



PROMOTING LEADERSHIP IN THOUGHT
THAT LEADS TO ACTION

THE WEALTH OF NATIONS REVISITED

CADMUS

NEW PERSPECTIVES ON MAJOR GLOBAL ISSUES

Human Security & Education: Part 1

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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.

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Inside This Issue

Part 1 of this issue underscores the critical themes of Human Security and Education. Both themes are inextricably linked to the World Academy of Art & Science's overarching mission. The articles in the first part explore the role of human security as a unifying frame of reference and effective force for addressing a wide range of high priority social objectives. They highlight the validity and importance of Human Security as a universal benchmark for effective development strategies in future.

The first article by 11 members of the WAAS Board of Trustees is intended to provide insight into the founding intention and evolution of the Academy since its inception and the nature of the transition it is now undergoing as it aligns itself with the rapidly changing global context. Throughout its lifespan, the Academy has remained steadfast in its commitment to addressing the pressing global challenges to human security.

Education has long served as a fundamental instrument for conscious social evolution by serving as a conduit for the transmission of aspirations, values and knowledge across generations. However, in the evolving landscape of the 21st century, the prevailing pedagogy, content and delivery systems are inadequate. The need of the hour is education that is relevant and adaptable to the challenges of our time.

The articles covered in the education section serve as a clarion call for a paradigm shift in education—a shift towards a transdisciplinary approach that integrates diverse perspectives and fosters holistic thinking.

We hope you enjoy this issue.

Editors

Origins and Pathways for the Future of the World Academy of Art & Science Strategic Perspectives and Opportunities

CONCEPT NOTE FOR WAAS@64 CONFERENCE & GENERAL ASSEMBLY

Co-Authored by the following members of the WAAS Board of Trustees:
**Garry Jacobs, Janani Ramanathan, Amanda Ellis, Phoebe Koundouri,
Nebojsa Neskovic, Donato Kiniger Passigli, Ketan Patel, Ivo Slaus,
Walt Stinson, Ralph Wolff, & Alberto Zucconi**

Abstract

The purpose of this paper is to lay the foundation for development of a new strategic plan for the work of the Academy to 2030. Its aim is to invite suggestions from WAAS members and partners regarding priorities for future work. It traces the origins and historical development of the Academy leading up to the present and provides an overview of recent activities and emerging opportunities aligned to its mission which were presented at a meeting of the Board of Trustees at the Academy of Athens in November 2023. The paper ends with a call for proposals from WAAS Fellows for topics to be discussed at an upcoming conference and general assembly of the Academy in mid-2024 as well to be considered during the WAAS strategic Planning Process.

1. Executive Summary

This essay seeks to capture essential insights regarding the past, present and future work of the World Academy of Art & Science. The ideas discussed are drawn from records, a survey of WAAS Fellows and a series of interviews with WAAS Trustees in October 2023, the President's Report to the Board and other presentations and discussions that took place during a three-day meeting of the Board of Trustees at the Academy of Athens in Greece during November 2023. These activities examined the circumstances and original intention which led to the founding of the Academy in 1960, an overview of its development during the past six decades, the rapidly changing context of the 2020s, and the prospects for significantly expanding the scope of WAAS activities and enhancing their impact during the rest of this decade.

Since the founding of WAAS in 1960, the Academy has placed great emphasis on the need for new thinking characterized by transnational, transdisciplinary, human-centered, values-based perspectives and theories that integrate the objective and subjective dimensions of knowledge. The Academy is now in the midst of a transition toward greater emphasis on translating new thought into practical action with concrete impact on the challenges

confronting humanity today. At the same time, it should not neglect the quest for new ideas and theoretical perspectives which are essential for comprehending and addressing the challenges we confront due to the very nature of our humanity and complex social processes.

The aim of this paper is to examine the strategic contours of the Academy's work to identify prominent potential lines of future programming that have emerged from recent events and the Academy's recent activities which can give greater expression to its mission of "Leadership in thought that leads to action". The paper is intended to serve as a think-piece preparatory to an online conference and general assembly of WAAS in May-June 2024. It seeks to stimulate fresh thinking and discussion among members of the Academy, leading ultimately to the formulation of a strategic plan for activities during the remainder of this decade and beyond. The ideas and proposals presented in this paper are indicative and suggestive of the magnitude of the challenges and opportunities which lay open for us to seize.

"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed it's the only thing that ever has." – Margaret Mead

2. Origins And Evolution of WAAS

2.1. Agency for Human Welfare

WAAS was founded in 1960. However, its origins date back to momentous events that shaped the course of world history in the 1940s and '50s. They include the establishment of the Manhattan Project under the leadership of J. Robert Oppenheimer, the atomic bombing of Japan, the start of the Cold War, the division of Europe into rival blocs, and the onset of the nuclear arms race. These events were all linked to dramatic advances in the power of science and technology which transformed all aspects of life during the latter half of the 20th century and generated deep concern regarding the impact of science on the future welfare of humanity. One dramatic expression of this transformation was the release of the Russell-Einstein Manifesto in 1955 which declared:

"Renounce war or perish!, World peace or death! We appeal as human beings to human beings: Remember your humanity, and forget the rest."

The Academy was a child of these events. The Manifesto led to the First International Conference on Science and Human Welfare in Washington DC in 1956, at which leading intellectuals discussed the future of humankind and recognized the social responsibility of science for the unfolding course of events.

"We scientists who released this immense power have an overwhelming responsibility in this world's life-and-death struggle to harness the atom for the benefit of mankind and not for humanity's destruction." – Alberto Einstein

Its aim was to chart a peaceful course for global social progress toward a future in which all mankind will be able to enjoy the immense achievements of the human mind. The conference led directly to the establishment of WAAS on December 24, 1960, with the call:

*“Non-Scientists and Scientists alike! Let us all help to make this forum a true ‘Agency for Human Welfare’ irradiating hope and belief, and let us work together for a brighter future, a future truly adequate for “Homo sapiens.” **

“Solutions to complex social problems require knowledge that transcends disciplinary boundaries and can only be effectively addressed by an effort to comprehend underlying root causes and transdisciplinary social processes.”

The Academy was established with the explicit aim of marrying scientific knowledge and artistic sensibilities with universal human values. It sought to become an independent, transnