high budgets for national and collective militaries (such as NATO) compared to very low budgets

* UN Charter Article 2 (4) https://legal.un.org/repertory/art2.shtml

† UN Charter Article 2 (3) https://legal.un.org/repertory/art2.shtml

‡ UN Charter Articles 33-38 https://www.un.org/en/about-us/un-charter/chapter-6

§ UN Charter Article 26 https://legal.un.org/repertory/art26.shtml

¶ UN Resolution 1 (1) "Establishment of a Commission to Deal with the Problems Raised by the Discovery of Atomic Energy https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NR0/032/52/PDF/NR003252.pdf?OpenElement

** See ICJ Compulsory Jurisdiction https://www.icj-cij.org/en/declarations

allocated to common security mechanisms such as the United Nations, International Criminal Court and the Organisation for Security and Cooperation in Europe

Despite its imperfections, the UN remains the world's primary common security body, with the potential to be better used to resolve conflicts peacefully, uphold international law and facilitate disarmament, if member states choose to increase their focus on common security and reduce their reliance on military security.

There are a number of opportunities over the next two years to highlight the common security mechanisms and approaches of the UN, encourage nations to better use these, and also to improve them. These opportunities include the development by the UN Secretary-General of a New Agenda for Peace (with input from member states and civil society)* and the UN Summit for the Future which is being convened in 2024 by the UN General Assembly.†

3. Common Security, the Helsinki Process and the OSCE

The common security framework established by the UN Charter was hampered severely for the UN's first 50 years by the post-World War II emergence of two super-powers (USA and Soviet Union) whose primary approach to national security was nuclear deterrence and a 'balance of power'.

The Cold War did not render the United Nations meaningless. Indeed, without the United Nations, it is highly likely the Cold War would have ended in a nuclear holocaust.

In addition, the United Nations was not the only multi-lateral body that was established with a common security framework and that has contributed to peace and nuclear war prevention. The *Conference on Security and Cooperation in Europe* (CSCE), established in 1973, provided a very important regional body to advance diplomacy, conflict resolution, nuclear risk reduction and adherence to international law between the two nuclear super-power blocs—the USA/NATO and USSR/Warsaw Pact countries.

The work of the CSCE was guided by the Helsinki Final Act‡, which like the UN Charter, requires members to resolve international conflicts peacefully, refrain from the threat or use of force in international relations and adhere to obligations under international law. Following the end of the Cold War, the CSCE was transformed and renamed as the *Organisation for Security and Cooperation (OSCE) in Europe*. This was formalized in 1996 with the adoption of the *Lisbon Declaration on Common Security*.§

4. Common security and the Palme Commission

Another important development in the advancement of common security was the Olof Palme Commission.

* New Agenda for Peace, UN Political and Peacebuilding Affairs Department, https://dppa.un.org/en/new-agenda-for-peace

† See UN General Assembly sets date and modalities for a Summit of the Future https://www.unfoldzero.org/un-general-assembly-sets-date-and-modalities-for-a-summit-of-the-future/

‡ *Conference on Security and Cooperation in Europe Final Act, Helsinki 1975* https://www.osce.org/files/f/documents/5/c/39501.pdf

§ Full title is: Lisbon Declaration on a Common and Comprehensive Security Model for Europe for the twenty-first century https://www.osce.org/files/f/documents/1/0/39539.pdf

A majority of countries, mostly less powerful ones, never bought into the nuclear deterrence framework and remained neutral or non-aligned. However, like ants in the field who get crushed when the elephants fight,* non-nuclear states were also threatened by the nuclear arms race—and still are. Nuclear war could destroy everyone, not only those relying on nuclear weapons who are the targets of the opposing nuclear bloc.

In 1982, Olof Palme, Prime Minister of the neutral Sweden, established an *Independent Commission on Disarmament and Security Issues* in order to challenge the nuclear deterrence security framework and suggest its replacement with Common Security. In its report *Common Security: A Programme for Disarmament*† the commission described the consequences of nuclear conflict which could impact severely on the entire world. The Report challenged nuclear deterrence as a security framework, arguing that it was dangerous not only for the innocent non-nuclear States, but also for those relying on nuclear weapons. According to the Commission, threatening massive destruction of one's adversaries was a very risky and unsustainable way to achieve security. It could fail at any moment with disastrous consequences.

The Commission advanced ideas and approaches for advancing common security as an alternative to nuclear deterrence, based on the notions that "*States can no longer seek security at each other's expense; it can be obtained only through cooperative undertakings*," and that "*Common security is security **together with**, and **not against**, a potential enemy*." According to the Commission "*Ultimately, nations and populations can only feel safe when their counterparts feel safe*."

The Commission discussed the two key tasks for achieving common security: a) regulating and resolving political conflicts between states, especially between the major powers; and b) arms control and disarmament, especially nuclear disarmament.

Although the Commission did not lead to the renunciation of nuclear deterrence, the end to armed conflict or the full-scale replacement of militarism (the law of force) with common security and the force of law, it did revive public and political support for common security and détente. The Report was influential amongst a number of key leaders including Mikhail Gorbachev and was possibly a contributing factor to the end of the Cold War half a decade later.

5. Some Common Security Successes

Most of the time, nations are managing their international relations and resolving conflicts with each other through diplomacy, negotiation and international law because to do so is recognized by all sides as mutually beneficial. In these cases, win/win solutions are being sought by both sides, and the common security mechanisms help facilitate this.

Of greater significance are the times when one or more parties in a conflict are attempting to subjugate the other and are aiming for a win/lose outcome, especially if one of the parties

* A Khmer/Cambodian proverb: "When the elephants fight, the ants get crushed."

† *Common security: a programme for disarmament / the report of the Independent Commission on Disarmament and Security Issues*. London : Pan; 1982

is more powerful than the other. These are much greater challenges to common security. The successful use of common security mechanisms in these circumstances is much more significant. Here are just a few of the many examples:

- **French Nuclear Testing in the Pacific Region**: In 1974, New Zealand and Australia took France to the International Court of Justice over its atmospheric nuclear testing program in Te Ao Maohi (French Polynesia).* In response to the case, France declared its sovereign right to continue atmospheric tests, but that they would end their atmospheric testing program the very next year (which they did). In response, New Zealand revived the case in 1995 with respect to underground testing by France. France announced its right to continue underground testing, but then ended the test program the very next year and closed down the nuclear test site.
- **Nicaragua v USA**: In 1982 Nicaragua lodged a case against the United States in the International Court of Justice challenging the US military support for the Contras who were seeking to overthrow the government.† The Court found in favour of Nicaragua. The US announced that it would not abide by the Court's decision. However, the US Congress then followed up by adopting the Boland Amendments prohibiting military aid to the Contras. The legal principles affirmed in the ICJ case also provided a strong supporting framework for the negotiations of the Central American Peace Accords, adopted in 1987, which helped end the civil wars in Central America.
- **French Terrorist Bombing of the Rainbow Warrior**: In 1985, the French DGSE (Secret Service) sunk the Greenpeace boat 'Rainbow Warrior' in Auckland Harbour (New Zealand) with limpet mines they had smuggled into the country. New Zealand police caught two of the DGSE agents, who were then prosecuted and convicted of manslaughter, one Greenpeace crew member was killed in the explosions. France responded by placing an economic boycott on New Zealand which prevented New Zealand trade with all of the European Economic Community, a primary market for New Zealand products. None of New Zealand's traditional allies (Australia, Canada, UK and USA) supported New Zealand because of the ban the country had just placed on nuclear weapons. New Zealand employed the mediation service of the Office of the United Nations Secretary-General to successfully move France to end the boycott against New Zealand, admit guilt and provide compensation for Greenpeace and the New Zealand government, thus resolving move France to end the boycott against New Zealand, admit guilt and provide compensation for Greenpeace and the New Zealand government, thus resolving the conflict with France and restoring friendly relations.‡
- **Costa Rica v Nicaragua**: In 2010, Nicaragua initiated dredging in the San Juan river between Nicaragua and Costa Rica, and dispatched a military contingent to Island of Calero on the Costa Rican side of the river in order to 'protect' the dredging operation.

* Nuclear Tests (New Zealand v. France) at https://icj-cij.org/en/case/59 and Nuclear Tests (Australia v. France) at https://icj-cij.org/en/case/58. See also *Nuclear weapons and law for the future: The application of principles protecting future generations in international tribunals*, by Alyn Ware, Paper presented at 'Taking Legal Action on Behalf of Future Generations', November 17-18, 2017 University of Caen (France) https://alynware.kiwi/blog/2020/12/nuclear-weapons-and-law-for-the-future

† Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America) https://www.icj-cij.org/en/case/70

‡ See *Nuclear-free New Zealand: Sinking the Rainbow Warrior*, NZ History, New Zealand government online https://nzhistory.govt.nz/politics/nuclear-free-new-zealand/rainbow-warrior

Costa Rica alleged that this was an illegal occupation of Costa Rican territory. While some voices in Costa Rica called for a military response, the Costa Rican government decided instead to use common security mechanisms including the Organisation of American States and the International Court of Justice, to which it lodged a case in 2010.* The ICJ has made a number of rulings delineating the sovereignty of Nicaragua and Costa Rica over the disputed region, with Nicaragua emerging with superior rights over the river, and Costa Rica with sovereignty over most of the disputed wetlands. In light of the ICJ process, political tensions have de-escalated and neither country is considering military action.

- **Libya v Chad**: In the 1970s and 1980s, Chad and Libya had a serious conflict over the Aouzou Strip, a piece of mineral-rich land along the Chadian-Libyan frontier in the Sahara Desert. Claims by both sides to the strip led to military actions including annexation and counter-annexation, Libyan support for Chadian rebels attempting to overthrow the government and other armed conflict. Attempts to resolve the conflict were unsuccessful, until the two parties agreed to a proposal by the Organisation of African Unity that the case to go to the International Court of Justice. The ICJ delivered its judgement in February 1994, supporting Chad's claim on the territory.† As a result, Libya withdrew from the territory, under the supervision of the United Nations Aouzou Strip Observer Group.

6. Common Security and the Russia/Ukraine War

The Russian invasion of Ukraine, beginning in February 2022, provides a serious challenge to common security. Neither the United Nations nor the OSCE—nor the appeals to Russia from Ukraine, European countries and the United States—were successful in preventing Russia from invading. The UN Security Council has been unable to respond to the invasion due to the veto power of Russia. And efforts in other UN bodies including the UN General Assembly, Human Rights Council and International Court of Justice have also failed to stop the invasion and persuade Russia to withdraw from territories it has annexed.

However, an evaluation of common security with regard to the Russia/Ukraine conflict needs to consider not only its capacity or incapacity to impact on a powerful country such as Russia once that country has already decided to use force. Common Security needs to be assessed in the broader context of whether it might have been able to contribute better to managing the conflicts between Russia and Ukraine earlier—before they elevated to the Russian decision to invade, and so possibly preventing such a decision from being made.

In this broader context, one can argue that there were critical aspects to the conflicts that could possibly have been better addressed through common security mechanisms in order to prevent the war.

One of these aspects is the Russian allegation of genocide being committed by Ukrainian forces against Russian-speaking and allied peoples in the Donbas region. These allegations emerged in 2014. Ukraine's denial of the allegations was rebuffed as propaganda by Russia,

* Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua) https://www.icj-cij.org/en/case/150

† Territorial Dispute (Libyan Arab Jamahiriya/Chad) https://www.icj-cij.org/en/case/83

and so the allegations continued unchecked until 2022, when they were cited by President Putin as a primary reason for launching the invasion of Ukraine.*

Both sides allowed these allegations to fester, when they could have instead been addressed by an independent, third party legal mechanism—the International Court of Justice. Either of the sides could have decided to take the case to the ICJ under the Genocide Convention, which includes a provision for such jurisdiction regarding conflicts under the convention that cannot be resolved by other means. Such a case would have provided a proper process for each side to advance its evidence, have this evaluated objectively and then a ruling made. This could have resolved the issue, or at the very least eliminated the genocide argument that Putin gave for launching the invasion of Ukraine. Indeed, after the invasion, Ukraine decided to launch such a case†, but this was too late to prevent the invasion and is unlikely to reverse it.

Another of the conflicts between Russia and Ukraine is the status of Crimea.

The Russian government argues that the transfer of authority over Crimea from Ukraine to Russia in 2014 was undertaken legally through referendum of the inhabitants. President Putin defends the referendum and transfer of authority as complying with the principle of the self-determination of peoples. In addition, the Russian government has argued that the territory of Crimea was a conditional gift to Ukraine in 1954 as part of Russia's efforts to ensure Ukraine remained strongly attached to Russia under the Soviet Union, and that this transfer of authority was never constitutionally ratified.

Ukraine, on the other hand, argues that Russia's invasion and annexation of Crimea in 2014 were illegal under international law and under specific agreements between Russia and Ukraine, most notably the Budapest Memorandum.

The United Nations General Assembly sided with Ukraine, but Russia dismissed this as just a 'majority rules' vote with no legal standing. What might have made a difference was if the Permanent Court of Arbitration and/or the International Court of Justice were brought into play on this issue.

The International Court of Justice, if utilized, could have provided an evidence-based forum—rather than a political forum—for each side to present its case and for this independent tribunal to evaluate and bring judgement. Such a judgement could potentially find solely in favour of one party or the other. Or it could be more nuanced, outlining legal rights and obligations of both sides, thus providing a stronger basis for a negotiated solution. Such a case could have been taken to the court either by mutual agreement of both sides, or by the UN General Assembly requesting an advisory opinion on the legal status of Crimea. Unfortunately, we do not know if this might have worked, as it was not tried.

Another aspect of common security relevant to the Russian invasion of Ukraine is the application of international law in the face of a serious breach to such law.

---

* See *Putin's claims that Ukraine is committing genocide are baseless, but not unprecedented*, Alexander Hinton, The Conversation, February 25, 2022. https://theconversation.com/putins-claims-that-ukraine-is-committing-genocide-are-baseless-but-not-unprecedented-177511

† Allegations of Genocide under the Convention on the Prevention and Punishment of the Crime of Genocide (Ukraine v. Russian Federation) https://www.icj-cij.org/en/case/182

In general, when one of the five permanent members of the United Nations (P5) violate international law relating to armed conflict, either through acts of aggression (invasion) or through commission of war crimes, their veto power on the Security Council prevents any significant action by the United Nations in response. What the Russia/Ukraine conflict has demonstrated is that other UN bodies can act in response to such violations of the law. The UN General Assembly established an emergency session* to address the issue, adopting resolutions initially affirming that the invasion was an illegal act of aggression† and later rejecting the Russian annexation of the regions of Donetsk, Kherson, Luhansk and Zaporizhzhia.‡ The UN General Assembly also suspended Russian membership in the Human Rights Council in response to the invasion.§ And the International Criminal Court launched an investigation into Russian war crimes, which has already resulted in initial indictment of President Putin and Maria Alekseyevna Lvova-Belova, Commissioner for Children's Rights in the Office of the President of the Russian Federation¶, and will likely result in further charges being laid against President Putin and senior Russian officials on charges of war crimes and/or crimes against humanity.**

While none of these measures are likely to reverse the Russian invasion, they serve two important purposes relevant to common security and the application of international law: a) they provide a legal basis for other measures in response to Russia's invasion including economic sanctions against Russia and military support for Ukraine; b) they ensure that Russia's invasion of Ukraine does not provide a precedent for similar invasions by other powerful countries against weaker countries.

7. Strengthening Common Security: Building on Successes

There are a number of ways of strengthening common security, building on successes to ensure more successes and fewer failures in the future.

- The first, and most important, is to ensure much greater use of common security mechanisms. Governments, parliaments, academics and public need to be better aware of the range of common security approaches and mechanisms available and the many successes of these mechanisms, in order to ensure that they are utilized more often in conflicts, rather than to the threat or use of force.
- UN member states that have not already subscribed to the compulsory jurisdiction†† of the International Court of Justice for legal disputes should do so.
- When negotiating treaties, governments should make it a general practice to include in the treaties a clause providing for ICJ jurisdiction for conflicts arising under the

* General Assembly holds emergency special session on Ukraine, UN News, 28 February 2022. https://news.un.org/en/story/2022/02/1112912

† United Nations General Assembly Resolution ES-11/1, adopted 18 March 2022 https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/293/36/PDF/N2229336.pdf?OpenElement

‡ United Nations General Assembly Resolution ES-11/4, adopted 12 October 2022 https://digitallibrary.un.org/record/3990673?ln=en

§ UN General Assembly votes to suspend Russia from the Human Rights Council, UN News, 7 April 2022 https://news.un.org/en/story/2022/04/1115782

¶ See Situation in Ukraine: ICC judges issue arrest warrants against Vladimir Vladimirovich Putin and Maria Alekseyevna Lvova-Belova, International Criminal Court, https://www.icc-cpi.int/news/situation-ukraine-icc-judges-issue-arrest-warrants-against-vladimir-vladimirovich-putin-and

** See *Situation in Ukraine*, International Criminal Court, https://www.icc-cpi.int/ukraine

†† See *Declarations recognizing the jurisdiction of the Court as compulsory*, International Court of Justice, https://www.icj-cij.org/en/declarations

provisions of the treaty, if such conflicts are unable to be peacefully resolved in other ways.

- UN bodies, in particular the UN Security Council and General Assembly, should make greater use of their option to refer legal issues to the International Court of Justice when they are unable to facilitate resolution of critical conflicts. They can do this by requesting an Advisory Opinion from the International Court of Justice .*

"In replacing nuclear deterrence and the threat or use of force with a common security approach, governments could drastically reduce military budgets and personnel, and reallocate these to human security objectives, including the sustainable development goals."

The second way to strengthen common security is to improve the key common security mechanisms such as the United Nations and the Organisation for Security and Cooperation in Europe (OSCE).

One way to do this is to increase the political and financial capital of the institutions. Give them more resources to do the work. Refer to them more often in media and political discourse. Another way to do this is institutional reform. For the United Nations this could include increasing the membership of the UN Security Council and modifying the veto power of the Permanent five members, re-purposing the Trusteeship Council to provide better governance of the global commons (oceans, atmosphere, outer space, Antarctica, the seabed and possibly also cyber-space)†, elevating representation in the UN by elected representatives (either through enhancing the standing of the Inter-Parliamentary Union in the UN or establishing a parliamentary assembly) and developing independent funding so that the UN is not beholden to the countries making the biggest contributions. Such reforms have been proposed for consideration by governments and possible adoption in appropriate United Nations forums including the 2024 UN Summit of the Future‡, or in a special conference on UN Charter reform held according to UN Charter Article 109.

8. Conclusion: Nuclear Weapons, Common Security and Human Security – Fulfilling the Promises

Article 26 of the UN Charter requires action by the UN Security Council to adopt a

* See *Advisory Jurisdiction*, International Court of Justice https://www.icj-cij.org/en/advisory-jurisdiction

† The UN Secretary-General recommended this in Our Common Agenda, and the proposal is being considered in conjunction with the UN Summit of the Future. See *A new trustee for the global commons*, Ramu Damodaran, Senior Advisor, University for Peace, SDG Action, 26 October 2021. https://sdg-action.org/a-new-trustee-for-the-global-commons/

‡ See Report of the Peace and Security consultations for the Global Futures Forum and UN Summit of the Future, UNFOLD ZERO, March 17, 2023. https://www.unfoldzero.org/wp-content/uploads/Report-Peace-and-Security-consultations-for-GFF-and-UN-Summit-of-the-Future-final-2.pdf

plan for arms control and disarmament in order to release resources for economic and social development (human security). The very first resolution of the UN established the objective to achieve the global elimination of nuclear weapons and other Weapons of Mass Destruction (WMD).*

Both of these objectives were affirmed as obligations in the Non-Proliferation Treaty adopted in 1970.† However, the objectives remain unfulfilled. Global military expenditure has increased (not decreased) to over $2 trillion annually, while the sustainable development goals remain woefully under-financed. And since 1946, the number of nuclear armed countries has increased to nine, with another 35 countries relying on extended nuclear deterrence. Together, they comprise most of the northern hemisphere and nearly 2/3rds of the world's population.

Campaigns to highlight the humanitarian impact of nuclear weapons have helped to develop restraint on actual use, a 'nuclear taboo'. Nuclear weapons have not been detonated in armed conflict since 1945. But such campaigns have had minimal, if any, impact on the production, possession and deployment of the weapons. Indeed the global nuclear weapons budget has increased to over $100 billion per year.‡

This is because nuclear deterrence will continue to be maintained as a part of security doctrines—and nuclear weapons will continue to be deployed to as part of these doctrines —unless the nuclear armed and allied states can be convinced that the security provided by nuclear weapons is no longer necessary, or can be replaced by something else. That something else could be common security combined with conventional force utilized strictly in accordance with international law.§

The Russia/Ukraine conflict has demonstrated that nuclear deterrence, while rationale on paper, fails miserably in real life situations. President Putin tried to use nuclear deterrence as a coercive tool to prevent Western military support for Ukraine. This failed. Military aid has poured into Ukraine and has been a major reason for the failure of Russia to quickly subjugate Ukraine. From the other side, the USA realized that nuclear threats against Russia would be counter-productive. This realization led to the remarkable agreement at the G20 Summit in Bali (agreed by China, France, India, Russia, the UK, USA and others) that '*The threat or use of nuclear weapons is inadmissible'*.¶

This realization has opened the door to a process engaging the nuclear armed and allied states on a situation-specific evaluation of the role of nuclear weapons in conflicts and better

* UNGA Resolution 1 (1), Establishment of a Commission to Deal with the Problems Raised by the Discovery of Atomic Energy https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NR0/032/52/PDF/NR003252.pdf?OpenElement

† Article VI of the NPT requires States Parties '*to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control*.'

‡ How much do the nuclear weapon states spend on nuclear weapons? Move the Nuclear Weapons Money campaign, December 21, 2021.

§ See for example Rule of Force or Rule of Law? Legal Responses to Nuclear Threats from Terrorism, Proliferation, and War, Alyn Ware, *Seattle Journal for Social Justice*, Volume 2, Issue 1, Fall/Winter 2003. At https://digitalcommons.law.seattleu.edu/cgi/viewcontent.cgi?article=1441&context=sjsj and Nuclear threats, common security and disarmament, by Alyn Ware at https://alynware.kiwi/blog/2022/06/nuclear-threats-common-security-and-disarmament/

¶ See G20 Bali Leaders' Declaration, paragraph 4 https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/16/g20-bali-leaders-declaration/

alternatives to nuclear weapons in each of these situations, including the use of common security approaches and mechanisms. Indeed, in an increasingly inter-connected and globalized world, nuclear deterrence has less and less relevance and value.

The common security approaches outlined in the UN Charter and the Helsinki Final Act can be used instead of nuclear deterrence to address aggression, the threat of aggression and other threats to the peace and serious violations of international law. Non-nuclear states already rely on their security through these approaches and mechanisms and can play a positive role in working with the nuclear-armed and allied states to make the transition to non-nuclear security.

This positive approach to ending the reliance on nuclear deterrence—and the broader reliance on the threat or use of force—is much more effective that the failed and counter-productive attempts by the 'humanitarian approach' to 'stigmatise' the nuclear armed and allied states for relying on nuclear deterrence. The nuclear armed and allied states, for example, have all opposed the Treaty on the Prohibition of Nuclear Weapons which takes a 'humanitarian' approach without addressing any of the security reasons for nuclear deterrence. In contrast, nuclear armed and allied states have given agreement in principle for a framework agreement or nuclear weapons convention that address such security issues*. A common security approach, building on this agreement, could therefore play a vital role in helping to establish the peace and security of a nuclear weapon free world in our lifetimes.

In replacing nuclear deterrence and the threat or use of force with a common security approach, governments could drastically reduce military budgets and personnel, and reallocate these to human security objectives, including the sustainable development goals.†

Author's Contact Information
Email: alyn@pnnd.org

* States Parties to the Non-Proliferation Treaty (NPT), which includes five nuclear-armed states and all the nuclear allied states, agreed at the 8th NPT Review Conference that "All States need to make special efforts to establish the necessary framework to achieve and maintain a world without nuclear weapons. The Conference notes the Five-Point Proposal for Nuclear Disarmament of the Secretary-General of the United Nations, which proposes inter alia the consideration of negotiations on a nuclear weapons convention or a framework of separate mutually reinforcing instruments backed by a strong system of verification"

† See, for example, Opportunity costs of nuclear-weapons programs: What the nuclear weapons budgets could instead support. Move the Nuclear Weapons Money campaign. http://www.nuclearweaponsmoney.org/opportunity-costs/

CADMUS, Volume 5, No.2, August 2023, 147-151

Empowering Women to Save the World for the Future*

Robert van Harten
President & Founder, De Moeder's Geuren Foundation, The Netherlands;
Fellow, World Academy of Art and Science

Abstract

One of the most overlooked but significant phenomena in today's world and the world of the future is that our future must be organised and shaped according to values. Women naturally hold the keys to implementing these values and should ideally be the caretakers of the future world. The masculine world of numbers and models based on past experience is inadequate to adapt to the profound changes that our world requires to save and protect it from the unfolding threats of multiple disasters. Values are the only true instruments that can steer the evolution of human societies towards harmony with both themselves and nature, ensuring human security for all. Eternal values are inherent to the feminine nature and form the foundation of a science of life. Given the limited time available to avert disasters, empowering women through majority politics is the only viable alternative to saving the world through the implementation of values in all political decisions. The execution of this strategy must be based on a war footing principle. The essential values to be implemented for Human Security for All are unity, harmony, and collaboration.

1. Our Unpredictable World

The world we inhabit is currently experiencing turmoil. Climate change is impacting the entire world with an unprecedented and unimaginable velocity, surpassing what was seen just a few years ago. Coupled with the aftermath of a pandemic and an ongoing war in Ukraine, which are disrupting economic laws and leading to soaring inflation, energy costs, and food prices, global movements have become unpredictable even in the short term. Human security is under threat at every level of life, and without a fundamental change in perspective and action, achieving a viable solution for Human Security for All will not be feasible.

"The mind, functioning through fixed ideas, is not the appropriate instrument for approaching a dynamic world that challenges every fixation and mental prediction."

2. Bridging the Gap Towards the Future with Values

The masculine nature, dominated by a universal mental approach, is inadequate and incapable of handling a world filled with doubt and insecurity in the short term. Its reliance

* Written on behalf and with inspiration of the Vrouwenpartij Nederland (Women's party Netherlands) - www.vrouwenpartij.info
The Dutch language website can be viewed in all the languages of Google Translate.

on mental formulations and models based on fixed numbers and figures creates a significant gap with the fluid reality of life. The mind, functioning through fixed ideas, is not the appropriate instrument for approaching a dynamic world that challenges every fixation and mental prediction. In essence, the mind is not an effective tool for action in these times.

"We require an entirely different approach, free from existing frameworks and constructs. Eternal values serve as the only means to overcome barriers that hinder progress. Numerical projections focused on money, profits, and wealth, which currently drive decision-making, cannot be used to effectively plan and govern the future of our world. They are incapable of addressing and eliminating insecurity, inequality, egocentrism, corruption, crime, and even war."

On the other hand, the feminine nature, driven by the emotions of the heart, possesses a much greater ability to navigate the changing complexities of life. True emotions stemming from eternal values provide her with unwavering reliability. The masculine world of endless contradictions cannot be applied to eternal values that, by their very nature, exist without contradiction. The absence of disruptive and unsolvable contradictions grants the feminine perspective an astute and unbiased view of the future. When faced with the masculine response of "yes, but..." or "cannot," the feminine simply responds with a serene smile. The feminine reality holds that everything rooted in values is possible.

3. From Numbers to Values

As the reliance on numbers proves inadequate in saving us, it is the embodiment of feminine values such as unity, equality, harmony, honesty, and collaboration that can prevent the world from spiraling out of control.

The changes in thinking and organizational structures necessary to save the world within the limited time we have are virtually impossible. We require an entirely different approach, free from existing frameworks and constructs. Eternal values serve as the only means to overcome barriers that hinder progress. Numerical projections focused on money, profits, and wealth, which currently drive decision-making, cannot be used to effectively plan and govern the future of our world. They are incapable of addressing and eliminating insecurity, inequality, egocentrism, corruption, crime, and even war.

4. The Science of Life

Mentally inclined individuals place their trust in the natural sciences, where everything is fixed, replicable, and importantly, devoid of the vicissitudes and unpredictability of life.

Conversely, women have faith in what can be described as the science of life. This science is founded on values and can only be understood through values. Life governs us, and we cannot escape its grasp even for a moment, making knowledge of life essential for acting rightly within it. Consequently, the essence of the science of life lies in embracing the flow of life, both internal and external.

"A society built upon and functioning in alignment with values can automatically eliminate 90% of its existing controlling rules and liberate its citizens to embrace a fulfilling and joyful life."

---

5. Empowerment of Women

The shift in perspective and approach from numbers to values cannot be achieved by rigid adherence to the masculine principle. The most viable means of translating values into action is through the empowerment of women in politics. An all-women political party has the potential to gain absolute power through a majority. Majority is crucial and indispensable for effectively implementing values over numbers and reshaping the exercise of power in ministries, institutes, universities, R&D, and other domains.

6. Examples of Applying Values to Life

Reward vs Punishment

Men have traditionally focused on physical power and dominance, resulting in a prevalent culture of punishment and imprisonment.

The science of life redirects women's attention to the universal principle of reward. This is because nobody desires punishment, whereas everyone craves rewards. Encouragement becomes the guiding principle of action.

The values of trust and responsibility are vital for the individual's self-development. The liberated individual lies at the core of a future society's quality and prosperity.

However, our society is largely shaped by an obsessive emphasis on negativity. The reality, though, is that only 5% of people actively engage in negativity. The remaining 95% are neutral or positive. We create endless rules and regulations to control and punish this 5% while overlooking the fact that such rules foster distrust and often breed a sense of insecurity among all individuals. Consequently, the freedom of the 95% not involved in negativity is curtailed. Women recognize the tremendous loss of human creativity and happiness that ensues. Depression, loneliness, fear, psychological and physical ailments become prevalent in a society seeking to control its populace across all aspects of life. Naturally, women aspire

to see every child and person happy and free. Rewarding positivity offers a simple solution, rather than imposing restrictions, fostering distrust, instilling fear, and exerting control.

Similar principles can be applied to the field of education and diplomas. Abilities, talents, and experiences should hold more weight than a formal diploma that uniformly assesses individuals based on often dubious standards. For instance, the Dutch Prime Minister wishes to pursue teaching after his political career but must first acquire the requisite teaching diploma.

A society built upon and functioning in alignment with values can automatically eliminate 90% of its existing controlling rules and liberate its citizens to embrace a fulfilling and joyful life.

7. Action on a War Footing

Men often engage in discussions, evaluations, investigations, competitions, and the like, leading to unacceptable delays, compromises, waste, and losses. True men of action are rarer than commonly perceived.

Women, on the other hand, possess a more pragmatic nature when it comes to achieving results. They possess a comprehensive understanding of the situation and are accustomed to making swift decisions guided by the right and appropriate values. They will govern solely on the basis of a war footing.

Examples of the war footing approach:

1. The world faces imminent disaster if the temperature rise exceeds 1.5 degrees Celsius. Immediate action is imperative:
    - Electric cars serve as one of the solutions to reduce CO_2 emissions. Women will promptly make the purchase of fossil-fuel-powered vehicles highly unattractive through substantial subsidies for electric cars and progressive increases in fossil fuel taxes. Simultaneously, cities will announce plans to restrict entry to only 100% electric transport within one or two years.
    - Industries will face progressively higher taxes for their use of fossil fuels, along with the implementation of true price taxing for the products they manufacture.
    - Every household will be equipped with solar panels. The government can offer loans for solar panels, which will be repaid within 5 to 6 years through regular energy costs. Afterward, the household will have access to free energy for both the house and car. From the outset, the household can operate in a carbon-neutral manner.
2. Consumer products are currently undervalued as the costs of environmental damage and health-related issues are not factored in. Immediate implementation of “true pricing” for all consumer products is necessary. True pricing entails adding the costs of environmental damage, related diseases, and health impacts to the product price. For instance, true pricing would make healthy organic products relatively affordable and even irresistible when exempted from value-added tax (VAT).

8. The Future Society: Empowering Women to Build a Better World

With women in a political majority, a society can be constructed that offers free education, free healthcare, free transportation, free energy, free sports, free kitchen-gardens, and a universal basic income for all. These are excellent foundations for ensuring human security.

Women understand that a society exists to serve its people, not for its own sake or for the benefit of those in power or the wealthy elite. They recognize that the world has abundant resources for everyone; the issue lies in the distribution, not in a lack of production or money. It is the lack of political will that perpetuates inequality, poverty, and human insecurity. As women, we should take charge and make the world a safe place for all.

By forming a national women's party that operates on the principles of values and a war footing, a political majority can be achieved. This majority can then implement, without hindrance, all that is good and beneficial for everyone. Let us unite and create a future that prioritizes the well-being and prosperity of all individuals.

Author's Contact Information
Email: robertvanharten@gmail.com

CADMUS, Volume 5, No.2, August 2023, 152-163

Peace:
The Ultimate Condition and the Goal of Human Security

Pavel Luksha
Global Coordinator, Parliamentarians for Nuclear Non-proliferation and Disarmament;
Program Director, World Federalist Movement; Fellow, WAAS

Abstract

In the second decade of the 21st century, humanity again faces existential risks related to the risks of global wars. The collective decision to make wars obsolete (or not) will be the crucial choice that will determine our capacity to survive and thrive. Yet since the global security architecture has been established in the aftermath of World War 2, the notion of security and peace has greatly evolved. The proposal of the World Academy of Art and Science to evolve the concept of security as universal or human, should be connected to the reconceptualization of peace, which has to be seen as both the ultimate condition and the goal of human security policies. Based on the results of the Peaceful Futures project, three complementary types of peace—the absence of wars, the eradication of systemic violence, and the establishment of the collective state of harmonious being—are explored, and a comprehensive list of human security strategies is offered to attain these types of peace. The multidimensional approach to peace-making calls for multidimensional policies that can be structured along several action streams, including political, economic, socio-cultural, and technological, and the roadmap produced by the project offers a pathway to create a peace-based civilization in the next 50 years. Moving to peaceful futures is a complex and multifaceted process that will require collective learning and coevolution of many social institutions and communities in the decades to come. Coupled with the efforts of human security, it becomes a feasible journey.

1. Introduction: We need to redefine our understanding of Security & Peace

When the Cold War ended and the Berlin Wall collapsed, hopes for the world flew high. Historians and futurists anticipated the new era when key international contradictions were resolved and humanity was on the pathway to a unified and borderless "flat world", a "global village" that could provide enough for everyone to flourish.

Fast-forward three decades towards the beginning of 2023, humanity has not been able to come much closer to that optimistic vision than it did in 1990. The last three years saw the COVID pandemic, the disruption of global supply chains, trade wars, sanctions, secret agreements behind closed doors, the civic upheaval across the globe, unprecedented repressions with methods of surveillance state, and then the Russian invasion of Ukraine that keeps the world at the tip of toes due to the constant presence of a thermonuclear conflict risk. These political, economic, and social tensions have revealed how fragile the systems that maintain the wellbeing of humanity are—and how deeply interconnected the world is today.

During the first few months of Ukrainian war, the shortage of grain supply sent prices skyrocketing in Arab states, while the energy crisis toppled down the governments of Peru and Sri Lanka. The conflict between the US and China has disrupted the microchip sector and jeopardized the automotive and telecom businesses in Japan and Europe. Throughout the decades of stability and prosperity, it was easy to forget that the collective wellbeing, the technological progress, and the whole survival of global civilization are all contingent upon one fundamental condition—that peace prevails around the world. And today, global security systems appear incapable of maintaining that condition in the long run.

"There is more to peace than the absence of wars."

The main international body responsible for the preservation of global peace today is the United Nations Security Council (UNSC). Formed in the aftermath of World War 2, UNSC aimed to overcome the shortcomings of the League of Nations and ensure international peace and security. It is not the point of this article to criticize the work of UNSC, nor to indicate its inability to fulfill its mission in all major wars of the last two decades, including the conflict in Kosovo, the invasion in Iraq and Afghanistan, and lately, the war in Ukraine. What I want to argue is that since 1945, the notion of security and peace has greatly evolved. The global security infrastructure that maintained the world order has outlived its mandate. But before rearranging it, we need to look at the basics and understand the conditions of peace and security in the 21st century.

From the perspective of the UNSC, security is primarily understood from the national standpoint, as the ability of states to protect and defend citizenry [Osisanya, 2018], while international security is the process of balancing out the interests of national security to ensure mutual survival and safety of nation states [Hafterndorn, 1991]. Clearly, this understanding prioritizes the role of nations as "agents of security" above any other social entities including businesses, NGOs, and social movements—which is fairly representative of the societal landscape of the 1940s but not the 2020s.

The definition of peace is even more interesting, as peace is defined as the period of absence of wars. Even though this ages-old concept of "negative peace" has been criticized, it continues to prevail as an operational definition. While many would intuitively agree with the definition, it clearly normalizes war as a way of being. But living through almost seventy decades of "long peace", we also probably agree that there is more to peace than the absence of wars, and that conflicts, tensions, and violence can prevail in the society even when there is formally no war. Peace as the absence of wars is just the beginning of the path to create a truly peaceful society [Brzoska, 2021].

The proposal of the World Academy of Art and Science (WAAS) to evolve the concept of security as universal or human security, "a process that can and should be applied to enhance implementation of all socially-endorsed goals related to human rights and human development", is highly commendable. It is time to move away from the limiting and nearly inadequate concept of national and international security in the hands of a handful of politicians, diplomats, and military officers. I argue in this article that we should connect this

shift with the much-needed evolution of our understanding of peace. We should start seeing peace as both the ultimate condition and the goal of human security policies, as the integral measure of the success of human security efforts.

Throughout the second half of 2022, a group of international foresight and peace-building experts from over 40 countries in the world came together in a series of workshops to discuss the possibility of "peaceful futures", future scenarios where global peace-based society is created within the next half a century*. The conclusion of the Peaceful Futures project is that this future reality is attainable, and that a clear pathway can be formed that brings peace-based civilization into existence.

Furthermore, the need to create such a new way of being is pressing. New military conflicts, engaging countries that own and develop weapons of mass destruction, elevate existential risks for humankind and the whole planet. With the development of new types of warfare—including autonomous military robotics, cyberwarfare, collective "mind hacking" through social media, various applications of the military AI, bio- and nano-warfare, and more,—wars of the future are potentially more devastating than anything we have seen until now. And risks of large-scale military conflicts will continue to grow year by year, driven by climate change, biodiversity loss, and soil degradation. It is expected that substantial areas will become unsuitable for agricultural production due to high temperature and lack of access to fresh water or will be flooded by rising oceans, affecting up to 1 billion people before 2050 [ETR, 2022].

Coupled with increased weapon lethality, future military conflicts can become a Russian roulette for the whole world—and such levels of risks cannot be further tolerated. Throughout the 21st century, humans will need to learn how to live without wars. To quote Buckminster Fuller, "either the war is obsolete, or humans are". And the possibility of making wars obsolete is strictly contingent upon making human security and universal wellbeing the focal point of global, national, and local policies.

2. Why Peace is the Condition of "Everything"

Willy Brandt famously said: "Peace is not everything, but without peace everything is nothing." As we time and again discover this simple truth, it is important to understand peace as the condition of "everything".

First of all, it is important to recognize that peace, and not war, is a normal state of being throughout the existence of humankind. The Hobbesian "war of all against all" is an invented concept, and the reality of the "natural state" of prehistoric humans is very different from it. Homo sapiens appeared on our planet about 200,000 years ago, and even though there were sporadic violent conflicts between hunter-gatherer groups (similar to what happened from time to time among our primate ancestors [Morris, 2014]), more than often they peacefully coexisted with each other [Godesky, 2016]. War as a phenomenon only emerged about

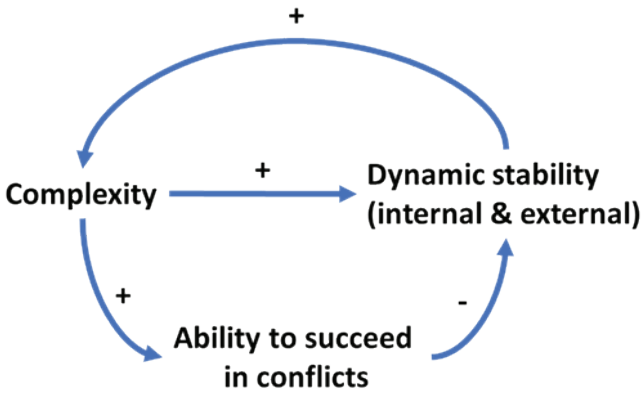
* I would like to indicate that Peaceful Futures project is the result of work of teams from six organizations that came together as project partners: Global Education Futures, VZOR Lab, School of International Futures, Next Generation Foresight Practitioners, and later, Future Worlds Center and Ecocivilization. While many findings expressed in this paper represent results of the collective work (and therefore should be attributed to the whole team), the main conclusions are ideas are expressed are my own, and I take responsibility for interpretations and statements in this article.

10,000 years ago when human agricultural settlements first appeared [Ferguson, 2013]. And even then, civilizations of "long peace" prevailed in many regions of the world, where large human communities coexisted for centuries without engaging in any forms of military activities (the most famous examples are the civilization of the Indus River Valley and the first city-state of the Americas, Caral-Supe).

The recorded history of the last 2-3 thousand years is of course very different—it is abundant with wars (and that probably creates the impression that wars are an inevitable companion of humanity). Often, these wars were waged by large agricultural empires to acquire new lands and subdue or eliminate nomadic tribes that were seen as a source of instability. In the end, more powerful states expanded and established their order which brought peace and prosperity to their citizens. (Of course, there were very different causes and forms of war throughout the millennia, and many wars were also fought to destroy, pillage, and enslave.) Wars were also fought between rivaling states, demanding the evolution of social organization and military technologies—hence war has been seen as the engine of human development for a very long period in human history.

However, engaging in wars has always been a tricky business. Any complex social activity—from food production to architecture and creation of sophisticated technologies—demands social stability. Accumulation and evolution of knowledge is only possible in areas where human potential and material infrastructure are protected from destruction. States that learnt to maintain dynamic internal (and external) stability were the ones that could develop better, i.e., could increase their complexity. Their development would often encourage them to undertake risky military operations (or would provoke their neighbors to invade), therefore undermining stability. And so, the art of state governance was to find a healthy balance between states of war and peace, to determine when wars are desirable and when peace is preferred (Figure 1).

Figure 1: The Dilemma of War and Peace



However, in the 20th century, and especially after two World Wars, humanity has learnt that the nature of military conflicts has changed. The lethality of weapons has grown exponentially through the 19th and 20th centuries, and any conflict between technologically advanced states would bring so much death and destruction that engaging in it would not yield any benefits that could justify the war for the population and elite (it could even bear existential risks for the nation, as was the case with Nazi Germany and Imperial Japan). Since at least the middle of the 20th century, war has been primarily the business of "conflict entrepreneurs", small elite groups that gain economic and political benefits during the stage of destabilization—and it does not bring benefits to larger societies such as nations [Coulomb, 2004].

Furthermore, all forms of complex human activities—research, financing, hi-tech manufacturing, or production of essential commodities such as food and energy—have transcended national borders a long time ago. Economies of the world became deeply intertwined, and any significant military conflict today disrupts the prosperity of the entire world, as the conflict in Ukraine clearly demonstrates. Global challenges, such as the climate crisis, require a greater level of cooperation that can only be achieved if we are able to maintain trust and inclusiveness at the global scale. To continue evolving, our civilization needs to evolve instruments and institutions that maintain its internal and external dynamic stability. We need to identify various forms of stability disruptors that go way beyond military conflicts—and to find new strategies for addressing them.

One of these important disruptors today is the unhealthy relationship between the human population and the planet. For centuries, more-than-human nature has been seen as a resource for humans to exploit—the land, the forest, wild animals and fish were all available in abundance. Humans have forgotten the fundamental truth: human societies are a part of and are contingent upon natural systems of Earth. Destabilizing natural systems will inevitably destabilize our society, and the only way to guarantee our own survival and evolution is to learn to restabilize them. For too long, humans waged war on natural systems of our planet, and this destabilization has shown itself today in the form of climate change, soil degradation, and loss of key species such as pollinating insects. It is time to make peace with nature again.

Maintenance of rights and conditions of human individuals and communities, as well as peaceful coexistence with local and planetary natural systems, is therefore the only way to ensure the survival and thriving of our species. Our notion of peace needs to be expanded to reflect this fundamental recognition.

3. Peace is a Multidimensional Phenomenon

Let us explore the dimensions of peace as a condition of complex human activity—the dynamic external and internal stability of human societies that ensures that complex activities can happen. The first definition of peace already mentioned above is "the absence of wars". However, wars are only one form of violent conflict. Organized systemic violence can take many forms, and it often either becomes "a war in disguise" of its own (for example, when an oppressed ethnic group is destroyed through prison camps and tortures), or a root cause that instigates wars. Therefore, peace can also be defined as "the eradication of systemic or

structural violence". Finally, we know that when peace is achieved, the wars are stopped and the violence is eradicated, the society enters a particular state of (collective) being and consciousness free from disturbance, a state of calmness, tranquility, and harmony—which we can call a "positive" definition of peace.

These three definitions—absence of wars, eradication of violence, and state of tranquility—are not mutually exclusive. In fact, they highlight distinct aspects of what peace is, or different "types" of peace. Societies that adopt a particular understanding of peace would also have different objectives of achieving and maintaining it (Table 1).

Table 1: Types of Peace

#	**Type of Peace**	**Objective of Achieving & Maintaining Peace**
1	Absence of wars	Society prioritizing non-destructive methods of conflict resolution
2	Eradication of systemic violence	Society embracing values of collaboration, care, and love
3	State of tranquil / harmonious being	Society existing in harmony and thriving for all humans & non-human entities (intra & inter-personal as well as intergenerational)

We can clearly see that these types of peace are interconnected. On the one hand, "peace 1" is a necessary condition to achieve "peace 2" (we cannot eradicate systemic violence if wars continue), and "peace 2" is a condition to achieve "peace 3" (societies cannot be tranquil and harmonious if they continue various forms of systemic violence). At the same time, cultivation of "peace 3" (tranquil being) strengthens the possibility of achieving "peace 2" (eradicated violence), while eradication of violence ("peace 2") also removes the root causes of wars ("peace 1").

Another good way to understand tree types of peace is through the lens of "three horizons" model offered by Bill Sharpe [2013]. This model suggests that innovations, institutional frameworks, and conceptual perspectives are spread across Three Horizons—horizon 1 being the dominant yet the most problematic "way of being" (i.e. its contradictions have already been revealed), horizon 3 is a long-term sustainable "way of being" (resolves problems of horizon 1) that will dominate our future but is only in the nascent state today, and horizon 2 is a "bridging" "way of being" that addresses some of the challenges of horizon 1 and can help us transit to horizon 3. From this perspective, "peace 1" is evidently the dominant perspective today, while "peace 3" is still perceived as a utopian future state of being. "Peace 2", eradication of systemic violence, is a bridging way of addressing peace-making challenges.

In our recent work with the Peaceful Futures project, we used these three notions of peace both to understand the variety of forms of disturbance to peace, and also to map out various strategies for overcoming these disturbances (Table 2). The list is sufficiently comprehensive but not complete—other important causes of disruption and methods of overcoming them can also be included.

Table 2: Causes of Disruption of Various Forms of Peace and Methods to Eliminate or Overcome Them

Type of Peace	**(Some) Causes of Disruption**	**(Some) Methods of Overcoming or Eliminating the Cause of Disruption**
Peace 1: Absence of Wars	Autocratic & Nationalistic Ambitions	Democratization / bottom-up governance, government transparency, engaging younger generations in decision making Making offensive war internationally illegal
	War Oriented Patriotism	Deromanticizing wars and redefining patriotism through peaceful / constructive alternatives
	Interests of Military Industrial Complex (MIC) & Its Owners	Reduction in military spending, conversion of MIC to civic needs including work on global challenges (e.g., climate change)
	Warmongering: Intentional Manipulations of Public Opinion	Critical thinking, increased public control over media & social platforms
Peace 2: Eradication of Systemic Violence	Lack of Basic Human Security (Food, Energy, Shelter, Healthcare)	Redefinition of human rights to include peace-inducing conditions, guaranteed provision of basic services, Universal Basic Income (UBI)
	Economic & Political Inequality	Increased corporate and public financial transparency, progressive taxation, UBI
	Monopolization	Antitrust practices, change of IP legislation
	Unfair Supply Chains	Transparency and accountability of supply chains
	Domestic / Family Violence	Zero domestic violence tolerance policies, non-violent communication practices, family & community therapy
	Ecocide: Violence Towards Natural Ecosystems	Promotion of regenerative economic models, legal systems supporting rights of non-human entities

Peace 3: State of Tranquil / Harmonious Being	Habits & Behavioral Patterns that Reproduce Systemic Violence	Culture of inclusivity, nonviolent communication Socio-technical systems (e.g., AI) "nudging" people to choose nonviolent behaviors
	Personal & Collective Traumas	Various forms of healing including ones done through traditional & indigenous ways of healing
	Egoism & Existential Poverty Disconnection from other Humans & Nature	Empathy-focused education, education focused on cultivating planetary consciousness, cultivation of Inner Development Goals
	Lack of Hope & Inspiration	Education & art focused on imagination and envisioning of desirable futures

Addressing disruptions to "peace 1" primarily requires changes in the governance system that reduce the possibility of deciding to enter a war. Disruptions to "peace 2" are multi-dimensional—and these are perhaps the closest to the idea of human security as promoted by WAAS, "enhancing implementation of human rights". Disruptions to "peace 3" are primarily cultural and spiritual, and therefore require more subtle forms of counteraction through education, art, and spiritual practices.

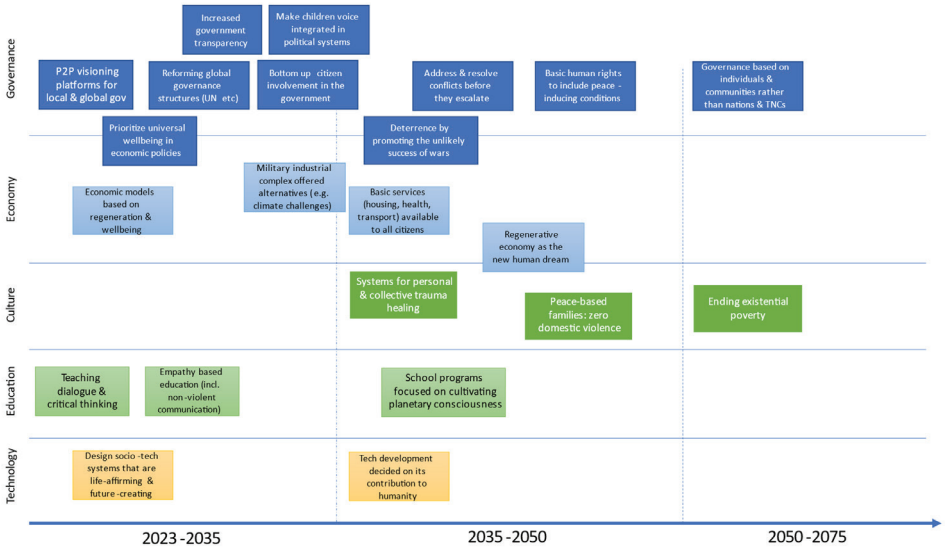
4. Journey to Peaceful Futures

The multidimensional approach to peace-making calls for multidimensional policies. However, not all efforts can bring comparable results, and some of them can act as "enablers" of others. In other words, if some projects are accomplished, they create conditions and raise the probability of success of other projects. The Peaceful Futures project has identified over 60 initiatives to cultivate global peace, and the team has been able to prioritize them through the Structured Democratic Dialogue process (also used in the setting of conflict resolution and complex policy making [Laouris, Michaelides, 2017]). This work has identified 22 key initiatives that establish the "critical path" towards the peaceful futures scenario in the next 50 years (Figure 2).

The biggest group of initiatives relates to democratization processes, such as the increased government transparency, participatory design of national priorities, and the integration of children and youth's voices in the political system. Second group of initiatives promotes a new model of economy that is fair, just, and regeneration-focused—including the provision of basic services to all citizens and prioritizing universal well-being (instead of purely economic indicators such as GDP) in economic policies. Another large group of initiatives is about enhancing peace-oriented cultural values and practices through empathy

education, promotion of planetary consciousness, healing personal and collective traumas, and nullifying domestic violence.

Figure 2: Critical Path to Peaceful Futures [Preliminary Project Results]

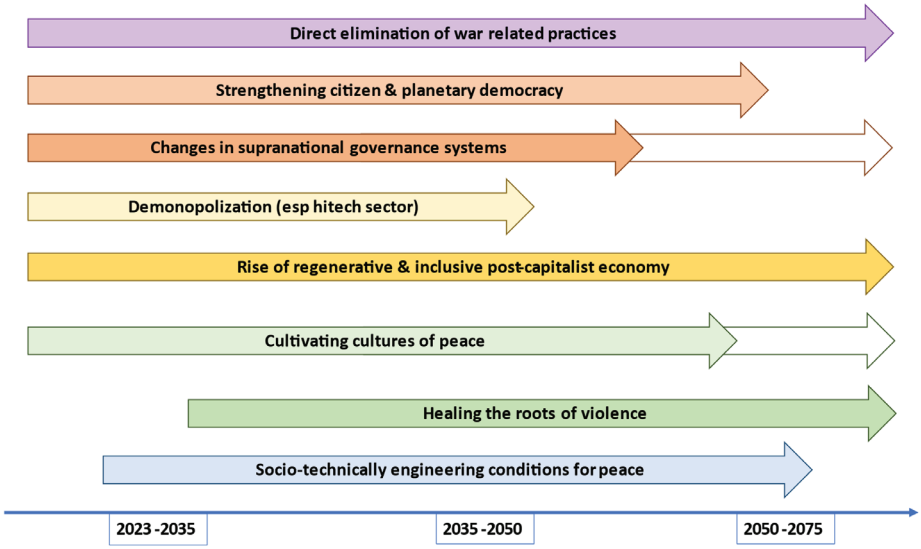


When a larger set of 60+ initiatives is taken into account, it can be clustered into eight "action streams" that spread over the next 50 years (Figure 3). Let me briefly describe each of these streams:

- *Political initiatives* relate to strengthening the citizen and planetary democracy, and also the transformation of the supranational governance system (including the provision of legal rights to the entities of more than just human nature);
- *Economic initiatives* involve demonopolization and "rehumanization" of supply chains (which could be one the largest sources of structural violence and inequality), and also the promotion of the regenerative and inclusive economic models and principles;
- *Socio-cultural initiatives* include cultivation of peace-oriented values and behaviors through education, art, and media, and also healing of the roots of violence through trauma-oriented work and spiritual practices;
- *Technological initiatives* tap into the potential of socio-technical systems to induce collective behaviors, so that these systems can be designed to be life-affirming, and future- and opportunity-creating to all stakeholders, and some of these systems can be used to "nudge" people to act more peacefully or help them make decisions that minimize the potential of conflicts;

- Finally, *direct elimination of war-related practices* is a political reorganization and cultural redesign that makes wars unwanted and non-feasible.

Figure 3: Eight "Action Streams" of the Roadmap to Peaceful Futures [Preliminary Project Results]



A number of peace initiatives such as the Positive Peace Report [2022] suggest that we need to shift from negative to positive conditions for peace and flourishing of our civilization by defining the attitudes, institutions and structures that create and sustain peaceful societies. "Peaceful Futures" offers a comprehensive roadmap that bridges the current social reality—unstable, fragile, and vulnerable—with the possible future where wars could be done away with once and for all. This roadmap is of course a hypothesis, and its feasibility needs to be further scrutinized to make it a reality. What it highlights is that global peace cannot be achieved unless the systemic transformation of social institutions, political and economic priorities, and cultural patterns occurs on a global scale. Unlike earlier studies on the subject, it also emphasizes the need of socio-economic transformation towards the regenerative paradigm, as well as the essential role of individual and collective healing processes to create a peaceful society. Most importantly, peace requires the redesign of economies, societies and technologies on the new human- and planet-centered principles so that human needs and rights are met, and human development is enabled. This is very aligned with the call made by WAAS to reorganize the global security system.

5. Conclusion: Peace as the Focal Goal of Human Security Efforts

As we can see from the above discussion, peace is the condition to "everything" (any complex human activity, whether economic, social, or cultural), and it can only be achieved as

part of the transformation of human civilization. The Millennium Development Goals, and later the Sustainable Development Goals 2030, are a beautiful effort to operationalize the directions of such transformation. We need to continue defining additional areas and priorities for global governance in the 21st century.

"Peace can only come from within, and it needs to be raised bottom-up through shifts in consciousness, behavior, and culture."

The notion of human security, as well as the redefined notion of peace (from the perspective of three definitions provided in this article) can set some of the critical parameters for the next 50 years to come. The next half a century can easily be the most definitive in the history of humankind, when we will either "make it or break it" as a civilization and as a species. Many, like astronomer Martin Rees and late biologist James Lovelock, are highly skeptical of the human collective ability to live beyond the 21st century, giving up to 50% chance to "break it" scenario. Risks of global wars, environmental catastrophes and societal collapses are growing, but so does our potential to mitigate them. We are indeed "in the midst of an evolutionary crisis", as Margaret Mead [1964] indicated over half a century ago. The collective decision to make wars obsolete (or not) will be the crucial choice that will determine our capacity to survive and thrive, and achieve human security for all.

Moving to peaceful futures will not be a linear process with a simple straightforward "solution". It is a complex and multifaceted process that will require collective learning and coevolution of many social institutions and communities over the decades to come. Peace cannot be engineered for the general public by national and global elites, it cannot come "top-down" from power structures, and no reorganization of the UN Security Council will be sufficient to make it prevail. Rather, peace is "everybody's business" that will require the engagement and commitment from every member of society. Peace can only come from within, and it needs to be raised bottom-up through shifts in consciousness, behavior, and culture—even though power structures will also play an important role in enabling it and making it stay.

But the first and the most important condition of making wars obsolete is that we admit the possibility of a peace-based civilization in our minds. Then we will be able to see, in the words of Martin Luther King [1964], that "peace represents a sweeter music, a cosmic melody that is far superior to the discords of war", and by changing our economic and cultural priorities we are able to "shift the arms race into a 'peace race'". Is this not the magnificent goal of human security efforts?

Author's Contact Information
Email: pavel.luksha@gmail.com

References

1. Brzoska M. (2021) *Is Peace the Absence of War?* Institute for Peace Research and Security Policy Blog post 09/22/2021. Link: https://ifsh.de/en/news-detail/is-peace-the-absence-of-war

2. Coulomb, F. (2004) *Economic Theories of Peace and War*. London: Routledge.
3. ETR (2022) *Ecological Threat Report: Analysing Ecological Threats, Resilience and Peace.* Institute for Economics & Peace. Link: https://www.visionofhumanity.org/wp-content/uploads/2022/10/ETR-2022-Web-V1.pdf
4. Ferguson, B. (2013) "The Prehistory of War and Peace in Europe and the Near East". In D. Fry (ed.) *War, Peace, and Human Nature.* Oxford: Oxford University Press
5. Godesky J. (2016) *Hunter-gatherers live in relative peace*. Link: https://www.rewild.com/in-depth/peace.html
6. Haftendorn, H. (1991) "The Security Puzzle: Theory-Building and Discipline-Building in International Security". *International Studies Quarterly*, Vol. 35, No. 1, pp. 3-17
7. King, M.L. (1964) *Peace Nobel Prize Lecture*. Link: https://www.nobelprize.org/prizes/peace/1964/king/lecture/
8. Laouris Y., Michaelides M. (2017) "Structured Democratic Dialogue: An application of a mathematical problem structuring method to facilitate reforms with local authorities in Cyprus". *European Journal of Operational Research*, No.1, pp. 1-14
9. Mead M. (1964) *Continuities in Cultural Evolution*. Routledge
10. Morris, I. (2014). *War! What Is It Good For?: The Role of Conflict and the Progress of Civilisation from Primates to Robots.* MacMillan
11. Osisanya, S. (2018) *National Security vs Global Security*. Link: https://www.un.org/en/chronicle/article/national-security-versus-global-security
12. PPR (2022) *Positive Peace Report. Analysing the factors that build, predict and sustain peace.* Institute for Economics & Peace. Link: https://www.visionofhumanity.org/positive-peace-report-2022-analysing-the-factors-that-build-predict-and-sustain-peace
13. Sharpe B. (2013) *Three Horizons: The Patterning of Hope*. Triarchy Press

CADMUS, Volume 5, No.2, August 2023, 164-176

Against the Institution of War

John Scales Avery
Fellow, World Academy of Art and Science;
Chairman, Danish National Group of Pugwash Conferences on Science and World Affairs

Abstract

Among the topics discussed is the current crisis of civilization, to which the institution of war in an era of all-destroying thermonuclear weapons strongly contributes. Another issue that is discussed is the human emotional tendency that might be called "tribalism". It is our tendency to be kind and altruistic towards members of our own group, and extremely hostile towards groups that are perceived to be competing with or threatening our own. Probably this tendency was built into the genes of our ancestors when they lived in small, genetically homogeneous tribes, competing for territory on the grasslands of Africa. Another important topic discussed is the need for effective and just global governance. It is argued that the United Nations should be strengthened by converting it into a federation, with a greatly increased income, and the power to make laws that are binding on individuals. The International Criminal Court, established by the Treaty of Rome, is discussed as an important first step towards individual accountability. It is my hope that this article will contribute to our understanding of Human Security.

The essay is divided into ten sections with the following titles:

1. Science and Technology are Double-edged
2. A Crisis of Civilization
3. Civilians, Victims of War
4. Indirect Costs of War
5. War as an Institution
6. Poverty, Disease and War
7. International Governance
8. The Success of Federations
9. A New Global Ethic
10. Love your Enemies

1. Science and Technology are Double-edged

As we start the 21st century and the new millennium, our scientific and technological civilization seems to be entering a period of crisis. Today, for the first time in history, science has given humans the possibility of a life of comfort, free from hunger and cold, and free from the constant threat of infectious disease. At the same time, science has given us the power to destroy civilization through thermonuclear war, as well as the power to make our

planet uninhabitable through pollution and overpopulation. The question of which of these alternatives we choose is a matter of life or death for ourselves and our children.

Science and technology have shown themselves to be double-edged, capable of doing great good or of producing great harm, depending on the way in which we use the enormous power over nature, which science has given to us. For this reason, ethical thought is needed now more than ever before. The wisdom of the world's religions, the traditional wisdom of humankind, can help us as we try to ensure that our overwhelming material progress will be beneficial.

2. A Crisis of Civilization

The crisis of civilization, which we face today, has been produced by the rapidity with which science and technology have developed. Our institutions and ideas adjust too slowly to the change. The great challenge that history has given to our generation is the task of building new international political structures, which will be in harmony with modern technology. At the same time, we must develop a new global ethic, which will replace our narrow loyalties with loyalty to humanity as a whole.

In the long run, because of the enormously destructive weapons, which have been produced through the misuse of science, the survival of civilization can only be ensured if we are able to abolish the institution of war.

While in earlier epochs it may have been possible to confine the effects of war mainly to combatants, in our own century the victims of war have increasingly been civilians, and especially children. For example, according to Quincy Wright's statistics, the First and Second World Wars together cost the lives of 26 million soldiers, but the toll on civilian lives was much larger: 64 million.

3. Civilian Victims of War

Since the Second World War, despite the best efforts of the UN, there have been over 150 armed conflicts; and, if civil wars are included, there are on any given day an average of 12 wars somewhere in the world. In the conflicts in Indo-China, the proportion of civilian victims was between 80% and 90%, while in the Lebanese civil war, some sources state that the proportion of civilian casualties was as high as 97%.

Civilian casualties often occur through malnutrition and diseases, which would be preventable in normal circumstances. Because of the social disruption caused by war, normal supplies of food, safe water and medicine are interrupted, so that the population becomes vulnerable to famine and epidemics. In the event of a catastrophic nuclear war, starvation and disease would add greatly to the loss of life caused by the direct effects of nuclear weapons.

4. Indirect Costs of War

The indirect effects of war are also enormous. Globally, preparations for war interfere seriously with the use of tax money for constructive and peaceful purposes. Today, despite the end of the Cold War, the world spends roughly two trillion (i.e. two million million) US

dollars each year on armaments. This enormous flood of money, which is almost too large to imagine, could have been used instead for urgently needed public health measures.

The World Health Organization lacks funds to carry through an anti-malaria program on as large a scale as would be desirable, but the entire program could be financed for less than what the world spends on armaments in a single day. Five hours of world arms spending is equivalent to the total cost of the 20-year WHO campaign, which resulted in the eradication of smallpox. For every 100,000 people in the world, there are 556 soldiers, but only 85 doctors. Every soldier costs an average of 20,000 US dollars per year, while the average spent per year on education is only 380 US dollars per school-aged child. With a diversion of funds consumed by three weeks of military spending, the world could create a sanitary water supply for all its people, thus eliminating the cause of almost half of all human illness.

A new and drug-resistant form of tuberculosis has recently become widespread, and is spreading rapidly in the former Soviet Union. In order to combat this new form of tuberculosis, and in order to prevent its spread to Western Europe, WHO needs 450 million US dollars, an amount equivalent to 2 hours of world arms spending. By using this money to combat tuberculosis in the former Soviet Union, WHO would be making a far greater contribution to global peace and stability than is made by spending the money on armaments.

Today's world is one in which roughly ten million children die each year from diseases related to poverty. Besides this enormous waste of young lives through malnutrition and preventable disease, there is a huge waste of opportunities through inadequate education. The rate of illiteracy in the 25 least developed countries is 80%, and the total number of illiterates in the world is estimated to be 800 million. Meanwhile every 60 seconds the world spends roughly 4 million US dollars on armaments.

It is plain that if the almost unbelievable sums now wasted on armaments were used constructively, most of the pressing problems now facing humanity could be solved and the world will be moving towards a better state of human security, but today the world spends more than 20 times as much per year on weapons as it does on development.

5. War as an Institution

Because the world spends 2 thousand billion dollars each year on armaments, it follows that many people make their living from war. This is the reason why it is correct to speak of war as a social institution, and also the reason why war persists, although everyone realizes that it is the cause of much of the suffering that harms humanity. We know that war is madness, but it persists. We know that it threatens the future survival of our species, but it persists, entrenched in the attitudes of historians, newspaper editors and television producers, entrenched in the methods by which politicians finance their campaigns, and entrenched in the financial power of arms manufacturers, entrenched also in the ponderous and costly hardware of war, the fleets of warships, bombers, tanks, nuclear missiles and so on. Science cannot claim to be guiltless: in Eisenhower's farewell address, he warned of the increasing power of the industrial-military complex, a threat to democratic society. If he were making the same speech today, he might speak of the industrial-military-scientific complex. Since

Hiroshima, we have known that new knowledge is not always good. There is a grave danger that nuclear weapons will soon proliferate to such an extent that they will be available to terrorists and even to the Mafia. Chemical and biological weapons also constitute a grave threat. The eradication of smallpox in 1979 was a triumph of medical science combined with international cooperation. How sad it is to think that military laboratories cultivate smallpox and that the disease may soon be reintroduced as a biological weapon!

The institution of war seems to be linked to a fault in human nature, to our tendency to exhibit altruism towards members of our own group but aggression towards other groups if we perceive them to be threatening our own community. This tendency, which might be called "tribalism", was perhaps built into human nature by evolution during the long prehistory of our species, when we lived as hunter-gatherers in small genetically homogeneous tribes, competing for territory on the grasslands of Africa. However, in an era of nerve gas and nuclear weapons, the anachronistic behavior pattern of tribal altruism and intertribal aggression now threatens our survival.

Fortunately, our behavior is only partly determined by inherited human nature. It is also, and perhaps to a larger extent, determined by education and environment; and inspite of all the difficulties just mentioned, war has been eliminated locally in several large regions of the world. Taking these regions as models, we can attempt to use the same methods to abolish war globally. For example, war between the Scandinavian nations would be unthinkable today, although the region once was famous for its violence. Scandinavia is especially interesting as a model for what we would like to achieve globally, because it is a region in which it has been possible not only to eradicate war, but also poverty; and at the same time, death from infectious disease has become a rarity in this region.

6. Poverty, Disease and War

If we consider the problem of simultaneously eliminating poverty, war and frequent death from infectious disease, we are led inevitably to the problem of population stabilization. At the time when poverty, disease and war characterized Scandinavia, the average fertility in the region was at least 6 children per woman-life. Equilibrium was maintained at this high rate of fertility, because some of the children died from disease without leaving progeny, and because others died in war. Today, poverty and war are gone from the Nordic countries, and the rate of premature death from infectious diseases is very low. The simultaneous elimination of poverty, disease and war would have been impossible in Scandinavia if the rate of fertility had not fallen to the replacement level. There would then have been no alternative except for the population to grow, which it could not have continued to do over many centuries without environmental degradation, bringing with it the recurrence of poverty, disease and war.

In Scandinavia today, democratic government, a high level of education, economic prosperity, public health, high social status for women, legal, economic and educational equality for women, a low birth rate, and friendly cooperation between the nations of the region are mutually linked in loops of cause and effect. By contrast, we can find other regions of the world where low status of women, high birth rates, rapidly increasing population,

urban slums, low educational levels, high unemployment levels, poverty, ethnic conflicts and the resurgence of infectious disease are equally linked, but in a vicious circle. The three age-old causes of human suffering, poverty, infectious disease and war are bound together by complex causal relationships involving also the issues of population stabilization and woman's rights. The example of Scandinavia shows us that it is possible to cure all these diseases of society, but to do so we must address all of the problems simultaneously.

Scandinavia was once a region that was famous for its violence. Today, war within Scandinavia would be unthinkable. This fact demonstrates the malleability of human nature. Under changed circumstances, and with changed education, people who were once extremely violent have become very peaceful. Scandinavia's low birth-rate has contributed to this transition.

7. International Governance

Abolition of the institution of war and achieving human security will require the construction of structures of international government and law to replace our present anarchy at the global level. Today's technology has shrunken the distances, which once separated nations; and our present system of absolutely sovereign nation-states has become both obsolete and dangerous.

Professor Elie Kedourie of the University of London has given the following definition of nationalism: "..a doctrine invented in Europe at the beginning of the 19th century. It pretends to supply a criterion for the determination of the unit of population proper to enjoy a government exclusively its own, for the legitimate exercise of power in the state, and for the right organization of a society of states. Briefly, the doctrine holds that humanity is naturally divided into nations, that nations are known by certain characteristics which can be ascertained, and that the only legitimate type of government is national self-government."

A basic problem with this doctrine is that, throughout most of the world, successive waves of migration, conquest and intermarriage have left such a complicated ethnic mosaic that attempts to base political divisions on ethnic homogeneity often meet with trouble. In Eastern Europe, for example, German-speaking and Slavic-speaking peoples are mixed together so closely that the Pan-German and Pan-Slavic movements inevitably clashed over the question of who should control the regions where the two populations lived side by side. This clash was one of the main causes of the First World War.

Similarly, when India achieved independence from England, a great problem arose among the regions where Hindus and Muslims lived side by side; and even Gandhi was unable to prevent terrible violence from taking place between the two communities. This problem is still present, and it has been made extremely dangerous by the acquisition of nuclear weapons by India and Pakistan.

More recently, nationalist movements in Asia and Africa have derived their force and popularity from a reaction against the years of European political and economic domination. Thus, at first sight, they seem to deserve our sympathy and support. However, in building

states, the new nationalists have often used hate for outsiders as mortar. For example, Israel is held together by hostility towards its Arab neighbors, while the Pan-Arab movement is held together by hostility towards Israel; and in this inflamed political climate of mutual fear and hatred, even clandestine nuclear weapons appear to either side to be justified.

A basic problem rooted in nationalist mythology exists in the concept of sanctions, which treat nations as if they were individuals. We punish nations as a whole by sanctions, even when only the leaders are guilty, even though the burdens of the sanctions often fall most heavily on the weakest and least guilty of the citizens, and even though sanctions often have the effect of uniting the citizens of a country behind the guilty leaders.

It is becoming increasingly clear that the concept of the absolutely sovereign nation-state is an anachronism in a world of thermonuclear weapons, instantaneous communication and economic interdependence. Probably our best hope for the future lies in developing the United Nations into a World Federation. The strengthened United Nations should have a legislature with the power to make laws which are binding on individuals, and the ability to arrest and try individual political leaders for violations of these laws.

The World Federation should also have the military and legal powers necessary to guarantee the human rights of ethnic minorities within nations. A strengthened UN would need a reliable source of income to make the organization less dependent on wealthy countries, which tend to give support only to those interventions of which they approve.

A promising solution to this problem is the so-called “Tobin tax”, named after the Nobel-laureate economist James Tobin of Yale University. Tobin proposed that international currency exchanges should be taxed at a rate between 0.1 and 0.25%. He believed that even this extremely low rate of taxation would have the effect of damping speculative transactions, thus stabilizing the rates of exchange between currencies. When asked what should be done with the proceeds of the tax, Tobin said, almost as an afterthought, “Let the United Nations have it”. The volume of money involved in international currency transactions is so enormous that even the tiny tax proposed by Tobin would provide the World Federation with between 100 billion and 300 billion dollars annually. By strengthening the activities of various UN agencies, such as WHO, UNESCO and FAO, the additional income would add to the prestige of the United Nations and thus make the organization more effective when it is called upon to resolve international political conflicts.

8. The Success of Federations

A federation is, by definition, a limited union of states, where the federal government has the power to make laws that are binding on individuals, but where the laws are confined to interstate matters, and where all powers not expressly delegated to the federal government are reserved for the several states. In other words, in a federation, each of the member states runs its own internal affairs according to its own laws and customs; but in certain agreed-on matters, where the interests of the states overlap, authority is specifically delegated to the federal government.

For example, if the nations of the world considered the control of narcotics to be a matter of mutual concern; if they agreed to set up a commission with the power to make laws preventing the growing, refinement and distribution of harmful drugs, and with the power to arrest individuals for violating those laws, then we would have a world federation in the area of narcotics control.

If, in addition, the world community considered terrorism to be a matter of mutual concern; if an international commission were also set up with the power to make global anti-terrorist laws, and to arrest individuals violating those laws, then we would have a world federation with somewhat broader powers. If the community of nations decided to give the federal authority the additional power to make laws defining the rights and obligations of multinational corporations, and the power to arrest individuals violating those laws, then we would have a world federation with still broader powers; but these powers would still be carefully defined and limited.

In 1998, in Rome, representatives of 120 countries signed a statute establishing a Permanent International Court, with jurisdiction over war crimes and genocide. Four years were to pass before the necessary ratifications were gathered, but by Thursday, April 11, 2002, 66 nations had ratified the Rome agreement, 6 more than the 60 needed to make the court permanent. The jurisdiction of the Permanent International Court is at present limited to a very narrow class of crimes. The global community will have a chance to see how the court works in practice, and in the future, the community may decide to broaden its jurisdiction.

In setting up a federation, the member states can decide which powers they wish to delegate to it; and all powers not expressly delegated are retained by the individual states. We are faced with the problem of constructing a new world order which will preserve the advantages of local self-government while granting certain carefully-chosen powers to larger regional or global authorities. Which things should be decided locally, or regionally, and which globally?

In the future, overpopulation and famine are likely to become increasingly difficult and painful problems in several parts of the world. Since various cultures take widely different attitudes towards birth control and family size, the problem of population stabilization seems to be one which should be solved locally. At the same time, aid for local family planning programs, as well as famine relief, might appropriately come from global agencies, such as WHO and FAO. With respect to large-scale migration, it would be unfair for a country which has successfully stabilized its own population, and which has eliminated poverty within its own borders, to be forced to accept a flood of migrants from regions of high fertility. Therefore the extent of immigration should be among the issues to be decided locally.

Security and controls on the manufacture and export of armaments will require an effective authority at the global level. It should also be the responsibility of the international community to intervene, to prevent gross violations of human rights. Since the end of the Cold War, the United Nations has more and more frequently been called upon to send armed forces to troubled parts of the world. In many instances, these calls for UN intervention have been prompted by clear and atrocious violations of human rights, for example by “ethnic

cleansing" in Bosnia and by genocide in Rwanda. Long and complex diplomatic negotiations were required to muster the necessary political and physical forces needed for intervention, by which time the original problems had become much more severe. For this reason, it has been suggested that the UN Secretary General, the Security Council and the General Assembly ought to have at their disposal a permanent, highly trained and highly mobile emergency force, composed of volunteers from all nations. Such an international police force would be able to act rapidly to prevent gross violations of human rights or other severe breaches of international law.

"One can hope for a future world where the institution of war will be abolished, and where public opinion will support international law, a world where international law will be seen by all to be just, impartial and necessary, a well-governed global community within which each person will owe his or her ultimate loyalty to humanity as a whole."

In evaluating the concept of an international police force directly responsible to the United Nations, it is helpful to examine the way in which police act to enforce laws and to prevent violence and crime at local and national levels. Within a community which is characterized by good government, police are not highly armed, nor are they numerous. Law and order are not maintained primarily by the threat of force, but by the opinion of the vast majority of the citizens that the system of laws is both just and necessary. Traffic stops when the signal light is red and moves when it is green whether or not a policeman is present, because everyone understands why such a system is necessary. Nevertheless, although the vast majority of the citizens in a well-governed community support the system of laws and would never wish to break the law, we all know that the real world is not heaven. The total spectrum of human nature includes evil as well as good. If there were no police at all, and if the criminal minority were completely unchecked, every citizen would be obliged to be armed. No one's life or property would be safe. Human Security is as much about Individual and personal security as it is about collective and community security. To achieve human security for all would mean changing the paradigm from a selfish ego-centered paradigm to one that focuses on the well-being of every individual and society. Not one at the expense of the other but one that complements and aids the other.

Within a society with a democratic and just government, whose powers are derived from the consent of the governed, a small and lightly armed force of police is able to maintain the system of laws. One reason why this is possible has just been mentioned—the force of public opinion. A second reason is that the law acts on individuals. Since obstruction of justice and the murder of policemen both rank as serious crimes, an individual criminal is usually not able to organize massive resistance against police action.

Edith Wynner, one of the pioneers of the World Federalist movement, lists the following characteristics of police power in a well-governed society:

1. "A policeman operates within a framework of organized government having legislative, executive and judicial authority operating on individuals. His actions are guided by a clearly stated criminal code that has the legislative sanction of the community. Should he abuse the authority vested in him, he is subject to discipline and court restraint."
2. "A policeman seeing a fight between two men does not attempt to determine which of them is in the right and then help him beat up the one he considers wrong. His function is to restrain violence by both, to bring them before a judge who has authority to determine the rights of the dispute, and to see that the court's decision is carried out."
3. "In carrying out his duties, the policeman must apprehend the suspected individual without jeopardizing either the property or the lives of the community where the suspect is to be arrested. And not only is the community safeguarded against destruction of property and loss of life but the rights of the suspect are also carefully protected by an elaborate network of judicial safeguards."

Edith Wynner also discusses the original union of the thirteen American colonies, which was a confederation, analogous to the present United Nations. This confederation was found to be too weak, and after eleven years it was replaced by a federation, one of whose key powers was the power to make and enforce laws which acted on individuals. George Mason, one of the architects of the federal constitution of the United States, believed that "such a government was necessary as could directly operate on individuals, and would punish those only whose guilt required it", while James Madison (another drafter of the US federal constitution) remarked that, the more he reflected on the use of force, the more he doubted "the practicability, the justice and the efficacy of it when applied to people collectively, and not individually". Finally, Alexander Hamilton, in his "Federalist Papers", discussed the confederation with the following words: "To coerce the states is one of the maddest projects that was ever devised... Can any reasonable man be well disposed towards a government, which makes war and carnage the only means of supporting itsel—a government that can exist only by the sword? Every such war must involve the innocent with the guilty. This single consideration should be enough to dispose every peaceable citizen against such a government... What is the cure for this great evil? Nothing, but to enable the... laws to operate on individuals, in the same manner as those of states do."

The United Nations is at present a confederation rather than a federation, and thus it acts by attempting to coerce states. Whether this coercion takes the form of economic sanctions, or whether it takes the form of military intervention, the practicability, the justice and the efficacy of the UN's efforts are hampered because they are applied to people collectively and not individually. What is the cure for this great evil? "Nothing", Alexander Hamilton tells us, "but to enable the laws to act on individuals, in the same manner as those of states do."

Historically, confederations have always proved to be too weak; but federations have on the whole been very successful, mainly because a federation has the power to make laws

which act on individuals. At the same time, a federation aims at leaving as many powers as possible in the hands of local authorities. Recent examples of federations include the United States of America, the United States of Brazil, the United States of Mexico, the United States of Venezuela, the Argentine Nation, the Commonwealth of Australia, the Dominion of Canada, the Union of South Africa, Switzerland, the Union of Soviet Socialist Republics and the European Federation. Thus we are rich in historical data on the strengths and weaknesses of federations, and we can make use of this data as we attempt to construct a good government at the global level.

Looking towards the future, we can perhaps foresee a time when the United Nations will have been converted to a federation and given the power to make international laws which are binding on individuals. Under such circumstances, true international law enforcement will be possible, incorporating all of the needed safeguards for lives and property of the innocent. One can hope for a future world where the institution of war will be abolished, and where public opinion will support international law to such an extent that a new Hitler or a future Milosevic will not be able to organize large-scale resistance to arrest, a world where international law will be seen by all to be just, impartial and necessary, a well-governed global community within which each person will owe his or her ultimate loyalty to humanity as a whole.

9. A New Global Ethic

Besides a humane, democratic and just framework of international law and governance, we urgently need a new global ethic to achieve human security,—an ethic where loyalty to family, community and nation will be supplemented by a strong sense of the brotherhood of all humans, regardless of race, religion or nationality. Schiller expressed this feeling in his "Ode to Joy", the text of Beethoven's Ninth Symphony. Hearing Beethoven's music and Schiller's words, most of us experience an emotion of resonance and unity with its message: All humans are brothers and sisters—not just some—all! It is almost a national anthem of humanity. The feelings which the music and words provoke are similar to patriotism, but broader. It is this sense of a universal human family, which we need to cultivate in education, in the mass media, and in religion.

Educational reforms are urgently needed, particularly in the teaching of history, to achieve human security for all. As it is taught today, history is a chronicle of power struggles and war, told from a biased national standpoint. Our own race or religion is superior; our own country is always heroic and in the right.

We urgently need to replace this indoctrination in chauvinism with a reformed view of history, where the slow development of human culture is described, giving adequate credit to all those who have contributed. Our modern civilization is built on the achievements of ancient cultures. China, India, Mesopotamia, ancient Egypt, Greece, the Islamic world, Christian Europe, and Jewish intellectual traditions all have contributed. Potatoes, corn and squash are gifts from the American Indians. Human culture, gradually built up over thousands

of years by the patient work of millions of hands and minds, should be presented to students of history as a precious heritage—far too precious to be risked in a thermonuclear war.

In the teaching of science too, reforms are needed. Graduates in science and technology should be conscious of their responsibilities. They must resolve never to use their education in the service of war, or in any way which might be harmful to society or to the environment.

In modern societies, mass media play an extremely important role in determining behavior and attitudes. This role can be a negative one when the media show violence and enemy images, but if used constructively, the mass media can offer a powerful means for creating international understanding. If it is indeed true that tribalism is part of human nature, it is extremely important that the mass media be used to the utmost to overcome the barriers between nations and cultures. Through increased communication, the world's peoples can learn to accept each other as members of a single family.

10. Love your Enemies

Finally, let us turn to religion, with its enormous influence on human thought and behavior. Christianity, for example, offers a strongly stated ethic, which, if practiced, would make war impossible. In Matthew, the following passage occurs: "Ye have heard it said: Thou shalt love thy neighbor and hate thy enemy. But I say unto you: Love your enemies, bless them that curse you, do good to them that hate you, and pray for them that spitefully use you and persecute you."

This seemingly impractical advice, that we should love our enemies, is in fact of the greatest practicality, since acts of unilateral kindness and generosity can stop escalatory cycles of revenge and counter-revenge such as those which characterize the present conflict in the Middle East and the recent troubles of Northern Ireland. However, Christian nations, while claiming to adhere to the ethic of love and forgiveness, have adopted a policy of "massive retaliation", involving systems of thermonuclear missiles whose purpose is to destroy as much as possible of the country at which the retaliation is aimed. It is planned that entire populations shall be killed in a "massive retaliation", innocent children along with the guilty politicians. The startling contradiction between what the Christian nations profess and what they do was obvious even before the advent of nuclear weapons, at the time when Leo Tolstoy, during his last years, was exchanging letters with a young Indian lawyer in South Africa. In one of his letters to Gandhi, Tolstoy wrote:

> *"The whole life of the Christian people is a continuous contradiction between that which they profess and the principles on which they order their lives, a contradiction between love accepted as the law of life, and violence, which is recognized and praised, acknowledged even as a necessity."*

"This year, in the spring, at a Scripture examination at a girls' high school in Moscow, the teacher and the bishop present asked the girls questions on the Commandments, and especially on the sixth. After a correct answer, the bishop generally put another question,

whether murder was always in all cases forbidden by God's law; and the unhappy young ladies were forced by previous instruction to answer 'Not always'—that murder was permitted in war and in the execution of criminals. Still, when one of these unfortunate young ladies (what I am telling is not an invention but a fact told to me by an eye witness) after her first answer, was asked the usual question, if killing was always sinful, she, agitated and blushing, decisively answered 'Always', and to the usual sophisms of the bishop, she answered with decided conviction that killing was always forbidden in the Old Testament and forbidden by Christ, not only killing but every wrong against a brother. Notwithstanding all his grandeur and arts of speech, the bishop became silent and the girl remained victorious."

As everyone knows, Gandhi successfully applied the principle of non-violence to the civil rights struggle in South Africa, and later to the political movement, which gave India its freedom and independence. The principle of non-violence was also successfully applied by Martin Luther King, and by Nelson Mandela. It is perhaps worthwhile to consider Gandhi's comment on the question of whether the end justifies the means: "The means may be likened to a seed", Gandhi wrote, "and the end to a tree; and there is the same inviolable connection between the means and the end as there is between the seed and the tree." In other words, a dirty method produces a dirty result; killing produces more killing; hate leads to more hate. Everyone who reads the newspapers knows that this is true. But there are positive feedback loops as well as negative ones. A kind act produces a kind response; a generous gesture is returned; hospitality results in reflected hospitality. Buddhists call this principle of reciprocity "the law of karma".

The religious leaders of the world have the opportunity to contribute importantly to the solution of the problem of war. They have the opportunity to powerfully support the concept of universal human brotherhood, to build bridges between religious groups, to make intermarriage across ethnic boundaries easier, and to soften the distinctions between communities. If they fail to do this, they will have failed humankind at a time of crisis.

It is useful to consider the analogy between the institution of war and the institution of slavery. We might be tempted to say, "There has always been war, throughout human history; and war will always continue to exist." As an antidote to this kind of pessimism, we can think of slavery, which, like war, has existed throughout most of recorded history. The cultures of ancient Egypt, Greece and Rome were all based on slavery, and, in more recent times, 13 million Africans were captured and forced into a life of slavery in the New World. Slavery was as much an accepted and established institution as war is today. Many people made large profits from slavery, just as arms manufacturers today make enormous profits. Nevertheless, in spite of the weight of vested interests, slavery has now been abolished throughout most of the world.

Today we look with horror at drawings of slave ships, where human beings were packed together like cord-wood; and we are amazed that such cruelty could have been possible. Can we not hope for a time when our descendants, reading descriptions of the wars of the twentieth century, will be equally amazed that such cruelty could have been possible? If we use them constructively, the vast resources now wasted on war can initiate a new era of

happiness and prosperity for the family of man. It is within our power to let this happen, to make human security achievable soon. The example of the men and women who worked to rid the world of slavery can give us courage as we strive for a time when war will exist only as a dark memory, fading into the past.

Author's Contact Information
Email: john@pop.ki.ku.dk

CADMUS, Volume 5, No.2, August 2023, 177-180

Human Security – Multifaceted Phenomenon

Ashok Natarajan
Secretary and Senior Research Fellow, The Mother's Service Society
Fellow, World Academy of Art and Science

Abstract

This article explores the complex and multifaceted nature of human security, which extends beyond protection from military threats to encompass physical, food, health, financial, community, political, and environmental dimensions. It traces humanity's historical challenges, including natural disasters, epidemics, and food shortages, and highlights how technological advancements since the Industrial Revolution have eased some threats to security while magnifying others. Colonialism, world wars, the development of nuclear weapons, the evolution of multilateral institutions, neoliberal economic policies, and globalization of trade and finance have also played dual roles. Human security also highlights the subjective factors, including perceptions and expectations of the future and changes in social values, which are ignored or undetected by objective measures. The article stresses the necessity of coordinated collective action to address the pressing human security challenges confronting humanity today, such as climate change and the need for a global cooperative security system to replace the prevailing competitive model. It calls for global acceptance of shared security responsibilities and collaboration to herald a safer, more secure world in the future.

Today, the word "security" is normally associated with protection from military aggression. Security is a much broader concept that includes physical security, food, health, and other forms of social security; job and financial security; community and personal safety; political and environmental security as well. Since the dawn of history, humanity has faced security problems from adverse weather conditions such as floods, drought, cyclones, earthquakes, and forest fires, among others. On top of that was the fear of epidemics involving smallpox, plague, cholera, malaria, and countless other diseases. Food shortage was a perennial problem that human beings have battled throughout history. According to an English philosopher, Thomas Hobbes, the life of primitive man was "short, nasty, and brutish". Human comfort improved only after the advent of the Industrial Revolution when mechanized production made surplus goods possible and allowed urbanized living. The understanding that epidemics were caused by microscopic germs came about in the 19th century after the discoveries of the French scientist Louis Pasteur, who discovered microbes. The discovery of vaccines and antibiotics, together with improvements in sanitation, brought epidemics under control. The current coronavirus pandemic caught humanity by surprise, and it took more than three years for humanity to come to grips with the global threat.

Problems of food security were an issue of major concern with developing countries well into the second half of the 20th century and still persist in some countries today. Nations

like India were dependent on imported food grains from food-surplus countries like the USA and Canada for decades. In the mid-60s, the FAO issued a warning about a potential famine threatening India due to increasing population coupled with a failure to increase food production in equal measure. The US government also expressed doubts about Indian ports having enough capacity to unload all the food aid that the US would be sending. It was at this point that the then Indian food minister, Mr. C. Subramaniam, drew up a plan to make India self-sufficient in foodgrains within five years. India's own food production instead of seeking US food aid. He achieved this miracle through the launching of India's green revolution. India achieved food self-sufficiency in five years and doubled foodgrain production within a decade. What he did in India slowly spread to other developing countries, and as a result, many other developing countries escaped food shortages and associated mass starvation.

"The world has yet to discover a way to raise incomes without causing a corresponding increase in prices."

It was fashionable in Europe to have colonies in Asia and Africa during the 18th and 19th century. As a result, countries such as England, France, and the Netherlands gained sizeable colonies in Asia and Africa. "Might is right" was the prevailing doctrine of the 19th century. In this race for colonies, Central European countries like Germany got left behind. After the turn of the 20th century, Germany developed an ambition to have her own colonies as well. Since there were not many countries left up for grabs in Asia or Africa for colonization and Germany was landlocked except on its northern borders, the country turned its colonial aspirations to surrounding European countries. This resulted in two colossal world wars, causing the loss of tens of millions of human lives. This was a period before the establishment of international laws that prohibited wars of aggression. The League of Nations was active in the 1920s, but it did nothing to control Italian aggression in Ethiopia or prevent Japanese aggression on Manchuria. It became obvious that it was a toothless organization that silently supported imperial nations. Only after the carnage of World War II did the countries of the world wake up to the dangers of global warfare and decide to act. Accordingly, the United Nations was founded along with the Security Council, with the main purpose of preventing another global outbreak.

After undergoing the horror of atomic bombs falling on Hiroshima and Nagasaki, the Japanese parliament renounced wars of aggression and remains committed to this policy to this day. The merging of the coal and steel industries of both France and Germany under the European Union or Common Market made war between these two countries and their neighbors unthinkable. Apart from conventional war, the major danger that remains to be dealt with is the threat of nuclear war breaking out between nuclear powers such as the US, Russia, China, etc. The United Nations General Assembly can consider passing a resolution banning the possession or use of nuclear weapons. However, such a move does not have the force of authority to overcome the power of the veto-wielding nuclear powers in the Security Council. The world came to the brink of nuclear war during the Cuban missile crisis of

1962, of the Kennedy and Khrushchev era. The Soviet Union backed out only after Kennedy promised that the US would not attack Cuba thereafter and made a clandestine agreement to remove missiles from Turkey. Even today, the world is far from being safe from nuclear attacks, considering the constant threats of nuclear attacks issued by North Korea and more recently by Putin's numerous warnings.

"The proposal for a UN army that guarantees the security of member nations is yet to gain serious support."

Apart from the insecurity caused by the ever-present danger of nuclear attacks, humanity also faces the problem of financial insecurity caused by disruptions in the world economy. Money did not play a significant role in the ancient economy prior to the 15th century, as the economy at that time was mainly based on barter. However, as the world industrialized in the 19th century, the global economy became increasingly reliant on money. In the late 1920s, something went wrong with the US financial system, leading to a worldwide depression where one-third of the US labor force was laid off. This depression quickly spread to European and Asian countries, resulting in a global economic downturn. It took the genius of FDR and the newly discovered economic principles of Keynes to restore order.

The onset of the Second World War shifted the focus of the US economy to military production, thereby reviving it from the stagnation it had experienced. However, this traumatic experience of the depression exposed the fragility of the capitalist global economy, making the stability of the communist system appear enticing. Nevertheless, the Soviet communist system had its own shortcomings, including one-party rule, restrictions on freedom of expression, and limited availability of consumer goods. Faced with such an unappealing alternative, humanity has chosen, for better or worse, to live with economic insecurity.

Adding to this insecurity is the fear of inflation, which has become a recurring feature of the world economy since 1950. While living standards have significantly improved, it cannot be denied that the cost of living has also continued to rise. This has led to the belief that increases in income have been offset by rising costs. The world has yet to discover a way to raise incomes without causing a corresponding increase in prices. Incomes have primarily risen due to people's aspirations for higher salaries and wages. However, if higher wages are to be granted, producers must increase the prices of their products to generate the necessary funds. Thus, the aspiration for higher income pushes up the cost of goods in the market, making higher prosperity inseparable from a higher cost of living.

Humanity is undoubtedly living a better life in the 21st century than ever before. This applies to technological comforts, conveniences, and prosperity levels. However, along with these advancements, humanity also faces challenges in environmental health, nuclear attack safety, and economic uncertainties. The world is only now beginning to recognize the problem of climate change and is taking coordinated steps to reduce carbon emissions that

contribute to rising temperatures. A competitive mindset regarding security among nations is only exacerbating military threats and worsening global conditions. It is only now that the wisdom of collective security is emerging among nations. The proposal for a UN army that guarantees the security of member nations is yet to gain serious support. If all goes well, we may see a better world that is more secure and safe in the next 50 years.

Author's Contact Information
Email: ashokmirra@gmail.com

CADMUS, Volume 5, No.2, August 2023, 181-191

Human Security:
Its Pasts, Its Underway Evolution and a Necessary Future

David Harries
Fellow, World Academy of Art and Science; Chair, Canadian Pugwash Group, Canada

Lorenzo Rodríguez
Research Associate, The Security and Sustainability Guide, Turkey

Abstract

Human Security has had a checkered history since its formal announcement in the 1994 UNDP HDR. This paper argues that current circumstances should be exploited to recontextualize security to better acknowledge planetary realities. Humans' security is only one of three fields of planetary security and needs to be considered in concert with the other two; states' security and biodiversity security, if it is to receive sustained and durable attention. A brief overview of the history of the Human Security field briefly notes its two high points; HS1 in the late 1990s and early 2000s, and HS2 following the 2013 UNGA announcement of the Human Security First campaign. Some of the reasons for the failure to gain traction for more than a small community of activists are described for each. The core of the paper explains why the concept of Humanity Security deserves to be the concept underpinning consideration of security of all the planet's citizens, of their states and communities, and of all life in the air, on land and underwater, especially now. Pragmatic suggestions for achieving the reconceptualization of security in doable and useful ways are offered. The focus is on three considered deserving of priority. One is the universal deployment of strategic foresight for all policy-design activity to enable better preparation for an uncertain future with fewer surprises. A second is the establishment of a new UN USG to provide leadership and impose oversight of action on the 17 SDGs, currently all behind schedule. Third a 21st century version of 'security sector reform' is overdue, based on a protocol of enlightened interoperability that enables harmonious relationships among diverse communities of security and non-security actors. The paper concludes with advice from the Russell-Einstein Manifesto: "Remember your humanity and forget the rest."

Security has a very long history. The planet's flora and fauna, centuries before the evolution of homo sapiens, co-existed in a complex system of interdependent security. The flora provided food and shelter for the fauna, which returned the favor as oxygen and nourishment for the flora throughout life and death. Human Security was first implied by the earliest humans gathering flora and hunting fauna to provide for their families. Their gathering and hunting tools improved through the stone and iron ages, promoting the assembly of families in communities that today might be considered cooperatives.

As communities grew into villages, towns, and cities—the largest of which became the earliest states—competition developed, and conflicts broke out over access to and availability

of flora and fauna needed for growing population, i.e., to be required for the security of the states' citizens. Human nature guaranteed that this early 'state security' would evolve into a competitive ecosystem of production (commerce), protection (weaponry) and power (political leadership) in each of what, until modern times, was a globally scattered patchwork of states' security complexes—the distances between them allowing for few deliberate connections.

The industrial age of steam, electricity and telegraph ushered in factory-enabled mass production, global empires, and more concentration of population able to reach out to others, for good and bad. The security of the individual in nation-states surrendered precedence to the state's security. The production for, protection of and accumulated power and prestige of states has enabled and underpinned centuries of conflicts over control of homeland and empire, and the land and sea-lanes among them, flora and fauna both natural and farmed, religion, natural resources such as gold and silver, and the human beings to man industry, extraction and the military. Nevertheless, through the centuries, every human being has continued to consider their safety and well-being of paramount importance, as, admittedly unevenly, do today's nearly eight billion planetary citizens. The debate—not infrequently the argument—over which of human and or national security deserves priority is guaranteed in the long run.

1. Security in Modern Times

Definitions and descriptions of security abound, depending on whether the focus is its condition, or who or what is being secured. For the former, it can be most briefly expressed as how confident can people be, and do what they want in the absence of fear and desire. More comprehensively, security recently has become everybody's business, everywhere. With the fading of once-clear and firm boundaries between military and civilian communities, public and private sectors, private profits and public well-being, combatant and non-combatant individuals, and even between war and peace, for better or worse, everyone became not only a security stakeholder but ever more explicitly, a security participant. The trend continues and arguably is strengthening as a global polycrisis expressed on some symptoms such as increased pandemic outbreak risks, democratic backsliding, rising inequality, weaponization of food and health and energy, internal displacement, refugees and migration emergencies, cyberwarfare, absence of rigorous accountability and climate change, threatening the well-being of more and more people and places with less and less likelihood of meaningful progress on—let alone solution of any one element and certainly on the crowded 'map' of their interconnections.

Overall, the beginning of this landscape shift can be attributed to the end of the Cold War. Once the strategic dilemma between the superpowers ended, several changes in the International Community took place. For instance, the progressive democratization of the former Soviet Republic. The competition for the most considerable influence in the Global South also opened space for a new set of questions regarding the formerly ignored "low politics" of culture, health, technology and economic affairs. At the same time, in Europe,

four theoretical perspectives started to rethink the concept of security but, most importantly, the object of study. This group of Critical Security Studies* is the following:

- The Copenhagen School focused on securitization.
- The Paris School focused on insecuritization.
- The Aberystwyth School focused on emancipation.
- The Human Security School focused on humanization.

In some way still related with the National Security approach, the continental schools maintain their theoretical perspective centered in the State level of action, focusing attention on the behavior and policy decisions representing non-military aspects of security from a constructivist standpoint. However, the Welsh School as the Human Security School, is inclined to an individual level of security, though the latter does it with a looser body of literature and without a rigid intellectual tradition guiding its research. Crucial for the handling of the polycrisis, is this shift to an individual scope in which the human being and not the State is the starting point for the decisions to guarantee security.

But, the policy field of Human Security in modern times has had only sporadic success. And until the many security consequences of the intensifying polycrisis are much more strongly acknowledged, collectively and collaboratively, its future as a global mainstream issue driving geopolitical action will be no better. On 22nd July 1974, the second full day of the Turkish invasion of Cyprus, the Special Representative of the Secretary-General of the United Nations Peacekeeping Force in Cyprus (UNFICYP) used the term in a statement of concern for citizens of Greek and Turkish villages in regions controlled by forces of the other side. Another 20 years passed before its establishment in the 1994 United Nations Development Program's Human Development Report. And since then, Human Security (HS) never became more than a complimentary issue, even during the two periods when it received significant attention. These we are titling Human Security 1 (HS1) and Human Security 2 (HS2).

HS1, during the late 1990s and early 2000s, had its high point in the period of the publication of freedom from fear, Canada's foreign policy for human security, which demonstrated the country's intention to focus on the 'people' side of security,† the Human Security Report 2005,‡ and Human Security and International Insecurity, and massively detailed and provocative telling of the influence of human security on international security in the broadest sense.§ Many members of the Middle Powers Initiative¶ were attentive during this time but to little avail, as HS remained 'on the margins' until being thoroughly sidelined by the 2008/2009 Great Recession. Throughout HS1, human security was in a political and intellectual 'competition' among national or state security and human well-being proponents.

* Hampson, F. O. (2012). Human Security. In P. D. Williams (Ed.), *Security Studies: An Introduction* (2nd ed., pp. 279–295). Routledge.

† Canada. Department of Foreign Affairs & International Trade. (2002). *Freedom from Fear, Canada's Foreign Policy for Human Security--2d Ed*. The Department.

‡ Human Security Centre. (2006). *Human Security Report 2005: War and Peace in the 21st Century*. Oxford University Press.

§ Frerks, G., & Goldewijk, B. K. (Eds.). (2006). *Human security and international insecurity.* Wageningen Academic Publishers.

¶ *History & Achievements*. (n.d.). Middle Powers Initiative.

Each side had very different goals and priorities, and there were few attempts to reconcile them. One effort was done by Walter Dorn,* who produced a three-part framework for their consideration.

The first element was a list of the Priorities and Initiatives for each type:

Table 1. Human Security and National Security Priorities and Initiatives

Human Security	National Security

Priorities & Initiatives
– Saving human lives and alleviation of human suffering
– Protection of people
  – Peacekeeping
  – Humanitarian intervention
  – Refugees' assistance
  – Minority rights
– Prevention, deal with causes of violence
– Control weapons causing most human damage, e.g., Anti-personnel mines, small arms
– Global standards for the treatment of people, e.g., human rights & intl humanitarian law
– Punish deserving individuals only
  – e.g., International Criminal Court
– Integration of consistent laws nationally & globally
	Priorities & Initiatives
	– Protection of the state, including its borders, independence, traditions, values, ideologies.
	– Strong reliance on weaponry
	– Formation of alliances with other states
	– Identify and confront enemies
	– Seek to "win" wars and "defeat" enemies, isolate "rogue states"
	– "An increase in my enemy's security is a threat to mine"

As seen in Table 1, these competing set of primary considerations open a wide range of application areas that could seem mutually exclusive. Nonetheless, before the latest 2022 Special Report on Human Security: New Threats to Human Security in the Anthropocene demand advocacy for solidary, Dorn's† efforts to frame a "Common Security for a Common Humanity" were guided by the idea that security has an overlapping nature in which commonalities and externalities among groups need to be recognized. This exchange of perspectives, goods, services, and ideas opens space for opportunities while also enhancing existing vulnerabilities. Contrasting their respective goals as shown in the following

* Dorn, W. (2003). *HUMAN SECURITY: FOUR DEBATES* [Slide show; PowerPoint Slides]. Pearson Peacekeeping Centre, Ottawa, Ontario, Canada.
† Ibid.

Table 2 becomes necessary to understand the shortcomings and intellectual blind spots present in both approaches and why an integrated approach was necessary then as it is now.

Table 2. Human Security and National Security Goals

Human Security	**National Security**
Goal: Protection of human beings everywhere	Goal: Protection of the home state and its citizens
Favored by *liberal internationalists*, who stress that: – Individuals are the primary actors & the basis of democratic governance – Governments are created to serve the people, not vice versa – Seek empowerment of the individual, civil society – Governments are not monoliths but to be viewed in relation to people both inside and outside of nations – "Sovereignty is responsibility" – Value sanctity of human life – Seeks system of universal rules & laws and their enforcement	Favored by the *real politique school*, who stress that: – States are the primary actors (e.g., friend or foe) – Concerned with maintenance and centrality of state power – "Sovereignty is primacy"; rests with the state – Importance placed on military forces and alliances – Balance of power sought – Individual life can be sacrificed for the sake of the nation

Lastly, the third element of the Framework proposed that 'organized human security' and enlightened national security are "one and the same."

Unfortunately, Dorn's effort was not followed up. Furthermore, exponents like Roland Paris* or Barry Buzan† strongly signaled that the overreaching concept of Human Security had no academic or policy use. At the same time, Ken Booth from the emancipation paradigm pointed out its instrumentality for States in the realm of rhetoric.‡ Even within its supporters, Human Security finds a strong opposition between the proponents of the narrow versus broad definitions of the approach. For instance, the narrow definition supported by Nicholas Thomas and William Tow focuses on freedom from fear through conflict prevention and resolution. In contrast, the broad definition leveraged by Martha Nussbaum, Amartya Sen and Caroline Thomas emphasizes freedom from fear and freedom from want by advocating for more general social issues such as health and education.§

* Paris, R. (2011). Human Security. In C. W. Hughes & Y. M. Lai (Eds.), *Security Studies: A Reader* (1st ed., pp. 71–80). Routledge.

† Buzan, B., & Hansen, L. (2009). *The Evolution of International Security Studies* (1st ed.). Cambridge University Press.

‡ Ibid.

§ Ibid.

Table 3. Security Concepts Merged

Organized Human Security	Enlightened National Security
− States are essential actors in the promotion of human security − Military forces can be key to defense of human security − International organizations for peace to be strengthened − International peace is indivisible − "When one person suffers, we all share in the suffering" − Collective action is indispensable. "All for one and one for all" − Responsible national citizenship means organizing for the welfare of others, global governance − "Above all, humanity"	− "Enlightened self-interest" enhances contributions of people & nations alike − Peace is in the national interest in an interdependent world − Preventing war is best, everyone loses after war − Respect and promote democracy at home and abroad − States exist to serve the interests and concerns of people, recognize humanitarian imperative/intervention − State seeks high moral/ethical standards − Soldiers and citizens educated in human rights and human security − Citizen soldiers respect international laws and universal/local values

More telling, it is argued, is that not one of several major international initiatives at the time, all on 'security' and well-being, even mentioned the term human security. Not any of the eight Millennium Development Goals, not the Responsibility to Protect (R2P), not the ten Principles of Global Compact, not John Ruggie's UN Framework for Business and Human Rights—Protect, Respect, Remedy one of the earliest of the now many triple bottom lines, and nowhere found in the voluminous writings on the 'peace dividend' that so many believed was "surely imminent" after the end of the Cold War.*

Human Security 2 was provoked in December 2013 when the "Human Security First" campaign was launched, as undertaken by the Global Partnership for the Prevention of Armed Conflict (GPPAC), a network of civil society organizations which actively promotes a more comprehensive approach to conflict prevention. It is a platform for gathering local perspectives on the added value of human security and its importance to the post-2015 development agenda. From the perspective of these non-governmental organizations, there can be no development without human security. However, the campaign did not gain traction.

And then, not one of the 17 SDGs announced in 2015 discussed 'security' or employed the term Human Security. The 2016 election of Donald Trump reinforced the underway decline in democracy worldwide, as documented by organizations like Freedom House†. Through the

* Reveron, D. S. (2018). *Human Security in a Borderless World*. Taylor & Francis.

† Repucci, S., & Slipowitz, A. (2021). Democracy under siege. *Freedom House*.

use of expenses of a nationalistic rhetoric the type and degree of multinational collaboration that would be needed even to keep Human Security on the radar are obstructed. Increased anti-globalist narrative and isolationist policy decisions are potent barriers to Human Security.

> *"Humanity Security must intellectually underpin all action for all aspects of security."*

Moreover, another 'competitor' for Human Security is earning the status of a 'security' in crisis: biodiversity security. Its two 'pieces' are both causes and effects of the consequences of climate change. One is the loss and even extinction of whole species of living things. The other is the reduction of both the space on earth and the health of the oceans that planetary citizens and their biodiversity need to survive well to be able to live, move and work safely, satisfyingly, and sustainably.[*] Failing to protect all species is a planetary injustice, in addition to being potentially lethal. In research from Muluneh[†] climate change has "the potential to reduce species that are unable to track the climate to which they are currently adapted and resulted in extinction risk." Hence, it is not a surprise when supplementing research affirms that "biodiversity loss will likely decrease ecosystem functioning and nature's contributions to people."[‡]

Given the global patchwork history of human security, it seems worthwhile to try to rebrand the concept to recognize how significantly its context has changed so that more people are attracted to collaboratively address problems that threaten their collective wellbeing with sustained tangible and durable action. Current events, circumstances and conditions provide enough evidence of the validity of this claim. Some statistics will help contextualize the necessity of the perspective change. According to the United Nations Development Program,[§] since 2002, the world has lost more than 60 million hectares of tropical forest in the Congo and Amazon basins; across 109 countries, 1 billion people representing 21.7% of the total population, live in multidimensional acute poverty. Moreover, by 2030, the expected trend is that 900 million people could be undernourished due to food scarcity. About violent conflict, numbers are no less worrying. Only in 2020 did the number of forcibly displaced people reach 82.4 million. In particular, the Uppsala Conflict Data Program[¶] indicates a toll of 120.648 deaths in 2021 regarding State-Based Violence, Non-State Violence and One-Sided Violence.

* WWF (2022) *Living Planet Report 2022 – Building a nature-positive society*. Almond, R.E.A., Grooten, M., Juffe Bignoli, D. & Petersen, T. (Eds). WWF, Gland, Switzerland.

† Muluneh, M. G. (2021). Impact of climate change on biodiversity and food security: a global perspective—a review article. *Agriculture & Food Security*, *10*(1), 1-25.

‡ Isbell, F., Balvanera, P., Mori, A. S., He, J. S., Bullock, J. M., Regmi, G. R., ... & Palmer, M. S. (2022). Expert perspectives on global biodiversity loss and its drivers and impacts on people. *Frontiers in Ecology and the Environment*.

§ United Nations Development Programme. (2022). *2022 Special Report on Human Security: New Threats to Human Security in the Anthropocene: Demanding Greater Solidarity*. United Nations.

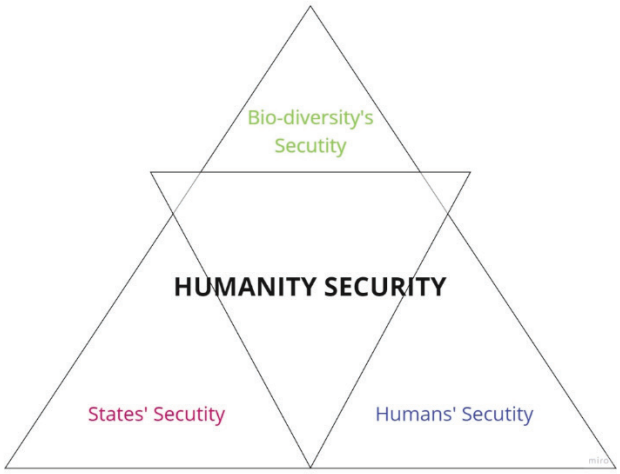
¶ *UCDP - Uppsala Conflict Data Program*. (2004).

Again, arguably, the polycrisis is a mutually reinforcing dynamic of a cause and effect of the end of most of the significant assumptions leaders and their international communities have depended upon for decades to guide their planning, policy development and implementation. It is not an overstatement to claim the globe is woefully ill-equipped for change, even change that can be forecast and predicted, let alone all the future holds that cannot be prepared for with confidence because it is more than hours or days ahead. Indeed, until humanity can improve its ability to imagine what might be ahead, its capacity, in the event, can only be reactive, with too little of the proactivity that will be demanded.

2. The Way Ahead – HS.3

It is time—a necessity—to design, structure and resource a durable HS3. The authors proposed that Human Security must be renamed Humanity Security. This recognizes the reality that security needs to be more than just of and for 'humans', but of and for all planetary life as pointed out in the 2022 Human Development Report published by the United Nations Development Program on February. Humanity Security must intellectually underpin all action for all aspects of security.

Figure 1: Human Security



As generic guidance, it is suggested that Einstein be remembered on two fronts; one for his definition of insanity and the other for his contribution to what, at the time, was a major statement on human security. He defined insanity as continuing to do the same thing again and again while expecting different results. And the Russell-Einstein Manifesto he penned with Bertrand Russell that addressed the threat of nuclear war concludes with "Remember your humanity; forget the rest".* Better, in 2022 and beyond: Remember your humanity; there is nothing else.

* Russell, B., & Einstein, A. (1955, July 9). *Statement: The Russell-Einstein Manifesto.*

Several actions are needed now that are imminently doable, not costly, very unlikely to upset even the most committed selfish autocrat and, individually and collectively, offer civil society many opportunities to participate and invest in substantive work. This can improve the likelihood that their future and that of their children will enjoy a future measurably better than that towards which humanity is heading today.

1. **Deploy Strategic Foresight.** It is the capacity to anticipate and act in the present to meet one's needs in the future. Absent the regular, if not continuous, the exercise of this discipline; it is inevitable that any action for Humanity Security will remain 'reactive'. Given the accelerating pace of unpredictable change and its consequences, being reactive is less and less 'fit-for purpose' and may even be dangerous. Work on Humanity Security needs to be proactive enough to produce outcomes that 1) offer more of what even today's dismal conditions demand, 2) are far more relevant to the demands of the future, which, as early as tomorrow, is unpredictably uncertain, but will not be a repeat of today. There can be no experts on the future, but everyone needs to be more aware of what the future might hold, hopefully in time for it not to contain destructive shocks for which humanity is unprepared. In this regard, this willingness to act towards the future may mean letting go of structures, policies, tactics, or programs—or even the organization's mission—that may have once been effective but may leave the organization stuck and increasingly becoming obsolete in the long run.

2. **Establish an Under-Secretary-General for Human Security at UNHQ in New York.** This would be a small step on the journey toward the structural and procedural reforms urgently needed at the seven decades old UN. The UN's Human Security approach needs much more effective, efficient, and coherent planning. In order to make it happen, a committed representative at the highest level of UNHQ to harmonize the current actions and projects is needed.

3. **Establish Interoperability as the protocol guiding collaboration rather than integration.** The 'silos' of organizations and institutions will not disappear for all the wasteful fragmentation they are known to cause. And many of the silos have good characteristics it would be unfortunate to lose. But 'integration' would promote that loss by dumbing down the best, giving free rides to the worst, and making it nearly impossible to assign and achieve real accountability in an 'integrated' community where no one leads. Calls for homogenization fly in the face of the almost universal claim—however variably expressed—that there is unity in diversity. But 'Silos' do need a re-set; renovation of operating procedures so that occupants are enabled and encouraged to see, hear, speak and share knowledge and intentions with those in other silos. Opening information silos and removing communication and cooperation barriers that create unnecessary divisions between "islands in the sea of knowledge". Softening competitive tensions between organizations and creating thematic connections between disconnected actors.

4. **Think Leadingship.** Experts and bosses, however knowledgeable, experienced or revered, must not be allowed to continue to 'monopolize' 'leading'; how it is done and

its outcomes. Ignoring the potential contributions of 'followers' and the youth of today who will become tomorrow's doers—as leaders and followers—is not only the height of unnecessary willful blindness but a recipe for ever more intergenerational protest and unrest.

3. Conclusion

Across the world and over time, security concerns have occupied a key place in the hierarchy of human activity. Historically, those security concerns have been focused on internecine and/or domestic sociopolitical conflicts and conditions between or within societies and nation states. However, there is an increasing acknowledgement* that both national and human security depend on the viability of the biosphere. Humanity must operate on these three approaches—State, Human and Biodiversity Security—as one in order to be sufficiently able to shape the context for each in ways that provide the insights for a saner management of our societies and resources. A clear acknowledgment of the planet's polycrisis is needed, which is a convergence of mutually reinforcing problems. For instance, conflict zones across all world regions, a continuing risk of epidemic and pandemic outbreaks, along with more frequent and extreme weather events. When nations and subnational groups are expanding their arsenals and fighting wars within and between porous national borders, it is difficult to make progress towards a shift between traditional military approaches to security and the Human Security school of thought.

Nevertheless, the change is urgently needed. There is no way for the people and countries of the globe to be safe without also having an adequate environment capable of sustaining their needs; according to Isbell et al.'s research, "experts estimated that the global threatening or extinction of species reduces ecosystem functioning and NCP by roughly 10-70%."† Recently, these intersections on risks have taken on an increasingly critical role. Human Security has become more comprehensive in its definitions, and the inextricable links that connect it with Biodiversity Security and State Security are becoming clearer. In this regard, local and international organizations exert an influence on society that correlates with the successes and failures of this system of systems.

The security-biodiversity nexus generates various dynamics that can increase pressures over the rule of law and undermine democracy. These forces are driven by the interplay between the two concepts. For instance, it can exacerbate existing inequalities and stirs up conflict both inside governments and countries and between them. Only a small fraction of the world's population has the resources and capabilities necessary to maintain their resilience in the face of adversity. Hundreds of millions of people who are living in poverty are the ones who will feel the effects of state insecurity and the harsh repercussions of biodiversity insecurity the quickest, most profoundly, and the longest. Agendas for this, most notably the United Nations' 17 Sustainable Development Goals and the Declaration of the

* United Nations Development Programme. (2022). *2022 Special Report on Human Security: New Threats to Human Security in the Anthropocene: Demanding Greater Solidarity*. United Nations.

† (2022, 3p). Isbell, F., Balvanera, P., Mori, A. S., He, J. S., Bullock, J. M., Regmi, G. R., ... & Palmer, M. S. (2022). Expert perspectives on global biodiversity loss and its drivers and impacts on people. *Frontiers in Ecology and the Environment*.

21st Conference of the Parties (COP), tacitly and openly stress security and biodiversity's overlaps and linkages with one another. But it is not enough. Humanity and its planet are ONE system of systems, each and all complex and dynamic and interconnected. Humanity Security for all, or Human security for none!

Authors' Contact Information
David Harries – *Email: jdsharries@bell.net*
Lorenzo Rodríguez – *Email: lorenzoe.rodriguezv@gmail.com*

Bibliography

1. Hampson, F. O. (2012). Human Security. In P. D. Williams (Ed.), *Security Studies: An Introduction* (2nd ed., pp. 279–295). Routledge.
2. Canada. Department of Foreign Affairs & International Trade. (2002). *Freedom from Fear, Canada's Foreign Policy for Human Security–2nd Ed*. The Department.
3. Human Security Centre. (2006). *Human Security Report 2005: War and Peace in the 21st Century*. Oxford University Press.
4. Frerks, G., & Goldewijk, B. K. (Eds.). (2006). *Human security and international insecurity.* Wageningen Academic Publishers.
5. *History & Achievements*. (n.d.). Middle Powers Initiative.
6. Dorn, W. (2003). *HUMAN SECURITY: FOUR DEBATES* [Slide show; PowerPoint Slides]. Pearson Peacekeeping Centre, Ottawa, Ontario, Canada.
7. Paris, R. (2011). Human Security. In C. W. Hughes & Y. M. Lai (Eds.), *Security Studies: A Reader* (1st ed., pp. 71–80). Routledge.
8. Buzan, B., & Hansen, L. (2009). *The Evolution of International Security Studies* (1st ed.). Cambridge University Press.
9. Reveron, D. S. (2018). *Human Security in a Borderless World*. Taylor & Francis.
10. Repucci, S., & Slipowitz, A. (2021). Democracy under siege. *Freedom House*.
11. WWF (2022) *Living Planet Report 2022 – Building a nature-positive society*. Almond, R.E.A., Grooten, M., Juffe Bignoli, D. & Petersen, T. (Eds). WWF, Gland, Switzerland.
12. Muluneh, M. G. (2021). Impact of climate change on biodiversity and food security: a global perspective—a review article. *Agriculture & Food Security*, *10*(1), 1-25.
13. Isbell, F., Balvanera, P., Mori, A. S., He, J. S., Bullock, J. M., Regmi, G. R., ... & Palmer, M. S. (2022). Expert perspectives on global biodiversity loss and its drivers and impacts on people. *Frontiers in Ecology and the Environment*.
14. United Nations Development Programme. (2022). *2022 Special Report on Human Security: New Threats to Human Security in the Anthropocene: Demanding Greater Solidarity*. United Nations.
15. UCDP - Uppsala Conflict Data Program. Retrieved From https://ucdp.uu.se
16. Russell, B., & Einstein, A. (1955, July 9). *Statement: The Russell-Einstein Manifesto*.
17. (2022, 3p). Isbell, F., Balvanera, P., Mori, A. S., He, J. S., Bullock, J. M., Regmi, G. R., ... & Palmer, M. S. (2022). Expert perspectives on global biodiversity loss and its drivers and impacts on people. *Frontiers in Ecology and the Environment*.

CADMUS, Volume 5, No.2, August 2023, 192-211

Human Security and Existential Threats:
A Governance Framework for Planet, Peace, People & Prosperity

Joanna Nurse
Strategic Advisor, InterAction Council; Director, Health Systems, Commonwealth Centre for Digital Health; Co-Chair, WAAS Existential Risks for Humanity (ER4H) Working Group; Fellow, World Academy of Art and Science

Abstract

A key priority for Human Security in the 21st Century is the prevention of existential threats to human civilisation to ensure the well-being of our future generations. This article describes the significant and escalating nexus between human security and existential threats and outlines the main risks to humankind from existential threats, considered under the interrelated themes of Planet, People, Peace and Prosperity. Planetary threats range from cosmic events such as meteorites, mass-extinctions and biodiversity collapse to threats from our climate emergency. The indirect pressures from climate change and our environment including food and water insecurity are examined as a driver for migration, conflicts and wars. Now more than ever human civilisation is under threat from nuclear, chemical and biological warfare, with as yet undetermined hazards from Artificial Intelligence. COVID-19 has revealed how increasing international trade and travel, urbanisation and population pressure are introducing new and emerging infectious diseases that risk becoming pandemics at an increasing rate. This article proposes an integrated governance framework that highlights the importance of strengthening multi-lateral governance mechanisms to prevent and reduce risks. Furthermore, it emphasises addressing priorities that create positive tipping points to assist in planetary recovery, whilst protecting people and promoting peace, combined with a transformation to renewable energy sources to secure our future prosperity. Existing integrated policy responses that build upon the Welsh Well-Being for Future Generations Act will be described with recommendations made to strengthen our global human security architecture to prevent existential threats and ensure the future of humanity.

> *"The COVID-19 Pandemic has revealed substantial weaknesses in our collective ability to respond strategically and effectively to avert a global disaster."*

1. Introduction

A key priority for Human Security in the 21st Century is the prevention of existential threats to human civilisation to ensure the wellbeing of our future generations. There are

significant interrelationships between human security and existential threats, however despite their crucial nature, risks are not sufficiently reflected within international policy responses. For example, until recently the Intergovernmental Panel on Climate Change summary reports for policy makers have not emphasised the existential risks from emerging Tipping Points, which are not always reflected in models and projections. Although some countries have declared a climate emergency, policies are not consistent with this endeavour, as investments continue towards the fossil fuel industry. Furthermore, the COVID-19 Pandemic has revealed substantial weaknesses in our collective ability to respond strategically and effectively to avert a global disaster. A large body of evidence already exists on existential threats, however much of it is examined within silos and communicated in scientific language. Therefore, a key aim of this article is to create an accessible summary and systems framework of existential threats with key interventions and governance mechanisms. The overall goal is the prevention of existential threats for human security—which needs to be our aspiration if we are to secure the wellbeing of future generations.

"Addressing the security needs of all of humanity requires a global response, whereby multilateral global solutions are advocated as an intrinsic aspect of the concept of Human Security."

This article considers the main risks to humankind from existential threats under the themes of Planet, Peace, People and Prosperity. Planetary threats range from cosmic events such as meteorites, mass-extinctions and biodiversity collapse to threats from our climate emergency. The indirect pressures from climate change and our environment including food and water insecurity are examined as a driver for migration, conflicts and wars. Now more than ever human civilisation is under threat from nuclear, chemical and biological warfare, with as yet undetermined hazards from Artificial Intelligence. COVID-19 has revealed how increasing international trade and travel, urbanisation and population pressure are introducing new and emerging infectious diseases that risk becoming pandemics at an increasing rate.

An integrated governance framework is presented to guide policy and to highlight the importance of strengthening multilateral governance mechanisms to reduce, mitigate and prevent risks. This article emphasises addressing priorities that amplify the creation of positive cycles to assist in planetary recovery, where possible through nature-based solutions. The war in Ukraine has revealed how important energy security is for protecting people and promoting peace, and the impending planetary crisis will require massive investment to scale a transformation to renewable energy sources to secure our future prosperity. Recommendations build upon existing integrated policy and political responses for leaders, (Dror Y, 2015 and 2017), including the Well-Being for Future Generations (Wales) Act to strengthen our global human security architecture to prevent existential threats and contribute to ensuring the future of humanity.

2. Human Security – and the Escalating Nexus of Existential Threats

The concept of Human Security first emerged within the United Nations Human Development Report in 1994. The Commission for Human Security in 2003 recognised the need to shift from traditional interpretations of security to one centred upon the freedoms and rights of the individual, and utilised the following definition for human security '…to protect the vital core of all human lives in ways that enhance human freedoms and human fulfilment.' At that time the concept of Human Security was applied by the United Nations and the World Bank to address the building blocks of survival, livelihood and dignity, and became incorporated into the delivery of Social and Economic Development by the World Bank. Whilst the Human Security Unit at the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA, 2009) categorised vulnerability assessments as economic, food, health, environmental, personal, community and political threats. The concept of Human Security has since been adopted to advance social and economic development programmes within the World Bank and it has acted as an integrative force to assist in delivering the 17 Sustainable Development Goals.

> *"The risks from our Planetary crisis, consisting of climate change and biodiversity loss…can be considered as a foundational principle for all of our security. Without a liveable Planet we will have nowhere to exist."*

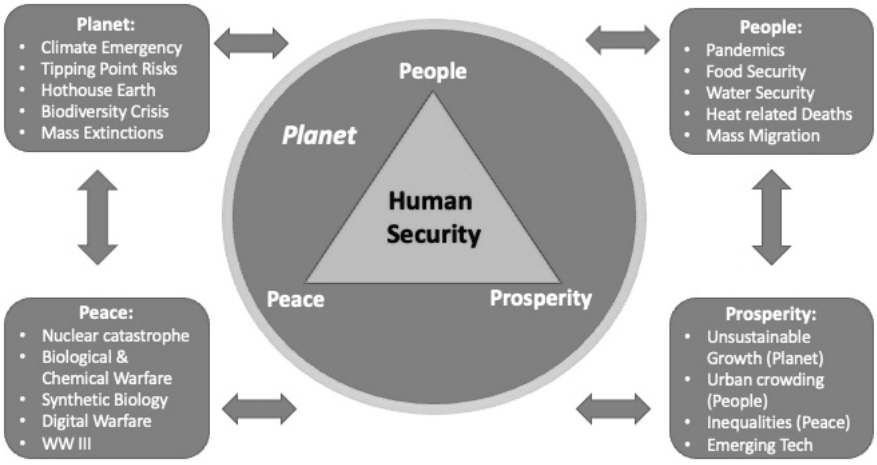
Human Security has been described by the United Nations General Assembly as an approach that puts people at the centre to create an integrated, comprehensive and context specific response; furthermore, the General Assembly resolution (66/290) on human security calls for an emphasis on prevention that protects and empowers all people. In this respect, human security differs from common security—which mainly focuses upon building security between nations through international law, conflict resolution and diplomacy. In contrast, human security is people focused (rather than state focused) and considers the complex interaction of challenges of security needs of people and communities living within their specific context. However, addressing the security needs of all of humanity requires a global response, whereby multilateral global solutions are advocated as an intrinsic aspect of the concept of Human Security (Granoff J, 2022). This is especially relevant for existential threats, which by their very nature are global threats requiring global coordinated action, albeit with context-specific responses.

A key aspect of the concept of Human Security requires an appreciation of the multiple and complex challenges affecting humans in a comprehensive, multi-sectoral way; (UNDP, 2022). This is especially relevant for the existential threats that humanity faces, which can be seen to interact and amplify other threats. For the purposes of this article, the main existential threats are categorised under the interrelated themes of Planet, People, Peace and Prosperity, to emphasise the interrelationship with the Sustainable Development Goals, and will be

described in turn in the next section with an emphasis on how they interconnect. Each of these aspects of Human Security interact with each other, with feedback loops within the context of a reinforcing nexus that often acts to escalate overall threats and risks to Human Security. For example, the changing climate has caused droughts and fires, creating food insecurity and migration, which in turn has contributed to conflicts such as the Arab Spring in 2011 as a consequence to destroyed crops from fire across the Eurasian Steppes in 2010. In a similar way, the combination of a warming world that favours many infectious diseases, with unsustainable growth and environmental decimation, has increased the threats of new and emerging infections that risks transference from animals to humans with the potential to generate further pandemics.

In many respects the escalating nexus of existential threats can be seen as a 'wicked problem' which is described as a complex and interconnected human-made social or cultural problems that are difficult to solve through siloed programmes or linear mechanisms. Within the concept of a wicked problem is the interrelated nature of the problems that can be considered a symptom of another problem which often makes wicked problems intractable (Rittel and Webber, 1973). However, the risks from our Planetary crisis, consisting of climate change and biodiversity loss, although progressing over a slower timescale than many of our other more immediate security threats, can be considered as a foundational principle for all of our security. Without a liveable Planet we will have nowhere to exist. Moreover, the Planetary Emergency often acts as an underlying root cause driving and escalating many of our other existential threats and requires prioritisation if we are to prevent and reduce risks from our existential threats. The diagram on the Escalating Nexus of Existential Threats to Human Security therefore places 'Planet' as the foundation of our home the Earth, as a foundational priority for the security of humanity.

Figure 1: The Escalating Nexus of Existential Threats to Human Security



In today's world, these interconnecting threats with increasingly complex global challenges, are also described as global polycrisis, whereby multiple global systems that humans are dependent upon, become casually entangled in a nexus that can affect our very own existence (Lawrence M et al, 2022). An appreciation of these concepts has the potential to transform how we frame solutions, actions and delivery systems in order to be able to address these existential challenges.

"Evidence indicates that thresholds are already being exceeded for critical tipping points at our current temperatures, many of which will take millions of years to reverse."

3. Key Existential Threats for Human Security

For the purposes of this article Existential threats are defined as risks that have the potential to eliminate human existence, either in its entirety or to such an extent that human populations and their civilisations are not able to recover for millions of years. Although humanity has always been exposed to risks from natural disasters such as volcanoes or asteroids, we are becoming increasingly vulnerable to existential threats caused by humans, whether intentionally or unintentionally; (Rees M, 2021). The below section considers existential threats according to the main risks under the themes of Planet, People, Peace and Prosperity, although described in turn, they are each interconnected, with a tendency to exacerbate risks in other areas:

- **Planet**: threats range from mass extinctions from asteroids, massive volcanic eruptions and biodiversity collapse to threats from our climate emergency
- **People**: food and water insecurity act as drivers for migration and conflict, whilst a warming planet increases the risk of pandemics
- **Peace**: nuclear, chemical and biological warfare including synthetic biology; the role of Artificial Intelligence and Technology applied to Digital Warfare
- **Prosperity**: unsustainable growth (planet); unhealthy crowded cities and rapid travel (pandemics), widening inequalities (peace) and uncontrolled emerging technology

The threats to the Planet are especially emphasised as they act as a foundation for the majority of our other risks. With regard to our knowledge of the causes of past extinctions, the risks posed by our climate crisis due to the rapid release of excess carbon emissions, have similarities to extinctions caused by massive volcanic eruptions releasing extensive warming gases. Whilst, an asteroid hitting our earth as happened with the extinction of the dinosaurs, generates a massive quantity of debris into the atmosphere, causing rapid cooling in a process that has parallels with the potential creation of a 'nuclear winter'.

Planet: Despite the process of the annual Climate Conference of the Parties (COP) meetings with incremental agreements made between nation states, our year-on-year increase in emissions makes our ability to deliver on climate commitments that will be within safe limits for human civilisation. Our current trajectory will exceed the safe 1.5 degrees C with current estimated temperature exceeding 2-3 degrees C by the end of this century (UNEP 2022). Of particular concern is that once we exceed 1.5 degrees C we are more likely to enter cascading temperature rise due to reinforcing cycles as different earth system and climate tipping points are exceeded; (Kemp L et al, 2022). This will lead to a continued increase in global temperatures over the next centuries until a new steady state is reached.

> ***"The world still needs a giant leap on climate ambition. The red line we must not cross is the line that takes our planet over the 1.5 degree temperature limit. We can and must win this battle for our lives." –*** **António Guterres**, United Nations' Secretary General, Climate Change COP27, 2022.

Recent projections by the United Nations estimate that, depending upon the pathway we choose over the coming decades, temperatures could reach between 3-10 degrees C by 2200 and 3-12 degrees by 2030 (IPCC 2018). Global average temperature rises of 4-5 degrees are likely to result in sea level rises of 10-60 metres. To put these risks into perspective the Permian Extinction 252 million years ago, was called the 'great dying'—as it killed:

- 96% of marine species—from loss of oxygen
- 70% of land species
- Most of the planet's trees, insects, plants and microbes

This occurred from temperature increases of 8-10 degrees C—which according to our current trajectory we could reach by 2200. This would not just represent the end of human civilization, but would result in the earth's 6th Mass Extinction. This is no longer just some future possibility, without urgent interventions, our children and grandchildren may be witnesses of the end of humanity.

Unfortunately, evidence already indicates that safe limits for temperature thresholds are becoming exceeded at current temperatures for a number of critical earth and climate systems. For example, melting of the ice sheets and glaciers across Greenland, the Arctic and the Antarctic is already occurring at a rate much faster than modelling has predicted. Unless we can reverse current trends, even at today's temperatures according to historical records our oceans will rise by 5-9 metres at some point in the future. However, evidence indicates that thresholds are already being exceeded for critical tipping points at our current temperatures, many of which will take millions of years to reverse.

This includes melting of our permafrost regions which releases methane—a highly potent warming gas. Ahead of COP 27, the United Nations World Meteorological Organization reported record high levels of carbon dioxide, nitrous oxide and methane, with an unexpected jump in these greenhouse gases that warm our planet. Levels exceed what would have been expected from human activity, potentially indicating that biological processes are starting to

cascade as tipping points are surpassed. Of concern, there is an estimated 1.5 trillion tonnes of carbon captured under permafrost regions, which is triple the amount of the total of all the carbon released since 1850; (Spratt and Dunlop, 2022).

Additionally, our ocean, soil and forests act as carbon sinks, having absorbed much of human created carbon emissions will reach a point when they are no longer able to absorb carbon and start to release emissions back into the atmosphere. Research over the last year indicates that, the combination of warming temperatures, droughts and wildfires have started to reverse the role of some of our main carbon sinks, turning them into carbon emitters. Of concern, over the last decade, Brazil's Amazon basin forest has already emitted more carbon than it has absorbed. (Spratt and Dunlop, 2022). Even at 1.2 degrees C it appears that critical thresholds are being exceeded which could lead to cascading temperatures resulting in an unliveable 'hothouse earth' scenario, (McGuire, 2022). Our planet is sick and many of our previously stable earth systems are oscillating, indicating the beginnings of multi-system failure and climate breakdown (IAC, 2019).

People: With regard to our Planetary Emergency, as People we are primarily focused upon our own survival, however our survival as homo sapiens is intrinsically interconnected with that of the survival of a healthy biosphere and planetary eco-systems. Since 1970 we have already seen an estimated 60% decline of our mammals, fish and birds (Living Planet Report, 2018); and we face an estimated 3-48% of species extinction at 5 degrees of global warming; (IPCC 2022). To put this into perspective, an estimated 99% of all previous living organisms have been made extinct across the past 5 mass extinction events on our Earth. As we head towards the threat of a sixth mass extinction, the outlook for meaningful human survival does not look good. Based upon current knowledge, largely from previous extinction events, it has been estimated that global temperature averages above 6 degrees C of pre-industrial levels could lead to possibility of human extinction (Lynas 2020). On our current trajectory, we risk reaching 6 degrees C or higher at some point in the next century. There are concerns that these impacts may occur at lower temperatures than indicated, especially with the amplification of tipping points resulting in cascading climate breakdown.

Table 1: Estimated Risks of Average Global Temperature Increases

• One Degree Celsius = Increased Storms and Wildfires; 3-14% species extinction risk at 1.5 degrees C
• Two Degrees Celsius = Disappearance of Artic Sea Ice, Widespread Droughts; 3-18% species risk extinction
• Three Degrees Celsius = Global Food Crisis & Amazon Rainforest Collapse; 3-29% species risk extinction
• Four Degrees Celsius = China and India largely uninhabitable; 3-39% species risk extinction
• Five Degrees Celsius = Mass extinctions occur; 3-48% species risk extinction
• Six Degrees Celsius = Possible Human Extinction
(Adapted from Lynas M, 2020 and IPCC 2022)

The existential risks from the climate emergency for the fate of humanity are significant and profound. However, they have been largely overlooked within the Climate COP discussions and the wider climate and health literature which mostly focuses on shorter-term impacts within the range of 1.5-2.0 degrees Celsius. The recent Lancet Commission on Climate Change and Health (Romanello M et al, 2022), highlights the health impacts already occurring from our climate emergency, including excess deaths, disease and injuries from heat, floods and storms. The impacts upon food security, economic productivity and widening inequalities are outlined. The lack of preparedness and adaptation measures is concerning, with only an estimated 50% of countries having assessed their adaptation health needs, and a third of countries still have inadequate health emergency management systems—even after COVID-19. With an estimated 1.2 million excess deaths occurring in 2020 due to exposure to fossil fuel related poor air quality, the case is made for a health and people-centred response to the Climate Emergency. Whilst from the perspective of existential threats, our warming world is causing an increase in infectious diseases emerging with pandemic potential.

"The potential existential risks from engineering future pandemics are of particular concern, especially as the technology becomes increasingly available, combined with very variable and absent governance mechanisms."

Historically, Pandemics have had a decimating impact upon human civilisation. For example, the bubonic plague killed an estimated 30-60% of the European medieval population, with cities and urban populations mainly being affected. Whilst a devastating 90% of the indigenous populations died following colonisation, of which the main cause was due to a previously uninfected population being exposed to measles, smallpox and influenza for the first time. Even in the 20th Century smallpox killed an estimated 100 million people around the world before it was totally eliminated in 1980; (Oldstone M, 2020). The COVID-19 pandemic has had a fatality rate of approximately 3% of those infected—a similar rate to the Spanish flu, whilst in comparison the mortality rate from Ebola was approximately 50%. The devasting impact of pandemics have altered the course of history and shaped our current geo-political landscape. The recent experience of COVID-19 with a relatively low mortality rate, reveals how disruptive pandemics are to human civilisation—even without the risk of decimating the human population.

Existential risks exist from pandemics that are allowed to spread widely, with new mutations emerging. A particular threat is from the increasing development of synthetic biology and 'gain of function' research, whereby infections are genetically engineered to enhance their lethality for research or for the purposes of biological warfare. The potential existential risks from engineering future pandemics are of particular concern, especially as the technology becomes increasingly available, combined with very variable and absent governance mechanisms. The widescale and rapid spread of the COVID-19 Pandemic

revealed how unprepared individual countries and the global community were for dealing with an infection with relatively low fatality rates, and calls into question our current capacity and collective ability to deal with a more lethal pandemic in the future; (IAC, 2022).

"Despite the progress made by non-nuclear proliferation agreements, the threats posed by the recent conflict in Ukraine, have escalated risks and substantially threaten our human and global security."

Peace: we have lived with the threats of nuclear obliteration for well over a generation with an all-out exchange of 4000 weapons having the potential to kill billions within the initial and short-term impacts. Such an event would be followed by the creation of an unlivable world that is 8 degrees C cooler where food would not be possible to grow for 4-5 years. Even a small regional nuclear war involving 100 nuclear weapons could result in a nuclear winter that could devastate crops and put billions at risk of food security; (Global Priorities Project 2017). Despite the progress made by non-nuclear proliferation agreements, the threats posed by the recent conflict in Ukraine have escalated risks and substantially threaten our human and global security; (Jacobs G, ed. et al, 2022). The Doomsday Clock originated in 1947 to reflect the catastrophic impact of nuclear weapons, and was later expanded to include other existential risks including climate change, biothreats and disruptive technology. The clock is updated on a yearly basis, where in January 2022 it stood at 100 seconds to midnight, with the conflict in Ukraine and escalating climate risks the clock is ticking ever closer to midnight; (Doomsday Clock, 2022).

Aside from the dangers of nuclear weapons being utilised in response to the conflict in Ukraine, there are substantial risks from accidental or near-miss nuclear attacks. Since the 1950s over 20 near misses have been recorded—and this figure is likely to be much higher as it reflects those where we have access to information. It can be speculated that due to the number of nuclear weapons that exist, the nature of near misses and the variable governance mechanisms regarding nuclear safety and decision making, it is only a matter of time before a serious nuclear incident that threatens human existence occurs. However, it is valuable to understand our near misses to draw out lessons and recommendations to prevent and reduce our risks going forward. Some of these near misses have resulted from heightened tensions during the Cold War, where there was a high degree of fear and alert to nuclear threats. This led to events being misinterpreted as nuclear attacks for example, in 1962 a bear was mistaken for a Russian intruder at an air base in Minnesota, whilst in 1983 the sun's reflection off of clouds were interpreted as US missiles heading towards Russia, and in 1995 a Norwegian-US research rocket studying the northern lights was misinterpreted as a missile targeted at Russia. These cases fortunately were not acted upon due to human judgement, for example in 1995 President Yeltsin was given the suitcase to launch a strike in retaliation but decided not to whilst averting the Cuban Missile Crisis in 1962 was down to the decision of

the head of the submarine fleet overriding the go-ahead of the captain, to not respond with nuclear weapons when a Russian nuclear submarine had been surrounded by a US fleet.

> *"The very nature of conflict and warfare is now changing and reflects the wider transformations that our humanity is undergoing."*

Fortunately, in these situations, wise human judgement prevailed in avoiding nuclear war, that resulted from the misinterpretation of a potential attack within a tense context that generated a background of fear. However, of significant concern has been a number of unintentional releases of nuclear armaments due to accidents during transport manoeuvres, whereby American B-52 bomber planes carrying nuclear weapons accidently released their explosives or the plane crashed. This is known to have occurred in 1957 when a nuclear weapon accidentally fell from an aircraft in New Mexico creating a large crater—fortunately the nuclear component had been detached; however, this was not the case when 2 B-52 planes transporting nuclear weapons crashed above Palomares in Spain and contaminated the village and nearby Mediterranean Sea in 1966. Whilst in 1961, a B-52 released its two 20 megaton hydrogen bombs over North Carolina after an explosion due to a fuel leak; one bomb landed to safety with a parachute, whilst the other nearly exploded when 5 of its 6 safety mechanisms failed; (Davidson L, 2022). Going forward, the application of submarine drones and ocean scanning has the potential to destroy submarines and a key aspect of our second-strike capability and deterrence infrastructure, which further increases the risk of nuclear catastrophe from occurring.

Learning from these mistakes, as well as successes from the Treaty on the Non-Proliferation of Nuclear-Weapons, can guide an integrated response for Human Security. Furthermore, preventing nuclear war and conflict requires the creation of pathways to peace, based upon respect and understanding with active diplomacy (Sen A, 2011). In turn, early risk detection combined with the application of scientific evidence to prevent violence within families, communities and between countries can act to promote respectful relationships across society and to create a cultural foundation for peace (Bellis et al, 2017). To enhance this further, the establishment of multi-country trade agreements with socio-economic development such as the European Union, can act as a tool of soft diplomacy to enable recovery and reconciliation following conflict. Social Development, including Health, has been applied successfully as a tool of soft diplomacy following the conflict across South East Europe in order to rebuild trust and collaborative exchange to create a culture of peace, (SEEHN).

Prosperity: In modern times, our prosperity has largely been built upon the rapid exploitation of energy from millennia of the earth's carbon reserves that has created an artificial prosperity and unsustainable wealth. In essence, much of our modern-day existence is reliant upon the application of these carbon reserves, for transport, food, clothes, utensils, heating and cooling our homes and allowing a huge population expansion with the creation of mega-

cities. However, this is all built upon unsustainable energy and resources, which are of their very essence time limited, and in the process of exploitation, are making our home the earth, sick. The mass illusion of this artificial energy and reality is driven by selfishness, greed and short-sightedness, as well as the fear of insecurity. Furthermore, we continue to subsidise and invest in fossil fuels at the expense of a safe world based upon renewable energy solutions. To justify this boom of unsustainable prosperity, we have created a post-truth world whereby we choose to believe in an alternate reality because it is an existence that we desire rather than reflecting the reality of the risks that we are generating and the sick world we are making. The increase of emerging infections and pandemics, which is related to rapid trade and travel, combined with crowded living and exploitation of the Earth's energy and resources, can be seen as symbolic of the wider sickness we are creating for our Planet's Health.

"With our bottomless appetite for unchecked and unequal economic growth, humanity has become a weapon of mass extinction. We are treating nature like a toilet. And ultimately, we are committing suicide by proxy." **– António Guterres**, United Nations' Secretary General, Biodiversity Conference, COP15, 2022.

Founded upon colonisation and slavery, human and planetary exploitation has been justified in the name of progress and prosperity. However, the disproportionate prosperity of the super-rich billionaires and countries grows at the expense of much of the rest of the world's population, our children and future generations, and our home, the Earth. With increasing pressure on limited resources, combined with access to information on widening inequalities in wealth that are becoming visible and acting as a driver for economic migration as well as a source of conflict. The very nature of conflict and warfare is now changing and reflects the wider transformations that our humanity is undergoing. Historically we can be seen to have transitioned through the agricultural and industrial revolutions, and with the development of computers and the internet, our current stage has been described as the 'Digital Revolution'. The Digital Revolution will become even more pronounced and rapid with the application and uptake of Quantum Computing and Artificial Intelligence in the coming years. The innovation and connectivity of the Digital Revolution have the potential to bring great opportunities to advance knowledge, health and prosperity for everyone, as well as to contribute to solutions that address global security and our existential challenges (Nurse et al, 2022).

"Within the next decade, Artificial Intelligence and nanotechnology combined with the increased speed and complexity of Quantum Computing have the potential for uncontrollable disruption of the internet and digital tools."

However, unfortunately we have also witnessed how the negative aspects of digital technology have been utilised to create misinformation and destabilise governments and

democratic processes and allow criminal activity via the 'dark web' that exploits and abuses children and women. Along with weaponised drones and driverless aircraft, in many respects these negative advances can be seen to have been created by the negative aspects of the human mind and have been described as Digital Warfare. Existing disruptive technology includes the application of Artificial Intelligence Image Generators to spread misinformation and corrupt perspectives, and can act to undermine political stability and democracies. Into the future, within the next decade, Artificial Intelligence and nanotechnology combined with the increased speed and complexity of Quantum Computing have the potential for uncontrollable disruption of the internet and digital tools. Technological companies are beginning to collaborate for self-regulation, however many of these technologies are emerging faster than can be controlled and have the potential to be weaponised in the wrong hands. The continuation of new technologies without the application of international governance frameworks based upon human rights and values, has the potential to threaten the very foundations of what it is to be human as well as our collective human security.

> *"Advancing the application of Human Security to address our multiple and complex challenges posed by existential threats, offers a critical opportunity to reframe how we ensure the security of humanity."*

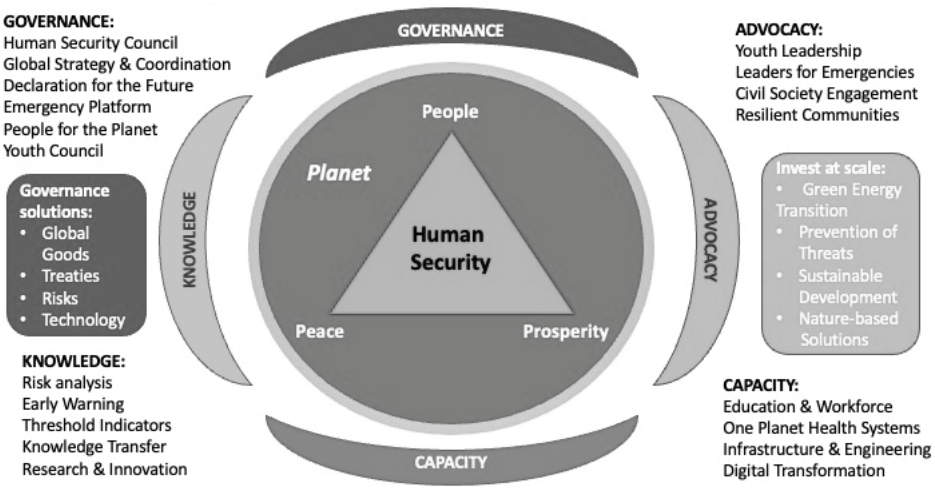
4. Governance for Existential Threats – a Complex Adaptive Systems Framework

Our world is becoming increasingly dangerous for humankind, with the amplification of existential threats affecting our very survival. When considering the complexity of multiple threats and risks that we have already been exposed to, we may even consider how lucky we are still to exist as a human species. However, our future may not be so fortunate. We can reflect upon how what we have done so far and our current systems have only partially worked in achieving a safer world. In essence we are applying limited human invented systems to address increasingly complex and interacting global challenges. Addressing our escalating global polycrisis requires framing solutions within the context of complex adaptive systems, which recognises the interrelated nature of our challenges and provides an integrated framework to intervene effectively. The application of complex adaptive systems frameworks allows us to move beyond analysis to the identification of strategic solutions that assist in rebalancing reinforcing feedback loops; (Preiser R et al, 2018). Moreover, having a greater appreciation of how ecological and energy cycles naturally occur, combined with an understanding of the organisational principles of our life systems, provides us with a different way to find sustainable solutions that can aid us in healing our world.

Going forward, we need to learn from where we have failed, apply what has worked and build upon success. Moreover, we need to be realistic about the size and scale of the

existential threats that face us, especially with regard to our Planetary Emergency, and the interrelationship that this has with People, Peace and Prosperity. For example, the COVID-19 Pandemic and the war in Ukraine have brought into sharp focus the failings of our existing security mechanisms in dealing with individual challenges. Moreover, our current security architecture is not set up to address the significant threats and risks posed by our climate and biodiversity crisis. The rapid amplification of Existential Threats to Humanity requires a significant paradigm shift to the application of the concept of Human Security. Advancing the application of Human Security to address our multiple and complex challenges posed by existential threats, offers a critical opportunity to reframe how we ensure the security of humanity. To achieve this will require a transformation of our international security architecture to include risk analysis, early warning systems, prevention and early intervention for Human Security challenges that threaten our existence; (IAC, 2022). It will also require a balanced governance structure that represents the needs of all of humanity's security from existential threats, from all parts of the world, including women, as well as youth leaders to represent the voices of our future generations; (Mayor F, 2022).

Figure 2: A Governance Framework for Existential Threats to Human Security



The dilution inherent in our current climate COP consensus building processes is driven by politicians and policy makers reflecting national agendas, rather than based upon science, reality or responding to risks. This has perpetuated the charade of achieving progress when we are nowhere close to safe limits and instead of calling an emergency state, the narrative of being able to reverse 'temporary overshoots' of climbing temperatures creates a sense of false optimism and reversibility of tipping points that have been exceeded (IPCC 2022). Examining the process and parallels of past extinction events, and not relying on projections based upon incomplete modelling, will be essential to understanding the extent of our risks. Moreover, appreciating the interdependencies and reinforcing the nature of tipping points

and existential risks will be a key to our ability to find solutions and identify priorities. Doing so will enable us to take a strategic systems perspective for the multiple risks that we face, which in turn will allow us to identify and target priorities that create positive tipping points and generate multiple benefits for people, peace, prosperity and the planet.

The Governance Framework for Existential Threats to Human Security proposes a complex adaptive systems response with the aim of transforming the future possibilities of human survival. At the centre of this framework is the goal of achieving human security, which is based upon the primacy of ensuring a healthy home—our planet, for people to live on, in peace and be able to flourish and prosper. The framework adopts a multi-disciplinary approach, by applying the main requirements for human existence captured by the Sustainable Development Goals-related themes of Planet, People, Peace and Prosperity.

Due to the nature of non-reversible risks (or risks that would take millions of years to recover), posed by climate tipping points, the main emphasis needs to be upon prevention, with the application of the precautionary principle applied to risks. Potentially, for non-critical aspects, a focus upon reduction, resilience, mitigation and recovery may be appropriate, however given the existential nature of many of the threats discussed in this article, we need to justify to future generations that we were as ambitious as possible.

In essence, we talk about aiming to prevent pandemics and to prevent violence and nuclear wars, because not to do so can result in an out-of-control escalation of an existential crisis.

In order to communicate to wider audiences, the concept of prevention conveys a desirable goal, which is much required to counter the relatively unambitious narratives (and potentially dangerous terms such as 'temporary overshoot'), currently used in the IPCC in respect to our climate emergency. Furthermore, the added value that the World Academy of Art and Science can potentially bring to this agenda is the ability to take a transdisciplinary approach to enable a holistic systems perspective and in doing so transform dominant narratives and contribute to wider advocacy. Within this context, the concept of Prevention as applied by the Health-Sector is utilised as an accessible, ambitious, umbrella term that is used to cover the following concepts:

- **Primary Prevention:** whereby the onset of the threat or hazard is prevented from occurring
- **Secondary Prevention:** early detection with early intervention is applied to halt and reverse progression of the hazard—this is often seen as risk reduction, resilience and adaptation
- **Tertiary Prevention:** to make an established problem less severe in order to improve outcomes—this relates to the concepts of mitigation and recovery

The framework builds upon the Sendai Framework for Disaster Risk Reduction, with an emphasis on strengthening governance and an integrated systems response for multiple hazards. Although complementary and reinforcing to existing international initiatives, including the Paris Climate Agreement, Our Common Agenda and the Pandemic Treaty,

this framework specifically focuses upon strengthening an integrated systems response to our existential threats. In doing so it aims to transform our current trajectory of multiple existential risks with a strategic systems response that places human security at the heart of our global security architecture. Therefore, a key aspect of transforming our security systems entails strengthening our ***Governance*** mechanisms, supported by the additional systems enablers of ***Knowledge – Advocacy – Capacity*** which are illustrated in the integrated systems framework for Human Security below:

- **Governance:** Human Security Council, Global Strategy and Coordination, an Emergency Platform, a Declaration for the Future, a Youth Council and People for the Planet Alliance
- **Knowledge:** Risk analysis, early warning systems, threshold indicators, research and innovation, multi-sectoral knowledge transfer
- **Advocacy:** Youth leadership, Diverse leadership for Emergencies, engage civil society, create resilient communities
- **Capacity:** Education and Workforce development, create One Planet Health Systems, scale infrastructure and engineering solutions and the digital transformation

By focusing upon the generic systems enablers allows for the creation of an integrated response to our existential threats and risks. In turn the application of a systems framework facilitates a strategic response to prioritising solutions that have multiple benefits and creates desired impacts at scale, whilst averting unwanted consequences. In prioritising threats, the risks posed by tipping points leading to a cascading climate catastrophe, with the interrelated impacts upon People, Peace and Prosperity, requires that planetary risks are framed as foundational. In essence, in order for humanity to survive, we need a habitable planet or home to live on. Therefore, the risks and solutions for the Planet need to be placed centrally in considering sector-specific interventions for People, Peace and Prosperity, as outlined below:

- **Planet:** Heat, Air, Water, Land, Food—risks, resilience and recovery; the poles and oceans as global goods; nature-based solutions; governance for climate engineering
- **People:** Pandemics—global and regional coordination enhance community capacity with 'One Planet Health systems' for prevention; detection; early warning systems, preparedness and response; transform global health security as a common good with digital solutions
- **Peace:** Risk analysis, climate justice, rights, responsibilities and the rule of law; violence prevention and the promotion of peace; bridges for peace: role of multilateral organisations, trade agreements and cross border social initiatives for soft diplomacy
- **Prosperity:** Scale renewable energy to underpin Sustainable Development and Growth; Digital Technology and AI—governance, scaling responses and private sector role; accessible Research and Innovation to create a flourishing world

Placing the Planet at the heart of policy requires investment at speed and scale in the Renewable Energy Transition, combined with the application of nature-based solutions; this can act as a driver for sustainable development and prosperity, which in turn acts to strengthen planetary resilience and reduce risks from our climate emergency.

5. Recommendations: Transforming Governance for Existential Threats to Human Security

Going forward, if we are to be successful in preventing the extinction of our human species, we need to be realistic, strategic, ambitious and courageous. We need to look to the future, act with urgency and appreciate the value of everyone on this planet now, as well as valuing our future generations. To be able to scale up solutions rapidly, requires putting aside egos, greed and selfishness to work together and advance common goals. The current narrative of vulnerability, blame and denial continues to reinforce global power imbalances—and needs to shift to one of responsibility, respect and empowerment. Survival mechanisms such as competitiveness and self-interest that have worked in the short-term on a small scale in the past, will not work in the long-term on a global scale. In order to secure the future of humanity, arguing about costs is meaningless in the context of our survival. Ultimately, we are all in this together and the sinking ship 'Planet Titanic' will take us all down.

"We cannot solve our problems with the same thinking we used when we created them."
– Albert Einstein

In order to transform our current trajectory where we are chaotically falling towards the end of human civilisation through the amplification of our multiple existential risks requires us to create solutions at a different level to the problem. We understand in depth the individual components of many of the threats and risks that we face. However, we need to have a greater understanding of how these operate within a reinforcing system, in order to be able to take strategic and coordinated action to prevent risks from turning into catastrophic collapse. In doing so, we can apply lessons from our previous successes and failures, for example in the creation of peace or responding to the pandemic (IAC 2022).

A common failing seen with our planetary emergency, the pandemic and the recent conflict in Ukraine has been the inability of individual nations and our global community to work together at the speed and scale required. Going forward, enhancing our international security architecture will be instrumental to allow our existing infrastructure to operate according to our changing and complex threats.

We do not necessarily need to create radical change to achieve this, we need to start appreciating the resources we already have within the context of a wider global system, it is possible to make relatively minor but strategic adjustments to the system to create a functioning response. This can mainly be achieved by altering governance mechanisms, with key recommendations below pertaining to reinforcing and enhancing our existing global governance infrastructure, including the ambitions outlined in the United Nations' 'Our Common Agenda'; 'A Pact for the Future' and the UNSG's Futures Summit.

Table 2: Governance Recommendations for Existential Threats to Human Security

• **A Human Security Council for People, Planet, Peace and Prosperity** – reporting to the United Nations General Assembly, co-chaired by high-level leaders, with balanced representation from our diverse global communities, and coordinated input from the United Nations organisations and international community, scientific, expert and professional alliances, along with youth and civil society representatives
• **A Global Strategy for the Future of Human Security** – focusing upon Existential Threats and risks, utilising an integrated systems framework to prioritise risks and identify interventions, including Governance for Global Goods, Treaties, Risks and Technology; combined with an action plan clarifying roles and responsibilities, indicators, timelines, resources; reporting and governance to the proposed Human Security Council which could potentially include an annual Poly-crisis Status Review
• **An Emergency Platform for the Planet** – focusing upon Existential Threats and Risks to Human Security that utilises digital technology to synthesise and coordinate global risks, identify critical thresholds and indicators for early warning systems in order to scale preventive, preparedness, response and recovery mechanisms; reporting to the Human Security Council, with links to the United Nations Office for Disaster Risk Reduction to build resilience at regional and national levels
• **A Global Declaration for the Well-Being of Future Generations** – mainstreamed by a Commissioner to ensure a coherent and future-focused perspective across international organisations, agreements and policy and programmes, including strengthening delivery across the Sustainable Development Goals; and building regional and national capacity with legal instruments and tools
• **A Youth Council for the Well-Being of Future Generations** – with balanced and diverse representation to empower our future leaders, provide advocacy to the international community and communicate to the wider world; supporting the role of the Commissioner for the Well-Being of Future Generations and reporting to the Human Security Council
• **Leaders for the Well Being of Future Generations** – develop the skills of current and future leaders to deal effectively with existential threats and complex global challenges and emergencies; incorporate scientific, strategic and multi-disciplinary complex systems skills and capabilities within education, training, professional development and workforce planning, along with the development of personal resilience, ecological and emotional intelligence in response to emergencies and crisis situations
• **People for our Planet Alliance** – to create values for global citizenship and proactively engaging with civil society, donors, the private sector and innovators, in securing the health of our planet to enable the survival of human civilisation into the future to create a safe world where all can flourish

Although new innovation will become increasingly important, we already have sufficient technological solutions to reverse global calamity. Engaging wider expert and professional bodies to address our complex challenges through multi-disciplinary knowledge transfer can help to solve our existential risks. For example, we have developed comprehensive health systems that can prevent and treat disease and disability, and bring someone back from the brink of death and aid their recovery to health and wellbeing. Essentially, the functioning of our human bodies has evolved from our earth's systems, and drawing parallels for how we can resuscitate a critically sick person can give us hope in our ability to rescue 'Patient Planet' (IAC 2019).

"The Planet is Sick – and we all need to work together to ensure the health and wellbeing of future generations"

– HE Bertie Ahern,
Co-Chair, InterAction Council, former Taoiseach, Prime Minister, Republic of Ireland

6. A Vision for Human Security – Creating a Resilient and Flourishing Planet for All

We have the potential to re-envisage our future through the creation of systems that promote and protect the health of humans, animals, the environment and our planet. Furthermore, combining the arts with the sciences can enable us to utilise science whilst seeing the whole picture with realistic optimism, in order to create comprehensive strategic responses and systems. An important aspect of this involves the application of principles and values to engage the heart to reorientate actions towards humanity that motivate people to work together towards common goals. The below outlines principles for leaders and global citizens committed to enhancing human security based upon the goal of securing the well-being of our future generations to achieve a vision of creating a resilient and flourishing planet for all. Everyone, every community and every sector can play a role in creating the future world that we want our children and grandchildren's children to inherit and live in. Achieving this requires a transformation in governance and leadership based on **values** for the creation of a safe, diverse, just, healthy, sustainable and flourishing people and planet, and that is built upon the following **principles:**

- **Future**: focus upon a common future vision to orientate our current policy solutions
- **Youth**: engage our future generations to determine the future of a sustainable world
- **Inclusion**: respect and value everyone to create a diverse and flourishing planet together
- **Security**: strengthen global responses to tackle threats from our Planetary Emergency
- **Resilience**: nurture resilience across our life-course, communities and our eco-systems
- **Care**: for all and inspire dignity, hope, compassion and well-being for creative solutions
- **Wisdom**: enhance accessible knowledge, research, innovation and digital solutions
- **Well-Being**: place flourishing People and Planet at the heart of our communities

Note: The WAAS Existential Risks for Humanity (ER4H) Working Group is in the process of being established, and welcomes the engagement of committed Fellows and young Associate Fellows. Please contact the author for further information.

Author's Contact Information
Email: drjonurse@gmail.com

References and Bibliography

1. Bellis MA, Hardcastle K, Hughes K, Wood S, Nurse J: 'Preventing Violence, Promoting Peace: A policy toolkit for preventing interpersonal, collective and extremist violence' Public Health Wales and the Commonwealth Secretariat, 2017, www.thecommonwealth-healthhub.net
2. Cadmus 2022: The War in Ukraine: Global Perspectives on Causes and Consequences Report to the World Academy of Art & Science, CADMUS Special Issue, July 2022 cadmusjournal.org/files/report-to-waas/report_on_war_in_ukraine_july_2022.pdf
3. Ceballos et al., 'Biological annihilation via the ongoing sixth mass extinction signalled by vertebrate population losses and declines' PNAS July 10, 2017 114 (30) E6089-E6096; published ahead of print July 10, 2017 https://doi.org/10.1073/pnas.1704949114
4. Davidson L 2022 '8 Nuclear Close Calls that Nearly Spelled Disaster' HistoryHit: https://www.historyhit.com/nuclear-close-calls-and-near-misses/
5. Diamond J, 2011: 'Collapse – How Societies Choose to Fail or Survive' Penguin.
6. Donaldson and Donaldson, 2000: 'Essential Public Health' Petroc Press.
7. Doomsday Clock 2022: https://thebulletin.org/doomsday-clock/
8. Dror Y, 2015: 'Preventing Hell on Earth' Cadmus, Vol 2, Issue 4, May 2015. http://www.cadmusjournal.org/article/volume-2/issue-4-part-1/preventing-hell-earth
9. Dror Y, 2017: 'For Rulers: Priming Political Leaders for Saving Humanity from Itself' Westphalia Press.
10. EAT-Lancet Commission, 2019: "Food Planet Health: Healthy Diets from Sustainable Food Systems" The Lancet.
11. Friedman G, 2010: 'The Next 100 Years – a Forecast for the 21st Century' Anchor Books.
12. Global Priorities Project, 2017: http://globalprioritiesproject.org/
13. Granoff J, 2022: 'Human Security: A Strong Foundation for Multilateral Cooperation' The War in Ukraine, Global Perspectives on Causes and Consequences; pp18-22; Cadmus, 2022. http://www.cadmusjournal.org/files/pdfreprints/vol4issue6/Human-Security-A-Strong-Foundation-for-Multilateral-Cooperation-JGranoff-The-War-in-Ukraine-July-2022.pdf
14. IAC, 2017: The Dublin Charter for One Health, The InterAction Council; https://www.interactioncouncil.org/publications/dublin-charter-one-health
15. IAC, 2019: 'Manifesto to Secure a Healthy Planet for All – A Call for Emergency Action'; The InterAction Council: https://www.interactioncouncil.org/publications/manifesto-secure-healthy-planet-all-call-emergency-action
16. IAC, 2020: COVID-19 Policy Framework for Global, National and Community Responses; The InterAction Council, April 2020: https://www.interactioncouncil.org/index.php/media-centre/council-former-world-leaders-urges-urgent-global-co-operation-combat-covid-19-and-plan
17. IAC, 2022: 'Ending the Pandemic - Enhancing Global Security for Planet and People, A Framework for the Future' The InterAction Council: https://www.interactioncouncil.org/sites/default/files/Pandemic%20Exit%20Strategy%20reduced.pdf
18. IPCC 2018 report on Global Warming of I.5C: https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_High_Res.pdf
19. IPCC 2022 'IPCC Sixth Assessment Report' Policy Summary: https://www.ipcc.ch/report/ar6/wg2/
20. IUCN, 2016: 'Explaining Ocean Warming – causes, scale, effects and consequences' https://portals.iucn.org/library/sites/library/files/documents/2016-046_0.pdf
21. Hothouse Earth Scenario: http://www.stockholmresilience.org/research/research-news/2018-08-06-planet-at-risk-of-heading-towards-hothouse-earth-state.html
22. Kemp L et al, 2022: Climate Endgame: Exploring Catastrophic Climate Change Scenarios
23. Proceedings of the National Academy of Sciences/PNAS, 119:34, 1 Aug 2022

24. Lawrence M, Janzwood S, Homer-Dixon T; 2022: 'What is a Global Polycrisis? And how is it different from a systemic risk?' Version 2, 2022- 4; Cascade Institute: https://cascadeinstitute.org/technical-paper/what-is-a-global-polycrisis/
25. Lewis SL and Maslin MA 'The Human Planet – How We Created the Anthropocene'; Pelican, Penguin Random House UK; www.greenpenguin.co.uk; 2018.
26. Living Planet Report: 2018 Aiming Higher; World Wildlife Fund https://www.wwf.org.uk/sites/default/files/2018-10/wwfintl_livingplanet_full.pdf
27. Lynas M, 2020: 'Our Final Warning – Six Degrees of Climate Emergency' 4th Estate, Harper Collins.
28. Mayor F, 2022: 'Pressing International Responsibility: A New Concept of Human Security' The War in Ukraine, Global Perspectives on Causes and Consequences; pp95-105; Cadmus, 2022. http://www.cadmusjournal.org/files/pdfreprints/vol4issue6/Pressing-Intl-Responsibility-New-Concept-of-Human-Security-FMayor-The-War-in-Ukraine-July-2022.pdf
29. McGuire B, 2022: 'Hothouse Earth – an Inhabitants Guide' Icon Books.
30. Nurse J et al, (2022) 'Creating Digital Solutions for Pandemics and Global Health Security' Platform for Planet Place and People, The Commonwealth Centre for Digital Health https://sites.google.com/view/p4ppp/resources
31. Oldstone M, 2020: 'Viruses, Plagues, and History – Past, Present, and Future' Oxford University Press.
32. Ord T, 2020: 'The Precipice – Existential Risk and the Future of Humanity' Bloomsbury Publishing.
33. Our Common Agenda - Road to 2023: Our Common Agenda and the Pact for the Future, and Futures Summit 2024; UNSG.
34. Penn et al 'Temperature-dependent hypoxia explains biogeography and severity of end-Permian marine mass extinction' Science, December 2018 http://science.sciencemag.org/content/362/6419/eaat1327.full
35. Preiser R et al, 2018 'Social-ecological systems as complex adaptive systems: organizing principles for advancing research methods and approaches' Ecology and Society 23(4); 46: https://www.ecologyandsociety.org/vol23/iss4/art46/
36. Rees M, 2018: 'On the Future Prospects for Humanity' Princeton Press.
37. Rittel HWJ and Webber MM, 1973: 'Dilemmas in a General Theory of Planning' Policy Sciences 4, 155-169: https://www.sympoetic.net/Managing_Complexity/complexity_files/1973%20Rittel%20and%20Webber%20Wicked%20Problems.pdf
38. Romanello M et al, 2022: 'The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels' Vol 400, Issue 10363, p1619-1654; Nov 05; The Lancet: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01540-9/fulltext
39. Sandifer Q, Dorey S, Nnoaham K, Shankar G, Watson C, Eze E, Brunt H, Dukes G, Battersby S, Archer P, Gilhooly D, Singh A, Dissanayake V, Wyn-Owen J, Aylward M, McDonald B, Nunn R, Nurse J: 'Health Protection Policy Toolkit: Health as an Essential Component of Global Security'; 2nd Edition; Public Health Wales and the Commonwealth Secretariat, 2017, https://www.thecommonwealth.io/digital-commonwealth/health-protection-policy-toolkit/
40. SDGs: The Sustainable Development Goals Report 2022 UN Dept of Economic and Social Affairs, July 2022
41. SEEHN - South East European Health Network: http://seehn.org/about-the-see-health-network/
42. Sen A ed, 2011 'Peace and Democratic Society' The Commonwealth and Open Book Publishers
43. Sendai Framework for Disaster Risk Reduction 2015-2030; UNDRR: https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030
44. Spratt and Dunlop, 2022: 'Climate Dominoes – Tipping Point Risks for Critical Climate Systems?' Breakthrough: https://www.breakthroughonline.org.au/climatedominoes
45. The State of Food Security and Nutrition in the World: Repurposing Food and Agricultural Policies to Make Healthy Diets More Affordable (FAO, IFAD, UNICEF, WFR, and WHO), July 2022.
46. UNDP, 2022: 'New threats to human security in the Anthropocene – Demanding greater solidarity' https://hdr.undp.org/system/files/documents//srhs2022pdf.pdf
47. UNEP, 2022: 'Emissions Gap Report 2022' https://www.unep.org/resources/emissions-gap-report-2022
48. World Population Prospects 2022: Summary of Results UN Dept of Economic and Social Affairs, July 2022.

CADMUS, Volume 5, No.2, August 2023, 212-221

Creative Solutions for Human Security

Aleksander Zidanšek
Jožef Stefan International Postgraduate School;
Fellow and Trustee of WAAS

Ivo Šlaus
Ruđer Bošković Institute, Zagreb, Croatia;
Honorary President of WAAS

Uroš Cvelbar
Jožef Stefan Institute
Fellow of WAAS

Abstract

As global threats to human security have expanded significantly in recent years, the reasons and opportunities for innovative technological and educational solutions are more abundant than ever in modern human history. In addition to significant environmental, social, and economic threats to sustainability, the COVID-19 epidemic depleted both health issues and economic situations due to the incompetent response of national and international authorities, which caused the economic crisis and rising poverty worldwide. With the world not yet having completely recovered from the epidemic, the war started in Europe with the Russian aggression on neighbouring Ukraine in an attempt to steal by force a large part of the territory of a neighbouring country in grave violation of international law. Despite such a serious international situation, the potential for technological and educational innovations for addressing human security is correspondingly rising. Global peace is the most important precondition for human security. We present innovative opportunities for establishing global peace and discouraging other dictatorships from potential aggressions against their neighbours. Likewise, opportunities for building peaceful, crime-free communities are presented. Human health is the next most important precondition for human security. Opportunities for creative solutions addressing potential future epidemics, and for innovative curing of the worst contemporary diseases are addressed. Innovative opportunities for improving environmental, social, and economic pillars of sustainability are also addressed. Among these opportunities, scientific research and education are the most promising areas of intervention for addressing human security needs and threats. Guidelines for the optimal use of these innovative solutions are also presented.

We start this article with an overview of the most serious threats to human security, including the serious issue of armed conflicts in the contemporary world. We continue with the analysis of their root causes, which is focused on the search for opportunities for the maximum possible leverage toward the solutions to convert conflicts into cooperation.

On the one hand, these opportunities include creative ways for the resolution of conflicts, which have the largest potential to create an empowering and peaceful future for all participants in current conflicts.

On the other hand, creative solutions include creation of a culture of peace and taking advantage of the technological opportunities of today and tomorrow.

1. The World in Conflict

In spite of the feeling that the modern 21st century world should be civilised enough to end all armed conflicts, this is clearly not the case. At the moment, the UN lists 43 active armed conflicts around the world, among which the Russian aggression in Ukraine is the deadliest, with at least 30,000 lives lost in 2022 and possibly even about 200,000. This is currently also the only war between two countries that took more than 100 lives in 2022. All other conflicts with at least 100 lives lost have only been internal conflicts like civil wars, insurgencies, rebellions, and drug wars.*

Nevertheless, the number of lost lives due to armed conflicts has been on average steadily decreasing since World War II. Our World in Data has collected statistics of deaths during conflicts among the countries worldwide (Fig. 1). The first two major peaks describe the Cold War proxy wars between North and South Korea, with the participation of China and the Soviet Union on one side and the United States on the other side, which ended in 1953. The second major peak belongs mainly to the wars in Indochina, primarily between North and South Vietnam, in which the United States was also actively involved, following Kennedy's and Johnson's escalations in the 1960s.

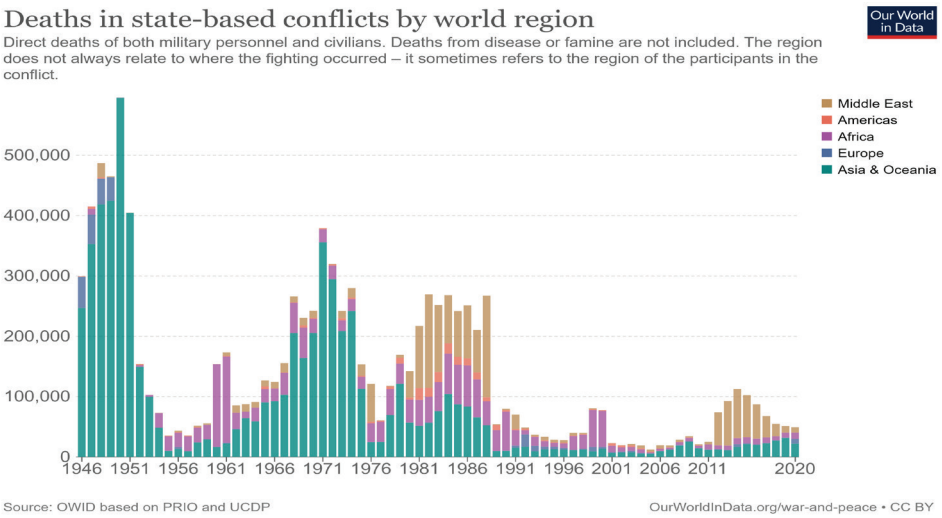
The third major peak in the 1980s was different as it was due to a multitude of different unrelated conflicts, of which the war between Iraq and Iran and the Soviet invasion of Afghanistan were the deadliest. After these two wars ended, the number of casualties decreased significantly.

When it appeared that the armed conflicts had vanished, there was the attack on the World Trade Center on 9/11 in 2001, which was followed by further violence and wars in Afghanistan and Iraq. The long-term average statistics still showed an improvement. However, the situation significantly deteriorated in 2011 with the new wars in Libya and Syria, in addition to the wars in Iraq and Afghanistan. Although the situation has been improving in recent years, the current Russian aggression against Ukraine might surpass the largest number of lives lost in the past three decades unless it stops soon.

Somehow, it appears that peace was winning in the second half of the 20th century, with certain challenges in its last decade, like the wars in Yugoslavia and Rwanda. The deteriorating state of global peace in the 21st century still makes armed conflicts the gravest threat to human security, although they are not the only ones. Violent threats are the worst, including criminals on the streets, terrorism, and states with dictatorships. Non-violent threats include economic threats, epidemics and other threats to health, and threats to the local and global environment.

* https://en.wikipedia.org/wiki/List_of_ongoing_armed_conflicts

Figure 1: Deaths in state-based conflicts – wars since 1946
(Source: https://ourworldindata.org/war-and-peace, CC BY)

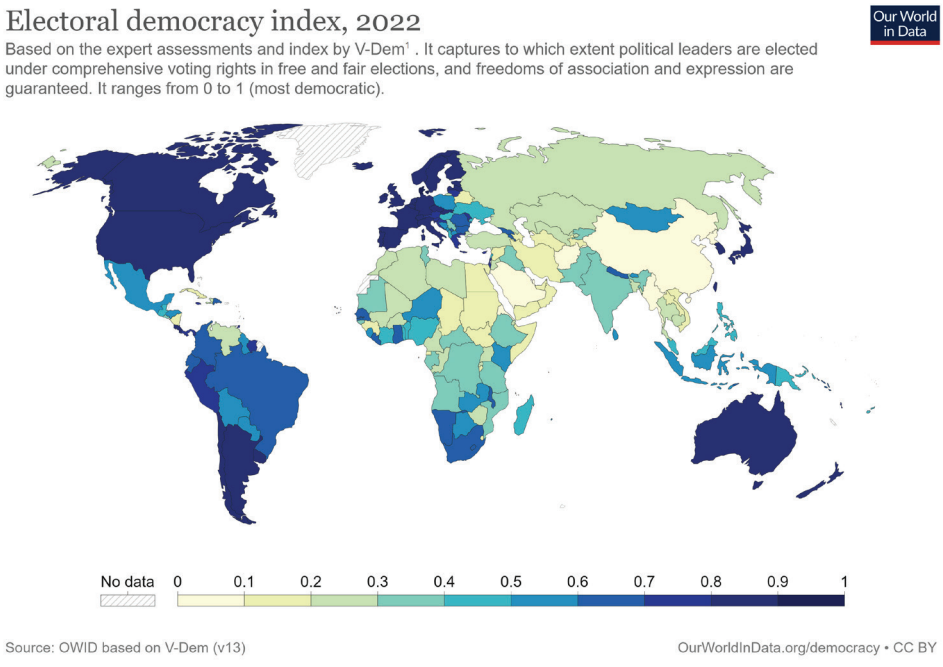


2. 20th Century: Peace was Winning

Fig. 1 clearly shows that the long-term average number of deaths in state-based conflicts has been decreasing since World War II. Until about 1999, there were a few spikes in violence, and the subsequent ones were consecutively smaller. The United Nations was far from perfect, but it managed to keep peace much better than its predecessor, the League of Nations. After each major 20th century conflict was resolved, that part of the world became peaceful. First the Korean War was resolved, and the Republic of Korea has since evolved into a democratic country and one of the most successful economies in the world. The second major war, the Vietnam War, ended with the unification of Vietnam, which is still a one-party authoritarian state, but its economy has significantly improved in the last few decades. Major conflicts from the end of the 20th century also ended, but the underlying issues were not resolved. The Iraq-Iran war ended with peace, but the reasons behind the war were not resolved and soon afterwards, Iraq launched a war against Kuwait. Although they lost this war after a worldwide coalition liberated Kuwait, the authoritarian regime in Iraq remained in power for another 12 years. Even today, Iraq is a weak democracy, retaining 116th position in the Democracy Score 2022.* (Fig. 2) Iran is even worse and is at position 154 among 167 evaluated countries. Since this index was evaluated, the situation in Iran deteriorated even more with massive violence of the regime against its citizens following the killing of 22-year-old Mahsa Amini who was arrested and beaten by the Iranian regime on September 13, 2022, and died three days later. Massive protests followed, but the regime is still ruthless, leading to many lives being lost since.

* Democracy Score 2021, Economist Intelligence Unit, see https://www.eiu.com/n/campaigns/democracy-index-2022/

Figure 2: Electoral Democracy, 2021
(Source: https://ourworldindata.org/democracy, CC BY)



The other major conflict from the 1980s was the war in Afghanistan. The war started with the Soviet invasion in 1979, which ended in 1989 with the defeat of the Soviets. The war continued, with only a few brief interruptions. The Democracy Score 2020 has put Afghanistan in position 139, and in 2021 the elected president fled from the country following the retreat of the USA. Hence, the country fell back to the Taliban. Their democracy score dropped to the last place among the 167 countries observed, with the index less than one-third of the next two worst countries, Myanmar and North Korea.

3. 21st Century: War Strikes Back

Although peace seemed to be winning in the 20th century, the underlying issues with the last big wars of the 20th century were not resolved. Dormant conflicts waited for a spark to return even stronger. Already in the 1990s, there were troubling signs which led to the reversal of the positive trend of reduction in deaths. It was both the Rwandan genocide in 1994 and the Bosnian genocide that demonstrated the inefficiency of the United Nations, which was not able to do anything meaningful during the slaughter of people because of their different ethnicity, even in the presence of the UN peacekeepers.

A series of wars followed across Eurasia and Africa, which increased the number of deaths in 1999 and 2000. The situation improved until 2011, when the civil wars started

in Libya and Syria with extensive external support from the United States, which actively contributed to the destabilisation of both countries. The situation worsened until 2015 and after 2016, it started to improve slightly in Syria, followed by the military defeat of the Islamic State in 2019. It seemed like the positive trend from the late 20th century had returned.

The war was, however, not defeated. It returned to full power in 2022 with the Russian aggression against its neighbour Ukraine. In addition to military casualties, there have also been massive and apparently systematic war crimes against civilians, with thousands of lives lost, and the full extent of these atrocities cannot be estimated as a significant part of Ukraine still remains occupied by the Russian aggressors and is therefore off limit to investigators of war crimes.

Figure 3: 2022 Russian invasion of Ukraine
(Source: https://commons.wikimedia.org/wiki/File:2022_Russian_invasion_of_Ukraine.svg, CC BY, accessed on December 11, 2022)

The United Nations estimates* that over 10,000 civilians have been killed in the Ukraine war since it began in February 2022. However, the actual number of civilian casualties is likely much higher, as many deaths have gone unreported. Many of the aggressor soldiers and mercenaries were also among the dead. The current map of Ukraine and its occupied territories is shown in Fig. 3.

* United Nations Office for the Coordination of Humanitarian Affairs: https://www.unocha.org/ukraine/

The war in Ukraine is the biggest test of the United Nations system. In theory, the situation is clear. The Russian attack on Ukraine on February 24, 2022 is clearly against the principles of the Charter of the United Nations. It also violates the 1994 Budapest Peace Treaty, where Ukraine gave up its nuclear weapons in exchange for the security guarantees of superpowers, including the Russian Federation, which guaranteed its territorial integrity. A day after the war started, the Secretary-General of the United Nations appointed Amin Awad of Sudan as Assistant Secretary-General to serve as United Nations Crisis Coordinator for Ukraine. The same week, the International Criminal Court opened an investigation into war crimes and crimes against humanity.*

In practice, the situation is not good. After many UN resolutions and clear evidence of the systematic war crimes, a portion of Ukraine is still occupied by the Russian invaders. With massive threats against individual security in Ukraine, this situation also provides a poor role model for other dictators with a desire to invade a neighbouring country. Namely, for almost a full year, there were no consequences for the aggressor. This sends a wrong signal, as crimes against humanity are allowed if the perpetrator is strong enough.

4. Root Causes of Conflicts

A detailed analysis of the contemporary threats to human security and their root causes was presented in 2020 by Paul Bellamy†. He identified both violent threats like wars, crime and terrorism, and non-violent threats like economic, health and environmental threats. There are many factors that contribute to an increased possibility of violence.

History of past violent conflicts is very important as it leaves a historic memory of bad feelings among the population. External actors can often contribute to starting the conflict, in particular in regions that were already prone to violence due to their violent history.

Autocratic dictators are so closely connected to violent conflicts that they almost seem the necessary condition for large-scale violence. While the share of autocracies in the world was falling steadily in the second half of the 20th century, the trend reversed. Their share has been increasing in the 21st century (Fig. 4). These trends are very closely related to the trends of violence in state-based conflicts (Fig. 1); the more dictatorships, the more violence in state-based conflicts. It is, therefore, worthwhile to attempt the reversal of negative trends in the 21st century and reduce the power of autocratic dictators.

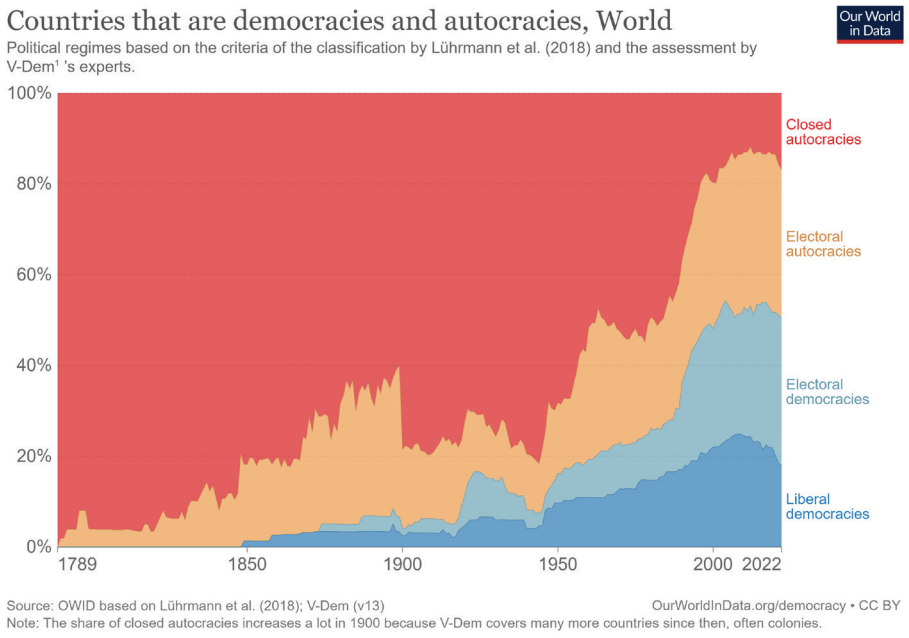
In the following section, we shall discuss opportunities to eliminate the root causes of conflicts. First, we will discuss the technological opportunities to challenge autocratic dictatorships, which could significantly reduce violence and thus contribute to human security.

Next we will explore the cultural opportunities for building peace. These are closely related to educational opportunities that allow youth a better comprehension of peace-related topics as well as stronger peace-making skills.

* United Nations, 2022: The UN and the war in Ukraine: key information, https://unric.org/en/the-un-and-the-war-in-ukraine-key-information/

† Paul Bellamy, Threats to Human Security, in Human Security in World Affairs: Problems and Opportunities (2nd edition), Editors Alexander Lautensach and Sabina Lautensach, Victoria, BC: BCcampus. Retrieved from https://opentextbc.ca/humansecurity/ and references therein.

Figure 4: Share of Democracies and Autocracies, World
(Source: https://ourworldindata.org/democracy CC BY)



5. Technological Opportunities

The incredible rise of new technologies in recent decades can be used either by dictators to strengthen their oppression or by the people to get more liberties. These trends are characterised by Moore's law (Fig. 5).

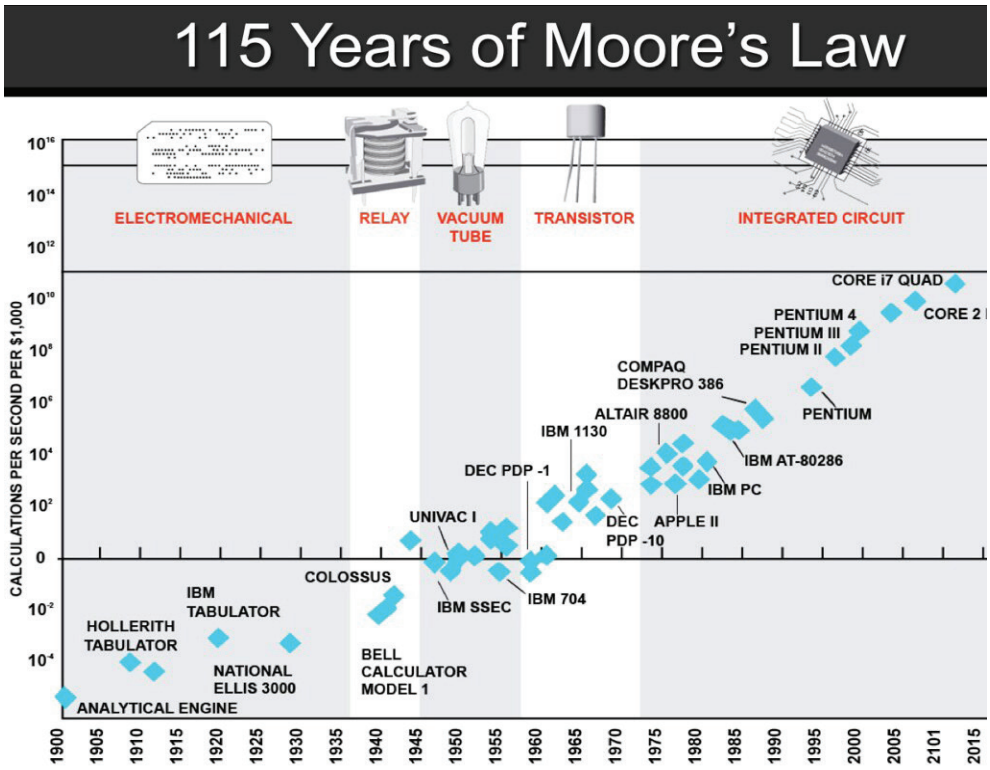
The fast progress in information and communication technologies influenced all fields of human activities. In particular, progress in smart machines and artificial intelligence is promising to transform our civilisation more than ever before in history. This progress is well-characterised by the rise in computation used to train artificial intelligence, which is rising even faster than Moore's law (Fig. 6). The famous AlphaGo, which beat the world champion in Go, is near the top of the graph.

The power of modern information and communication technologies has been proven successful in several countries and, for example, led to the fall of a dictator in Egypt. It has, however, been unsuccessful too many times, like in several occasions in countries like China and Iran, such as the demonstrations in 2022, which were brutally crushed by the Iranian government. What characterizes the difference between success and failure?

The major deciding factor is critical mass. When enough people unite against the regime, its power to repress is no longer enough and the regime collapses. Even before modern

information and communication technologies, there was a successful example in Romania. The dictator organised a massive rally in the capital city, which was intended to show support for the dictator. However, the situation reversed, and the masses turned against the dictator so much so that his dictatorship ended on the same day.

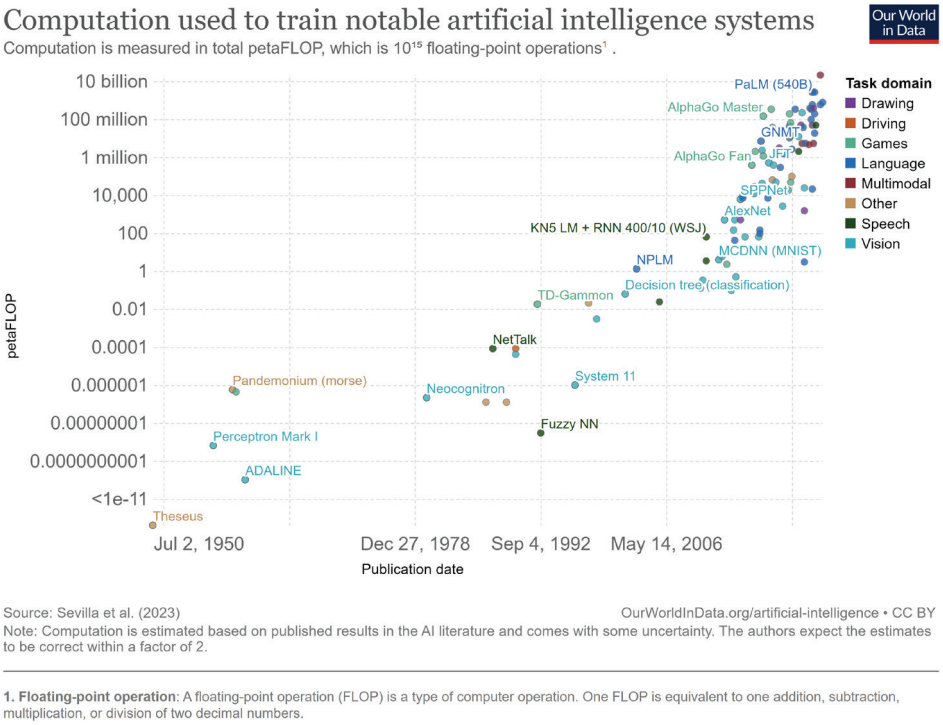
Figure 5: 115 Years of Moore's Law, Transcending Silicon by Jurvetson is licensed under CC BY 2.0.
(Source: https://www.flickr.com/photos/44124348109@N01/25046013104)



Asymmetric risk and reward are major challenges in these efforts. Namely, dictators have an unlimited supply of force to crush all opposition and they are motivated to win because failure often leads to their loss of life. The individual, however, has very little force, and standing up against the dictator is very dangerous and also leads to the loss of life, but with a much higher probability. This asymmetry makes it difficult for people to decide to oppose their dictators, which gives the dictators a huge advantage.

Modern information and communication technologies coupled with artificial intelligence allow for an easier organisation of opposition against dictators, which improves the chances to remove the dictators and bring security to the citizens.

Figure 6: Computation used to train notable artificial intelligence systems, CC BY 2.0. (Source: https://ourworldindata.org/grapher/artificial-intelligence-training-computation)



Additionally, new information and communication technologies coupled with artificial intelligence give more freedom to individuals who are thus less dependent on their political leaders. Therefore, more and more public life is liberated from dictators, which reduces their power and promises to bring freedom to all countries, thus eliminating the main cause of international conflicts.

6. Building a Culture of Peace

The increase in violence in the 21st century demonstrates that the current efforts for peace are insufficient. It is, therefore, useful to build a global culture of peace using the advances in information and communication technologies. This is obviously not simple. Otherwise, it would have already been achieved. How can this be done?

There are no universal solutions, but it is useful to follow certain guidelines:

1. Building a culture of peace should be stated in the positive, not against other people or cultures, but for peace, love and understanding among all people.

2. Global connections in social media should be exploited for good to bring people together instead of encouraging people to live in their own isolated bubbles.
3. Novel education technologies should be used to make it easy to comprehend the concept of peace and gain the necessary skills.

"In order to make the maximum possible contribution toward global peace, a thoughtful and dedicated effort of smart and motivated collective is required."

Currently, we test these guidelines with people we come into contact with. However, it would be worthwhile to expand these activities to a global audience so that the culture of peace expands worldwide. We expect the new WAAS project on Human Security for All to expand our voice and contribute to the massive adoption of the culture of peace worldwide.

7. Conclusions

Although there are many challenges, many creative solutions for human security are available today. The most important challenges are connected to violent threats to human security, which are causing massive loss of life. We listed some of these creative solutions. Many more are possible. It is important to use modern information and communication technologies coupled with artificial intelligence for the advancement of human security. On the one hand, the opportunities to end dictatorships are increasing. The opportunities for building a culture of peace are also increasing fast. It is, therefore, important that we, together as humanity, take full advantage of these opportunities and replace the current violence-filled civilisation with a worldwide culture of peace.

The WAAS project on Human Security for All presents a great opportunity to change both individual behavioral patterns as well as to get involved in the operations of international organisations like the United Nations. In order to make the maximum possible contribution toward global peace, a thoughtful and dedicated effort of smart and motivated collective is required. We look forward to our common journey in this direction.

Authors' Contact Information
Aleksander Zidanšek – *Email:* aleksander.zidansek@ijs.si
Ivo Šlaus – *Email:* slaus@irb.hr
Uroš Cvelbar – *Email:* uros.cvelbar@ijs.si

CADMUS, Volume 5, No.2, August 2023, 222-236

‘Human Security’ Relativized:
Insights from Six Recent Global Events

Fadwa El Guindi
Retiree Anthropologist, UCLA;
Trustee, World Academy of Art and Science

Abstract

This article argues, on the basis of insights[1] drawn and generalized from six recent global events identified as relevant in this analysis, that the notion of Human Security as currently presented needs further refinement. The six global events (2019-2023) are: The COVID-19 Pandemic, The Ukraine War, COP-27 in Egypt, The World Cup in Qatar, The Arab-China Summit in Saudi Arabia, and the Syria-Turkey Earthquake. Based on my analysis, the conventional concept of Human Security is absolutist and resembles an ideology dressed in ‘humanist’ clothing. I argue in this article for a more balanced perspective that embeds relativized principles which respect differences of cultural traditions and moral values and a recognition of built-in biases of Western nations towards those in the East.

This observation of absolutism and bias becomes of particular relevance in light of tendencies to deploy notions such as human rights, western feminism, a particular mode of Christianity, and now LGBTQ as tools of image manipulation and resource control. Also, there is differential aid, attention, and media coverage in human-made (such as invasions and wars) and natural crises (such as earthquakes) and in dealing with refugees resulting from both kinds of crises. This modality of bias was demonstrated in Afghanistan and Iraq prior to and during US invasions, in the case of Syrian refugees versus Ukrainian ones, and is selectively used to influence negotiations and in aid and rescue, as in the recent earthquakes in Syria and Turkey. The recent attempt to use ‘human rights’ to pressure Saudi Arabia, a long-term ally of the US, to make it bend to US positions not only failed but also backfired. The bias in the attitude shown in the case of the two episodes of assassinating journalists is a case in point. Consider the attention given to the killing of Jamal Ahmad Khashoggi, the dissident Saudi journalist who was then working for the Washington Post, versus that of Shireen Abu Akleh, the Palestinian-American journalist who was working at al-Jazeera, the Arabic Television News Channel out of Qatar, who was killed by Israeli forces during an assignment.

The most recent devastating natural disaster includes the earthquakes that struck Syria and Turkey, in which close to 30,000 people were killed. So much so that the Secretary-General of the United Nations made a public appeal to donors providing assistance for the earthquake to avoid politicising the rescue process in Syria.

This manipulation of image and attempt to control nations of the East is deployed in tandem with apparent colonial designs and invasion strategies similar to imperial colonial

times but applied in their later contemporary forms, as demonstrated in countries such as Algeria, Afghanistan, Iraq, Libya, and Syria, and recently, in a non-war setting, against Qatar prior to and during the World Cup.

This latter case can easily be considered an attack on cultural tradition by imposing symbols of gay marriage and calling for providing beer in sports stadiums. The pressure was exerted in the name of universal values and Western democracy. Wearing rainbow armbands to express support for LGBTQ people and allowing the presence of alcohol in stadiums during the games would violate traditional Arab values and be an imposition of Western neo-liberal standards on the rest of the world. Those attempts were rejected and failed to materialise. Instead, the world saw a smooth flow of World Cup activities, which were popularly embraced by thousands of spectators and millions of viewers around the world. Qatar was steadfast in rejecting them and instead projected a different cultural vision to the world, one that was widely embraced.

1. What is Human Security?

A famous quote from the now-President of Egypt touched the hearts of the protesting crowds in Tahrir Square who were demanding the end of the presidency of Morsi of the Muslim Brotherhood. El Sisi, then head of the Armed Forces during former President Morsi's regime, was mediating between the protesting Egyptian people in Tahrir Square and former President Morsi. The quote says, "The Egyptian people could not find anyone showing empathy to them." It was like magic to the ears of the protestors. It rang so true. The Egyptian people did not feel secure, safe, or protected.

According to the recent report of the UN Development Programme (UNDP, February 8, 2022), "6 in 7 people worldwide are plagued by feelings of insecurity." This growing sense of insecurity among people, the report goes on to say, while the world has seen years of development growth, is prompting calls for a refocus of development efforts. So where is the notion of "human security" in those calls? According to UN sources, the concept of human security was first introduced in UNDP's 1994 Human Development Report, and at that time it "signalled a radical departure from the idea that people's security should be only assessed by looking at territorial security, emphasising the importance of people's basic needs, their dignity, and their safety to live secure lives." The focus was on human security to replace national security. Both, of course, are considered as if in opposition, which, as I argue here, they are not and should not be.

The website of The World Academy of Art and Science describes the idea of "human security" as one that "addresses all the critical issues confronting the world today, including peace, human rights, inequality, health, food, education, jobs, safe communities and personal safety, energy, pollution, biodiversity, and, of course, climate change. It's a flag that supports all 17 UN Sustainable Development Goals, which 193 countries have already approved and rallied around. But it speaks of these things in a personal language that everyone can identify with. It is a message that can rally widespread support for the commitments already made by national governments, UN agencies, communities, corporations, NGOs, religious groups, and others to make the world a better, safer place for everyone." It goes on to stress, as the

UN did 26 years ago in 1994, that "security can no longer be solely concerned with national or military security. It must encompass all aspects of human wellbeing: health, food, employment, living standards, education, public confidence, and social tolerance. Human security, therefore, is a broad conceptual approach purported to be applicable to all areas of development policy." This is the position of the article by Samayov, along with many others, that security cannot be confined to the military factor. *"*The first duty of the state is to serve and protect its citizens. It cannot be adequately met today by an emphasis on military power alone. It is necessary to counter the threats of environmental degradation as well as to ensure the personal health and wellbeing of people*." (Sayamov, 2021).* True, not alone, but as we watch global conflicts today, states must protect their sovereignty and the safety of their people from encroaching powers.

"Human Security is posed to counter national security and is intended to be a global ideology."

WAAS sees human security as "an integrated approach (that) can accelerate positive action to address threats such as pandemics and climate change, to coordinate and accelerate the implementation of the SDGs, and to enhance multilateral cooperation." The Academy statement goes on to say: "Human security is all about placing humans at the centre of development. It is a unifying theme and force that serves as a core frame of reference to enhance the effectiveness of a wide range of high-priority social objectives" "Human security," the statement states, "must be established as a **universal benchmark** for effective development **strategies in the** future" (emphasis added).

The logo of the World Academy of Art and Science is "*Leadership in Thought that **Leads to Action",*** which in my view is a very laudable description of what the Academy is, or should consistently be, about. For our purposes here, the proposed framework of human security implies that *thought and action*, the two pillars of the Academy, will merge through its adoption of the proposed framework of human security, which has become a focal project or campaign of WAAS.

Perhaps this presumed merging is more so at the theoretical level. At the practical level, however, and for the various reasons stated earlier, it is doubtful that human security at the idea or ideal level would lead to real human security on the ground. I have called in earlier publications for the dismantling of the world dominance structure, whether as enacted through the veto structure of the UN Security Council, by unilateral acts by dominant nations enforcing sanctions against other nations, or by allowing the strong nations to follow the military-industrial complex's need to sell arms, thus driving nations towards confrontations leading to war.

But as the six global events that recently played out on the global scene have shown in different ways, national security is of paramount importance, and as security should be for all, it must be provided with respect for the sovereignty of nations and respect for the different cultural traditions and social landscapes. The six global events identified in this article turned the world on its head, as it were. The universalist posture broke down and was replaced by multiple alliances, different partnerships, and a challenge to the dominant

structure of military and economic power. Embedding national security in common security as an element towards human security for all is in accordance with the character of the United Nations, which itself is composed of member sovereign states, not peoples, individuals, communities, or humans.

The United Nations currently uses the phrase 'common security'. I do not consider common security to be interchangeable with human security, although both suggest 'security for all'. The former is strategic, emphasising that security has to be implemented by all entities. A recent article called for a change of focus to China in the context of its growing impact on climate change instead of focusing only on the competitive market, pointing out that US intelligence may have missed this significant factor and its impact on global relations (KLARE 2023).

Human security, if not monitored carefully, can become an ideological package of a universalized western view linking democracy with a western vision of human rights to be imposed on the rest of the world. It is posed to counter national security and is intended to be a global ideology. Such absolutist postures and their consequence of homogenization reflect a built-in bias that imposes western (Euro-centred) perspectives and values as a standard against which such imposition is justified. It is, however one looks at it, an imposition of dominance and hegemony on the whole world. And it is this element in the model that ought to be reconsidered.

The exploration of the six global events presented in this article aims to shed light not only on the specifics that each event contributed to the world reset but also on how insights drawn from them reveal not simply a new world order emerging but rather the end of 'world disorder by design', thus the ushering of a qualitatively different world altogether. We might find kernels for an alternative paradigm in insights drawn from the six global events of import identified in this analysis. Global events are explored next.

2. The COVID-19 Pandemic & The Ukraine War

The first two global events to be addressed here are the COVID-19 pandemic and the Ukraine War. My anthropological exploration, as seen in previous publications of both the COVID-19 pandemic (El Guindi 2020a; El Guindi 2020b; El Guindi 2022b; El Guindi in press) and the Ukraine War (El Guindi 2022a), has pointed to how the two global events with wide global impact have uncovered the deep and wide interconnectedness that has been gradually building among peoples across the world and the close interdependencies among nations in many areas, which include the financial, the technological, the informational, and more.

At the same time, those same events revealed imbalances of wealth and power within countries and among the nations of the world, which may have been apparent to a few prior to the pandemic but took centre stage with the rapid spread of the infection across borders. Politicians had to confront such a reality as they struggled to maintain control of information and protect their offices. Businesses were laying off employees to cut costs, but in return, many people were rejecting reporting to work when the choice of working from home became possible.

It is quite interesting, and significant, I suggest, that according to UNDP Administrator Achim Steiner, it was found that "despite global wealth being higher than ever before, a majority of people are feeling apprehensive about the future, and these feelings have likely been exacerbated by the pandemic. In our quest for unbridled economic growth, we continue to destroy our natural world while inequalities widen, both within and between countries. It is time to recognise the signs of societies that are under immense stress and redefine what progress actually means. We need a fit-for-purpose development model that is built around the protection and restoration of our planet, with new sustainable opportunities for all". Regarding world health the UN found that "[T]here are large and widening gaps in healthcare systems between countries. According to the report's new Healthcare Universalism Index, between 1995 and 2017, the inequality in healthcare performance between countries with low and very high human development worsened". Inequality includes the marginalization and denial of services to *indigenous populations*, not only minority groups in society, who have shown themselves to be the best protectors of the natural environment.

As one observer put it in describing the COVID-19 virus, it is "a dance[2] as old as life on our planet. The choreography is logged deep within life's immune system". For perspective, I bring up as an example the flatworm, which had millions of years to evolve, "experimenting, rejecting, tweaking, and innovating..." (Forrest et al., 2023) Just as we observed the Corona virus to be doing, to survive and thrive, it kept mutating, making new variants. The virus has no intent, no malice, and no feeling. It is doing what organisms are programmed to do. The human body also works the same way, except that medical advances, a human invention, intervene and interrupt the process.

I was particularly intrigued by the finding that high rates of infection appeared more prevalent among prosperous nations in Europe and the United States, with lower rates in general in Africa, except for South Africa, and in Egypt (El Guindi 2020a; El Guindi 2020b; El Guindi 2022b). Are factors such as natural immunity on a genetic basis or from local diets to be considered as important as the nature of the virus, its character, and its rate of spread? Is not social inequality more associated with prosperous nations? Unmasking the extent of phenomena in rich countries such as homelessness, absence of health services, racism against black people, and discrimination against immigrants exposes a factor that politicians prefer to use for campaigning for office and then rapidly ignore.

The observation of the pattern of high infection rates in European countries with advanced public health infrastructure challenges initial biases expressing an expectation that the viral infection would most likely most strongly hit countries such as **those in Africa** given their lower level of public health preparedness and standards of living. The reality that the pattern was different than expected shocked Europe and led to the rush of European countries to close their borders to each other after a long process of removing travel obstacles among themselves to show unity and trust. The border closing was based on the fact that the virus spread very rapidly and, of course, did not recognise 'walls' and 'borders'. In other words, the health threat came from the same source that nurtured trust. Europe, acting as separate bordered nations, closed the doors it had previously opened to demonstrate the amity and unity of a European Union. The COVID-19 virus did not recognise such utopian images.

Transmission was rapid and brutal. It led to isolation and masking. This had a very toxic effect on people whose 'oxygen," as it were, is generated by togetherness.

"Wars are not inevitable, and that path must be challenged because alternatives do exist. But there must be a will to consider these alternative paths. Perhaps the use of wars to make profit should be criminalised by the United Nations."

A report recently appearing in *The Atlantic* describes a recent long-term study conducted by Harvard this way: "Since 1938, the Harvard Study of Adult Development has been investigating what makes people flourish. After starting with 724 participants—boys from disadvantaged and troubled families in Boston and Harvard undergraduates—the study incorporated the spouses of the original men and, more recently, more than 1,300 descendants of the initial group. Researchers periodically interview participants, ask them to fill out questionnaires, and collect information about their physical health. As the study's director (Bob) and associate director (Marc), we've been able to watch participants fall in and out of relationships, find success and failure at their jobs, and become mothers and fathers. It's the longest in-depth longitudinal study on human life ever done, and it's brought us to a simple and profound conclusion: Good relationships [properly nurtured] lead to health and happiness." (Waldinger and Schulz 2023).

Another matter the virus exposed was the unmasking of domestic inequalities, a reality that politicians prior to such exposure mostly utilised when running for office and then pushed to the back burner until elections came around again. Weakness in trust in governance was beginning to emerge. Suddenly, there were large numbers of homeless people in the strongest and richest countries. Politicians rushed to make promises. The homeless populations continue to grow, and the absence of social and health services continues to exist.

Alongside such exposures, a denial of strengths and rights among nations of the Global South unmasked deep racism and systemic attitudes of a "double standard". This became prominent with the Ukraine War, the other global event to be discussed next, when sympathy poured on the poor Ukrainian victims of aggression and their losses of home and security. This appeared to be different for the Iraqis, Syrians, Libyans, Palestinians, and so on. Ukrainian refugees needed urgent help. Syrian refugees were exploited and rejected. African refugees are undesirable and unwanted, except to be trafficked and exploited. Ukrainian refugees were to be sheltered and protected. The double-standard in the humanitarian attitude was unmasked.

The Ukraine war brought attention to the phenomenon of war itself. Questions were raised by concerned institutions about the inevitability of war and the alternative paths that should be taken. Importantly, the World Academy of Art and Science (WAAS) recently published in 2022 an issue of CADMUS (its flagship journal) in the form of a Report to

WAAS with a focus on the War in Ukraine, in which I contributed an article (El Guindi 2022a). It addressed the fact that "the path of war' to solve problems among nations is taken as inevitable and therefore goes unchallenged. Wars are not inevitable, and that path must be challenged because alternatives do exist. But there must be a will to consider these alternative paths. Perhaps the use of wars to make profit should be criminalised by the United Nations.

3. The Modality of War

We know that wars are a source of huge profits. They are used by the dominant powers as marketplaces for testing and selling arms, officially and unofficially, as well as a means for discovering the current technological and military capacity of 'the enemy'. The mercenary component traffics in weapons, drugs, refugees, and body parts. These drivers make warfare inevitable, even desirable, in order to serve the military-industrial complex and mercenary groups illegally running operations for huge profits. Unfortunately, this renders the United Nations into 'sitting duck status', rather than rising to deal with what it was originally founded for: as an active player in seeking ways to prevent reaching the point of no return that leads to invasions and wars.

Today, the modality 'de jour' authored by the neo-Cons and neo-Liberals of the United States is a scenario of "endless wars" and what is ironically labelled "constructive chaos," both indices of a major failure of both imagination and mental intelligence. President Putin introduced a modified version of this scenario: endless war and destruction. It is on the drivers of profiteering from war that we have to focus some of our attention, as well as on sovereign concerns of national security. Why should national security remain a privilege of the dominant? The United States would never tolerate any "enemy" presence near its borders or flying over its territory. Why is this not applicable to other nations?

As the UN seems to be deploying the phrase "common security," perhaps security for all should embody national security, a combination that might be a way towards an equation of war prevention. Just as the world was seeking a vaccine to counter the viral pandemic, we should seek a 'vaccine', as it were, to prevent "the infection" of needing to go to war.

The two recent world events mentioned earlier, the pandemic and the Ukraine War, have challenged the structure and turned the whole world upside down, as it were, economically, politically, and ideologically. Stating over and over that the world is moving from unipolar to multipolar oversimplifies to the point of irrelevance. The change, as seen in recent global events, is much more complex than that, as this article will show.

There is clearer recognition as to who is contributing more to the deterioration of our world. The UN finding that "the more highly developed countries tend to capitalise more on the benefits from planetary pressures and suffer less of their consequences, highlighting how climate change is pushing inequalities further apart." There is a new level of transparency regarding health deterioration. The UN states that "in 2021, despite the highest global GDP in history and despite COVID-19 vaccines becoming more readily available in some countries, global life expectancy declined for the second year in a row. Declining by about one and a half years on average compared to a pre-COVID world."

"Our identity and roots are anchored in our culture."

According to Asako Okai, UN Assistant Secretary-General and Director, UNDP Crisis Bureau, "[a] key element for practical action highlighted in the report is building a greater sense of global solidarity based on the idea of *common security*. Common security recognises that a community can only be secure if adjacent communities are too. This is something we see all too clearly with the current pandemic: nations are largely powerless to prevent new mutations of this coronavirus from crossing borders".

In contrast to any security are the entwined ideas authored by the United States (George Bush), part of which is brought up by Cockburn, who raises the point of the Ukraine becoming an endless war (Cockburn 2022), a point that was not hidden in Russia's agenda of border security. It was deploying previous agreements, such as the Minsk Accords, promising restraint in encroachment on the part of NATO and respect for Russian national security. Otherwise, it stated that a war would be both *endless* (borrowing language from the US) and, in lieu of constructive, *destructive*. Endless and destructive is not what the world needs at this or any future time. Nor was the idea of constructive chaos sold as positive. It masks the real agenda of dismantling states and forcing regime change.

It was at that point, when Russia was expressing concern about NATO expansion and the encroachment on its border security, that the United Nations could have exercised its power to bring all parties together at the table, yet it had not. Are the US and the UK too overwhelming for the United Nations, thus leading to a weakness and inability to act? Has the combined power of the military industrial complex and the world banking system rendered the institution that was put together after a very destructive world war to maintain peace neutral and incapacitated?

This is the point at which the world should have been concerned, empowering the United Nations, the institution that was built exactly to deal with such matters, to take strong action instead of inaction in the face of 'bullying' nations taking unilateral actions against other nations. Perhaps this is a goal that WAAS should vigorously embrace. If we cannot or do not, then perhaps we should, as people and nations, build an alternative that works. This is particularly so since the UN is calling for a reconsideration of the vulnerability of nations in conflict. It states that "about 1.2 billion people live in conflict-affected areas, with almost half of them (560 million) in countries not usually considered to be fragile, indicating that the traditional ideas about which countries are most vulnerable to conflict need to be revisited." Perhaps WAAS should at least lead such a revisit.

4. COP27 in Egypt and World Cup 2022 in Qatar

The two global events to be discussed next are of a different character from the first two but lead to equally relevant insights. They are COP27, organised by and held in Egypt, and the 2022 World Cup, organised by and held in Qatar. The fifth one, to be discussed later, is the Arab-China Summit held in Saudi Arabia. Three significant world events were held in three Arab countries. This alone is a new recognition.

We know that regarding our natural environment, it is the dominant and prosperous nations who have abused it the most, polluting the planet most acutely, while the rest of the world "pays" for the damage to health and diminished livelihoods. It is also the prosperous nations that are driving the world into major wars at great cost to humans, culture, and nature. The goal of COP27 was to bring balance to the world by establishing a fund in which the strong nations contribute (as has been pledged over and over for many years) so the weaker nations are able to join the path of development. It is a project aiming for balance and justice.

It is significant that COP27 was organised by Egypt and held in Africa. Africa is a re-emerging, youthful continent rich in human and natural resources. COP27 puts it on the contemporary world stage of relevant global events, equally sharing in discussion and debate in the search for innovative solutions to issues of world concern. Participation was a step on a path to inclusivity, diversity, and balance. Importantly, World Youth were full participants. Through the event, Egypt led the effort to establish a fund through which the prosperous nations would go beyond pledges to actually make their contributions towards the participation of poorer nations in the development process.

This also assisted in recognising an Egyptian identity. To Egyptians, following the turmoil resulting from intolerant forces that sought to divide the Egyptian people by faith, to fragment an otherwise seamless fabric of diversity united by their love of their land and identification with its history In a recent publication, 2022, appearing in the International Journal of Levant Studies in both Romanian and English, *Tears of Civilizational Identit*y described how the identity of Egyptian people is intricately woven by a long civilizational history, embedding it into a regional landscape that is a geo-political cross-roads bridging continents and seas, which makes it simultaneously African, Mediterranean, Arab, and Islamic. This uniqueness of diversity that is woven into a seamless fabric of identity is what Egyptians celebrate and almost lost when intolerant forces injected disruptions. Hosting COP27 enabled Egypt to demonstrate a kind of renewed regional leadership and rising role in global politics that was orchestrated with remarkable organisational mastery, recognised according to UN standards. COP27 was explicitly declared a successful event by the Secretary-General of the United Nations.

5. Post-COP27 in Athens

In Greece, academics and administrators successfully organised a Post-COP27 Workshop immediately following COP27, held in Athens on December 13-14, 2022, to engage in dialogue and critique regarding the path forward. In my presentation, I stated that "while the pandemic uncovered our humanity, the Ukraine War revealed our incapacity to use our knowledge and unique intelligence properly" 'Humanness' is different from human or humanity as commonly used. The reference is to being human as a species among other species. It has been shown that our need for togetherness is firmly rooted in our form of society and that our identity and roots are anchored in our culture (on that point, see El Guindi 2022), but we have not succeeded in using our uniquely human intelligence to protect our societies or the sources of our cultural identity.

Both similar and different is the case of the World Cup hosted by Qatar. Qatar demonstrated with its usual elegance combined with a renewed passion to host that it will

not be intimidated by efforts to thwart its goal by holding the stick they call human rights to focus attention on labour issues and away from societal concern and cultural tradition. People from all over the world joined the Arabians of Qatar in celebrating what was nothing short of a miraculous success. They went to homes, danced in the streets, and inundated markets, turning the sporting event into a celebration of the integrity of a culture. The response by the people on the ground was one of passionate appreciation for Qatari hospitality, a trait that is prominently Arabian. They donned distinctive Arabian clothes and joined families in their homes to eat Arabian food. FIFA President Gianni Infantino declared the event "the best World Cup ever" There is another message, though.

6. Rainbow, Beer and Bisht

There was much more to the World Cup held in Qatar than being an international sports event. The image of Lionel Messi of Argentina carrying the World Cup Trophy offered to him by FIFA President Gianni Infantino as the Emir of Qatar, Tamim bin Hamad al-Thani, donned a traditional Arabian *bisht* over his shoulders became iconic and circulated around the world in social and mainstream media. The bisht is the loose, flowing robe worn by Arabian men with different levels of ornateness for different occasions. The ornate ones embroidered with gold threads are worn on special occasions, particularly by a groom at his wedding. It was a high honour for the Emir to don the traditional outfit for the winner of the World Cup. As my study of Arabian dress for men and women has explored, more traditional forms of the ''bisht'" were worn by nomad Bedouins as they in previous times roamed the desert. An analytic description of Arabian dress appeared co-authored in the Berg Encyclopaedia of World Dress (El Guindi and Al-Othman 2010).

The 'Rainbow' and the 'Beer' refer to the attempts by western nations to draw attention more to what they presented as human rights issues of gay rights but were considered by many to be ways of 'smearing' the event held in Qatar and the culture itself by defying Arabian tradition and traditional protocol. First, issues of labour and human rights were deployed, followed by attempts at parading LGTBQ emblems through certain teams, such as wearing armbands with rainbows, followed by requests to sell beer inside stadiums in defiance of the Islamic ban on alcohol. These modes of pressure were seen by many as ways to embarrass Qatar as it paraded its successful and popularly received event.

As the Emir concluded the successful series of tournaments with a ceremony rich in cultural tradition, dressing the World Cup recipient representing Argentina football, Lionel Messi, with the Qatari bisht, like grooms are dressed on their wedding day (El Guindi and Al-Othman 2010), symbolised a number of very significant points. It was telling the world that as the west is embroiled in a destructive war, the Arabs are offering a torch of peace. As the West tried and failed to impose rejected values, when the French minister of sports wagged her upper arm with a rainbow, Qatar not only rejected the improper imposition but also demonstrated in full view of the whole world that there is a viable alternative tradition that neither adopts such values nor needs alcohol to entertain the people. It is a victory not only in organising but more so in putting forth the legitimacy of cultural tradition and national

sovereignty. This brings us to the fifth global event of import: the Arab-China Summit held in Saudi Arabia.

7. The Arab-China Summit

The Summit of 2022, hosted by Saudi Arabia and bringing the Arab World together with China, was set to establish a framework for cooperation and a common strategy. It is perceived as the Chinese alternative to coalitions of constructive chaos and endless wars. It reaffirmed a relationship of 2000 years of shared history of trade extending from Arabian seas and deserts onto the Silk Road. Some commentators considered it of interest that China had not competed in the World Cup, not due to being disqualified but by choice, a choice of another path of cooperating and competing, that of trade, which brings back to life old routes linking the peoples of the world through a flow of goods and services.

Yet, in the view of some observers, the distance from competitive sports is not replaced by a focus on trade. Rather, in an Arabic newspaper article, the commentator Gouda (2022) discussed what he called "the other face of China", noting that China's focus was not on entering competitive sports but on another area altogether—the area of competitive research and invention. China, he argues, is beyond building a sizeable export of products and beyond the size of a foreign currency reserve. Both are exponential in China. So it goes beyond the production and export of goods. It is China's record of scientific and technological patents. And this is directly linked to its education system. This, the writer argues, is the point from which China is spreading its wings onto Supreme Power status. And this is where we need to look when we look at China: invention and discovery.

From this angle of competitive but nonviolent strength, President Xi Jinping of the People's Republic of China and Prince Salman of Saudi Arabia joined hands to seal a partnership for a joint alternative to a framework of war, destruction, and exploitation of weaker nations. The world, as the Summit established, has changed, not as simplistically portrayed from unipolar to multipolar, but qualitatively in its very fundamental core, from polarities of hostility and divisions for exploitation to a differently choreographed world, one that Gregory Bateson's famous query about patterns, in which he rejects looking at patterns as fixed, Instead, he considers it more like "a dance of interacting parts" (Bateson 1979: 13). To extend the Batesonian notion of pattern to the world order, I would propose that the paradigm of single dominating power (militarily and financially) and its coalitions of war, such as AUKUS, NATO, and that of Endless War and Constructive Chaos, resulted in a world of violence and disorder, a disruption of economies and lives.

The interacting parts alternatively emerging in China, Egypt, Saudi Arabia, and India reveal a different strategy for building a qualitatively different order, one with a flexible currency structure, countering the "endless war, constructive chaos, you are either with us or against us" unipolar structure. Here we are celebrating different traditions, different values, different kinds of relations, different strategies, and alternative currencies (Hilal 2022). President Xi Jinping of the People's Republic of China rejects interfering in sovereign countries' affairs, stresses the unity of its historical lands, opposes a weaponized use of human rights, prefers relations based on mutual interest, complete strategic partnership, the

use of yuan and local currencies versus the dollar and euro, and a new global world order. He also supports a Palestinian state.

8. The Syria-Türkey Earthquakes of 2023

An estimate of 35,000 deaths in Syria and Turkey and many wounded, many homeless, as aid trickles in from different parts of the world. We observe differential media coverage favouring Turkey since, as the UN Secretary-General points out, aid, which is supposed to be humanitarian, is in fact politicised. Moments of human care show a baby born under the rubble saved, a baby surviving days trapped, and other stories of human interest. This is a devastating phenomenon that cannot be prevented by reform or climate change activism. However, it might be possible to provide oversight to UN committees to keep watch over earthquake-prone regions and provide assistance in measures guiding the construction and maintenance of habitation structures to minimise human loss. Some governments do not enforce protective measures. The world is confronted by the gravity of natural disasters that are not related to climate change.

9. Concluding Remarks

The world is changing. It is moving away from coalitions, and even blocs, to shifting alliances.

The global events discussed above reflect different aspects of the change. The Arab-China Summit, in coordination with the other global events identified here, highlighted very prominently how the effects and harm of colonialism have impacted those who are now rising from its ashes. Whether in the response to COP27 being held in Africa, the victory of Morocco over France and Portugal, the defeat of the UK against France, or the final victory of Argentina over France, the euphoria among the peoples around the world was a theatre of anti-colonialism. It was *football* that teams played, not soccer.

Egypt showed the world that it can hold a world meeting successfully and achieve some steps, and Qatar thrived on showing the peoples of the world what Arabian hospitality means and what Arab identity is about. The World Cup became a showcase of the change in world balance. It was a demonstration of the legitimacy of other ways of life, other cultural traditions, and different values just as worthy as those imposed by the West. Most prominently, the World Cup was a live demonstration by people in support of Palestine and the rights of the Palestinians. The people demonstrated their power by defying the Abrahamic Accords woven by governments. The Palestinian flag was prominently waved by football players and spectators alike. The message was clear: Palestine is there forever.

Given a platform for expression, whether it is social media or the World Cup, the people will freely express their true sentiments. This, mingled with showing off Arabian cultural traditions unfiltered, was a most powerful 'voice' by people directly, a new dawn of people by people. The people were rejoicing over victories over those who colonised them. Memories of pain from subordination exploded in the streets. Many rejoiced when the UK lost, and the world rejoiced when Argentina won the Cup. These are voices that could not or would

not be muted. It was evident that peoples from around the world (as distinct from states and corporations) expressed themselves in the popular football event held in Qatar, the World Cup, by explicitly expressing a posture that is against the world's homogenization of rights and values.

There is a new confidence emerging among Arab nations, a sign, as it were, that they are just now emerging from under the long hold of colonial occupation, oppressive control, and exploitation of human and natural resources. It is not fully understood yet that long after a physical colonial presence ends, the process of real liberation by a people from such entrenched control and degradation of body and soul takes a long time. Ending occupation is a physical and political act observed when occupying forces leave. The process of liberating previously controlled minds and rebuilding cultural identities damaged by colonial occupation is harder and longer.

In my article published in both Romanian and English in the publication *The International Journal of Levant Studies* of the Institute for Advanced Studies in Levant Culture and Civilization (Bucharest, Romania) and the Centre of Excellence of the World Academy of Art and Science, I wrote: "The view that progress is achieved by looking to the future and not to the past dominates US policy. Another aspect is the view of international relations based on military coalitions. NATO in Europe and AUKUS in the Anglo-Saxon axis are cornerstones. The verbalised suggestion by former President Trump addressed to Saudi Arabia that the US would like to see an "Arab NATO" blew off without impact. The Abrahamic Accords are the last attempt by the US to find room for Israel in the Arab world; normalisation efforts so far have remained cold and only at the official level". Alternatively, there is an emergent model out of Egypt, which I have published about, arguing that other ways are emerging to build relations globally.

The two events of COP27 and the World Cup are particularly good examples of emergence onto the world scene in renewed form, with a new confidence in one and a desire to reaffirm the legitimacy of cultural tradition in the other. There was a visible regional euphoria over Morocco's win over Spain and Tunis' victory over France, which suggests a message much deeper than winning a football match. According to George Galloway, it is the first African, Arab, or Muslim football team to reach the semi-finals of the World Cup. Millions around the world showed support.

The fact that the team prominently displayed the Palestinian flag was a further expression of the "liberation' of Arabs united against the occupation of their lands. The victory of Moroccan football in the World Cup over their previous colonists, Portugal and France, drove the football world into a frenzy. As the team and spectators raised the Palestinian flag and sang in unison in Arabic, "Ana dammi falastini" (My blood is Palestinian) sent the strongest message that 'normalisation' with Israel is a mirage enacted by official governance for official reasons but is strongly rejected by the people, whether in Egypt, the Arabian Gulf, or elsewhere in the Arab World. The two paths run in parallel, and "never the twain shall meet" This is demonstrated on the ground over and over. It is the failure of misguided diplomacy and an imposed counter-reality.

It was a very powerful feeling of reciprocity and solidarity when Palestinians responded to such expressions of support for their freedom from occupation, stating in Arabic, which I translate in English as follows: "Moroccans already have a 'gate' in our Quds; now they entered our hearts through a thousand gates," which went viral through social media. As some commentators put it, the winner is Palestine. I add that the loser is bigotry.

Finally, the question I raise here is: Can the framework of human security reflect both the insecurity of the world today as well as the rise of the voice of the peoples of the world countering their own and other governments and public media and against those who dominated most of the world previously with a strategy of exploitation? Does not this Phoenix rising out of the longtime ashes of exploitation and dominance, as expressed by and during COP27, the World Cup, and the Arab-China Summit in Saudi Arabia, send a message opposing the imposition of power and values?

Qatar rejected 'rainbow and beer' in its stadiums, and the people of the world who fully participated in the World Cup competition and cultural events in Qatar were fine without both. This was a strong statement reaffirming the integrity of cultural tradition and the sovereignty of nations trying to express their own values and freedom of expression. Has not the World Cup in Qatar demonstrated loud and clear that any proposed framework must be one that is communicated by the people and for the people and that the only way forward is to recognise that construction is better than destruction, cooperation and exchange are better than war for the people, the world economy, the balance of power, and a safer planet for all? Perhaps the notion of "human security for all" could be "one planet for all"—people, animals, nature, and culture.

Egypt led Africa and the world to confront the reality of imbalance among nations; Saudi Arabia demonstrated a viable alternative economic world when it hosted China in a summit with the Arab world leaders; Qatar, the small Arabian affluent state that was ever starved for 'nationhood," achieved the world legitimacy of Arabian cultural traditions when it rejected "rainbow and beer' and prevailed; and on December 18th, 2022, it celebrated its National Day as an integrated nation with a strong identity and a winner of the World Cup of football, *not soccer*.

The notion of human security needs to be 'dressed down', away from rhetoric and jargon, to implementable ideas. The focus is perhaps better on the defence of 'home' and the safety of 'people' at home and around the world. It should also reveal how it can apply to human populations that become victims of natural disasters that are not caused by climate change, such as earthquakes. A final challenge is a question raised by the protesting population of France against the government-proposed retirement reform. Do we work to live or live to work? Human security as an idea should address that.

Author's Contact Information
Email: felguindi@gmail.com

References

1. Bateson, Gregory 1972 *Steps To An Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*. San Francisco: Chandler Publishing Company.
2. 1979 *Mind and Nature: A Necessary Unity*. New York: E. P. Dutton.
3. Cockburn, Patrick 2022 *Will Ukraine Become Another Ceaseless War?*
4. *In* CounterPunch: CounterPunch.
5. El Guindi, F 2020 *Suckling: Kinship More Fluid.* London: Routledge.
6. El Guindi, F., and W. Al-Othman 2010 *Dress from the Gulf States, Bahrain, Kuwait, Qatar, UAE*. *In* Berg Encyclopedia of World Dress and Fashion: Central and Southwest Asia. J.B. Eicher, ed. Pp. 245-251, Vol. 5. Oxford: Berg Publishers.
7. El Guindi, Fadwa 2020a *Rediscovering Our Humanness*. The Institute for Advanced Studies in Levant Culture and Civilization Centre of Excellence of the World Academy of Art & Science
8. ISACCL. 2020b "What the Coronavirus Crisis Needs From Anthropology." *Anthropology News website*, April 27, 2020.
9. 2022a Globalization Weaponized, Dominance Fragmented, World Stability Ruptured. CADMUS 4 (6):159-166.
10. 2022b Turning the world on its head: The virus that disrupted "business as usual". *Economic Anthropology* 9(1).
11. 2022 *Tears of Civilizational Identity: Egypt's Emergent Paradigm for Global Cultural Diplomacy* (Romanian and English). The International Journal of Levant Studies (Bucharest: The Institute for Advanced Studies in Levant Culture & Civilization) 3 (2021).
12. in *press The World Upside Down: The Pandemic Redefines Globalization*. *In* Issues in Ethnology and Anthropology: Special Issue on Pandemic. V. Vucinic, T. Reuter, and S. Patnaik, eds. Belgrade, Serbia: Belgrade University.
13. Forrest, S., et al. 2023 *Mother Nature's 7 Lessons for a Safer World*
14. *The best defense can be learned from the evolution of the animal immune system*. Nautilus.
15. Gouda, Suleiman 2022 *The Other Face of China*. *In* Al-Masry Al-Youm. Cairo, Egypt.
16. Hilal, Aliyeddin 2022 2023 *Policies of World Powers in the Middle East* (Arabic). *In* al-Masri al-Yawm. Cairo, Egypt: al-Masri al-Yawm.
17. KLARE, MICHAEL T. 2023 *The Pentagon's Massive Intelligence Failure on China: Climate Change*
18. *In* CounterPunch. New York: CounterPunch.
19. Sayamov, Yury 2021 *COVID-19 and the Global Problem of Human Security*. Eruditio - e-Journal of the World Academy of Art & Science 3(1).
20. Waldinger, Robert, and Marc Schulz 2023 *What the longest study on human happiness found is the key to a good life*
21. The Harvard Study of Adult Development has established a strong correlation between deep relationships and well-being. The question is, how does a person nurture those deep relationships?
22. *In* The Atlantic. New York: The Atlantic.

Notes

1. Insights drawn in this analysis from world events benefit from the author's anthropological gaze and perspective (On the anthropological gaze and perspective, see El Guindi, F 2020 Suckling: Kinship More Fluid. London: Routledge.). El Guindi is a four-field anthropologist who is retiree at the University of California, Los Angeles (UCLA) who has served by invitation at Qatar University as Distinguished Professor and Head of Department of Social Sciences. She has conducted intensive field research, funded by the competitive funding by QNRF. Arabian culture is one of El Guindi's three field immersive sites of anthropological research. The other two are Egyptian Nubia and the Valley Zapotec of Mexico. Her publications, scientific and public, cover all three field research areas, but the perspective is one: that of four-field anthropology.
2. In this regard look at Bateson, Gregory 1972 Steps To An Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology. San Francisco: Chandler Publishing Company.

CADMUS, Volume 5, No.2, August 2023, 237-241

Physics for Human Security

Aleksander Zidanšek
Jožef Stefan International Postgraduate School;
Trustee of WAAS

Abstract

Physics is the basic natural science that studies fundamental constituents of matter and related entities, with the main goal being to understand how the universe behaves. Its contribution to human security is, therefore, at least twofold. On the one hand, physics contributes valuable knowledge to addressing various critical issues confronting the world today, including peace, human rights, inequality, health, food, education, jobs, safe communities and personal safety, energy, pollution, biodiversity, and climate change. On the other hand, physics creates a breakthrough about every hundred years, like the introduction of quantum physics and relativity in the early 20th century. Such a breakthrough leads to an entirely new worldview, followed by new technologies that resolve the most critical problems with completely new technologies that neither existed before nor could have been imagined. Similarly, as quantum physics led to the microelectronic revolution of the late 20th century and current smart machines, another breakthrough in our understanding of nature is possible that could create an even larger revolution, e.g., in the field of quantum computing or understanding of cellular and molecular biology.

1. Introduction

Physics is the most fundamental natural science, discovering basic natural laws describing the world around us. As more and more layers of understanding are uncovered, physics is becoming more relevant to our daily lives and understanding of human beings. In this contribution, we discuss the relevance of physics and its education for human security [1].

In its quest for a deeper understanding of the universe, physics has continued to push the boundaries of knowledge. Throughout history, it has produced groundbreaking discoveries that revolutionise how we see the universe and pave the way for remarkable technological advances. These crucial breakthroughs occur sporadically, about once a century, and change our world with entirely new scientific paradigms. The advent of quantum physics and relativity at the beginning of the 20th century, for example, led to a radical shift in our worldview and eventually to the development of transformative technologies that were previously unimaginable.

However, the importance of physics goes beyond technological progress. It encompasses many critical global issues that directly impact human security. The contemporary world faces various challenges, from peace and equality to health, energy, and environmental

sustainability. With its rigorous scientific methods and analytical frameworks, physics contributes valuable knowledge and innovative solutions to these pressing issues.

This paper highlights two distinct but related aspects of physics' contribution to human security. On the one hand, physics offers insights into societal challenges, including peacemaking, human rights, inequality, education, public safety and environmental protection. By harnessing the principles and theories of physics, we can understand the complicated dynamics underlying these problems and develop effective strategies to mitigate their effects. On the other hand, physics has a remarkable track record of groundbreaking discoveries that revolutionise our understanding of nature. These leaps in scientific knowledge often trigger paradigm shifts that lead to the development of entirely new technologies. From the microelectronic revolution of the late 20th century to today's era of intelligent machines, physics has been instrumental in shaping the technological landscape. At the moment, the possibility of another transformative breakthrough in quantum computing or cellular and molecular biology holds immense potential to revolutionise society again.

This paper explores the contributions of physics to human security by highlighting its role in solving critical global problems and its potential for breakthrough advances. By analysing the impact of physics in these areas, the true importance of physics in shaping the contemporary world can be understood, as well as its potential for shaping the world of tomorrow.

2. Human Security

Although the concept of human security is rather old [2–4], the WAAS project "Human Security for All"* brings a new and expanded understanding.

Defining human security and its multidimensional aspects is critical to understanding the comprehensive nature of the concept and its implications for global well-being. Human security encompasses far more than traditional notions of national security and extends to the protection and flourishing of individuals and communities in various dimensions. At its core, human security is about protecting individuals' and communities' fundamental rights, dignity and well-being and ensuring they are free from threats and vulnerabilities. It recognises that security goes beyond military defence and encompasses many interconnected factors that affect people's lives.

The multidimensional aspects of human security include various dimensions such as personal, economic, food, health, environmental and community security. Personal security refers to protection from violence, crime and human rights violations and ensures the safety and freedom of the individual. Economic security relates to access to decent work, livelihoods, and equitable economic opportunities to reduce poverty and inequality. Global challenges' interconnectedness highlights today's world's complexity and interdependence. Issues such as peace, poverty, climate change and inequality are not isolated problems but are closely interlinked, adding to the urgency of comprehensive solutions.

* The project financed by the UN started in October 2022; more information at https://new.worldacademy.org/human-security/

Addressing global challenges requires a holistic approach that considers the interaction between social, economic, environmental, and political factors. For example, conflict and insecurity can hinder sustainable development and spread poverty, while poverty and inequality can fuel social unrest and contribute to conflict. Environmental degradation also has far-reaching effects on food security, public health and livelihoods. The consequences of these challenges often transcend national borders, highlighting the need for joint and coordinated efforts at the global level.

"Further advances in physics promise to bring a deeper understanding of the world around us as well as a deeper understanding of human beings and our consciousness. In this way, a powerful impact on human security for all can be achieved."

Peace and conflict resolution are critical aspects of human security. It is essential to understand the dynamics of conflict and promote peaceful solutions. Factors such as resource scarcity, territorial disputes, and power imbalances should be explored. Understanding these can help identify potential conflict triggers and work towards preventive measures.

3. Practical Applications of Physics

Peace and conflict resolution are crucial aspects of human security. It is essential to understand the dynamics of conflict and promote peaceful solutions.

Physics-based technologies and methods have been essential in arms control, disarmament and non-proliferation efforts [5–7]. Through the development of advanced monitoring and verification techniques, physics has helped build confidence, reduce tensions and facilitate diplomatic negotiations. Physics also plays a role in conflict resolution by providing analytical tools and models for analysing complex social and political systems. By applying scientific methods to the study of conflict, researchers can develop predictive models, scenario analyses and conflict management strategies that contribute to peaceful solutions.

Physics-based technologies like remote sensing [8] and satellite imagery [9] have been used for conflict monitoring and early warning systems. These tools provide objective data and evidence that can facilitate peacekeeping operations, promote accountability and support mediation processes.

Physics education [10,11] and scientific collaborations can promote peace and understanding by helping the students overcome cultural and political barriers. By promoting scientific literacy, critical thinking and cross-cultural dialogue, physics can help build bridges between nations and foster a culture of peace.

Nuclear physics [12] provides a fundamental understanding of nuclear reactions, radioactive decay and the behaviour of nuclear materials. This knowledge is critical to developing security and verification measures to prevent the unauthorised acquisition or diversion of nuclear materials for weapons. By applying physics principles, scientists and experts can develop advanced techniques for detecting nuclear weapons, including methods for detecting and analysing radiation signatures, isotope analysis, and radiation imaging. These techniques are used in various contexts, such as border control, cargo screening, and nuclear facility inspection.

Technological advances play a critical role in conflict prevention and resolution by harnessing the power of innovation to address the complex challenges of our modern world. For example, advances in communications technology have significantly enhanced conflict prevention efforts by enabling the rapid and widespread dissemination of information. Real-time communication platforms and social media networks allow rapid reporting and monitoring of conflicts, helping to raise awareness, mobilise responses and promote early intervention.

In addition, technology-enabled data analytics and artificial intelligence (AI) algorithms offer new opportunities for conflict prediction and analysis. By analysing large amounts of data, including social media trends, news reports and historical conflict data, AI-powered systems can identify patterns and indicators of potential conflict and thus take proactive measures to prevent escalation.

Using unmanned aerial vehicles (UAVs), known as drones, has revolutionised conflict monitoring and surveillance. Drones equipped with high-resolution cameras and sensors provide real-time aerial imagery and enable remote tracking of conflict areas, border surveillance and identification of potential threats.

Technological advances can also assist in humanitarian aid in conflict-affected areas. For example, advances in 3D printing technology enable the rapid production of essential supplies and medical equipment in remote or crisis-affected regions, helping to build resilience and alleviate suffering.

Other practical applications of physics include the advancement of renewable energy [13] and energy efficiency technologies [14], research into sustainable materials [14] and energy storage solutions [15], physical models for predicting natural disasters and mitigating their effects, radiation protection and nuclear safety measures, earthquake engineering and structural analysis to ensure safe infrastructure, crop monitoring and optimisation in agricultural sciences, irrigation and water management using physical modelling and precision agriculture, innovations in food preservation, packaging and safety through physics research, remote sensing and atmospheric physics for pollution monitoring and mitigation, and many other topics explored by physicists worldwide.

The importance of teaching physics also lies in fostering critical thinking and problem-solving skills.

4. Conclusions

Physics can offer profound insight into the pressing issue of human security. Many complex challenges can be simplified, and solutions can be developed. In addition, further advances in physics promise to bring a deeper understanding of the world around us as well as a deeper understanding of human beings and our consciousness. In this way, a powerful impact on human security for all can be achieved.

In these efforts, our most essential roles are both in developing new knowledge and new educational technologies that improve the spread of the acquired new knowledge among broader audiences. Our joint efforts in this direction can contribute to a better and more secure world.

Author's Contact Information
Email: aleksander.zidansek@ijs.si

Bibliography

1. S. D. Drell, Phys Today **53**, 25 (2000).
2. S. Tadjbakhsh and A. Chenoy, *Human Security* (Routledge, 2007).
3. R. Paris, Int Secur **26**, 87 (2001).
4. N. Taback and R. Coupland, Med Confl Surviv **23**, 3 (2007).
5. B. W. Hooton, Physics in Technology **15**, 92 (1984).
6. S. Drell and B. Morel, Am J Phys **62**, 478 (1994).
7. C. Macilwain, Nature **383**, 377 (1996).
8. W. G. Rees, *Physical Principles of Remote Sensing* (Cambridge University Press, 2012).
9. D. M. Douglas, B. R. Hunt, and D. G. Sheppard, in edited by J. J. Dolne, T. J. Karr, and D. C. Dayton (2016), p. 99820C.
10. N. A. Leonova, T. T. Kaverzneva, M. A. Borisova, and L. Skripnick, in *2018 XVII Russian Scientific and Practical Conference on Planning and Teaching Engineering Staff for the Industrial and Economic Complex of the Region (PTES)* (IEEE, 2018), pp. 213–215.
11. J. M. A. Lenihan, Nature **208**, 26 (1965).
12. Choice Reviews Online **45**, 45 (2007).
13. D. G. Lee, Australasian Journal of Environmental Management **25**, 248 (2018).
14. L. Lutzenhiser, Energy Res Soc Sci **1**, 141 (2014).
15. Md. A. Rahman, J. Kim, and S. Hossain, Energy Storage **4**, (2022).

Science is unusual in that it recognizes that it can be wrong. It is designed to find its own errors and correct them. Science is the best tool we have as a guarantor for the aspect of existential security connected to empirical and logical truth.

– *Ullica Segerstrale,* Educational Security, Existential Security, and Sociology

Successful and responsible action is not just about science and technology but about the conscious application of values to anticipate and avoid unintended consequences.

– *Thomas Reuter,* Imagination, Science and Education: How to liberate ourselves from the prison of rationality and create a secure future for humanity

A common security approach could play a vital role in helping to establish the peace and security of a nuclear weapon free world in our lifetime.

– *Alyn Ware,* The Promise of Peace and Nuclear Abolition: Has large power aggression destroyed Common Security?

Numerical projections focused on money, profits, and wealth, which currently drive decision-making, cannot be used to effectively plan and govern future world. They are incapable of addressing and eliminating the crises we face today.

– *Robert van Harten,* Empowering Women to Save the World for the Future

There is more to peace than the absence of wars.

– *Pavel Luksha,* Peace: The Ultimate Condition and the Goal of Human Security

One can hope for a future world where the institution of war will be abolished, and a global community within which each person will owe his or her ultimate loyalty to humanity as a whole.

– *John Scales Avery,* Against the Institution of War

The article calls for global acceptance of shared security responsibilities and collaboration to herald a safer, more secure world in the future.

– *Ashok Natarajan,* Human Security – Multifaceted Phenomenon

Humanity Security must intellectually underpin all action for all aspects of security.

– *David Harries & Lorenzo Rodriguez,* Human Security: Its Pasts, Its Underway Evolution and a Necessary Future

Addressing the security needs of all of humanity requires a global response. Multilateral global solutions are advocated as an intrinsic aspect of the concept of HS.

– *Joanna Nurse,* Human Security and Existential Threats: A Governance Framework for Planet, Peace, People & Prosperity

In order to make the maximum possible contribution toward global peace, a thoughtful and dedicated effort of a smart and motivated collective is required.

– *Aleksander Zidanšek, Ivo Šlaus & Uroš Cvelbar,* Creative Solutions for Human Security

Human Security is intended to be a global ideology.

– *Fadwa El Guindi,* 'Human Security' Relativized: Insights from Six Recent Global Events

Further advances in physics promise to bring a deeper understanding of the world around us as well as a deeper understanding of human beings and our consciousness.

– *Aleksander Zidanšek,* Physics for Human Security

CADMUS

Inside This Issue

Education for human security seeks to reorient each field of study to make primary the capacities and wellbeing of individuals, the welfare of societies and the sustainability of the planet.

– *Janani Ramanathan & Garry Jacobs*
Education for Human Security Policy Brief

Education must be understood as a public endeavour and a common good that cuts across all the SDGs.

– *Irina Bokova,* Education and Human Security

Human security looks at security as an integrated whole and is an inclusive concept encompassing all SDGs, viewing them all together in their relationship and impact on the lives of human beings.

– *Garry Jacobs & Janani Ramanathan*
Paradigm Change to Human Security

We need a United Nations Convention on Artificial General Intelligence.

– *Jerome Glenn,* Zero-Sum Power Politics vs. Synergetic Politics for Human Security

Educational system must be revamped at its core. The new system must be personalized to match the diversity of individual abilities and styles of learning.

– *Witold Kinsner,* Towards Human Security

Through person and people-centred approaches, individuals and communities become active agents of change, contributing to the transformation of social realities and embodying a sense of ownership and empowerment.

– *Alberto Zucconi,* Effective People Centered Health Education for Human Security

Sustainability is often treated as a specialised field rather than being integrated into the core curriculum. This compartmentalization hinders its holistic understanding and its interconnectedness with various disciplines.

– *Olivia Bina,* Towards a 'Life-turn' in Education: A Thought Experiment

Culture will serve as a unifying force and facilitate cross-cultural understanding in achieving SDGs.

– *Natalia Rojcovscaia-Tumaha,*
Cultural Orientation of the New Era

General education is a human right for all.

– *Fadwa El Guindi,* From US to Qatar University Teaching: Contextualized Knowledge Communication for FE

Continued…

€10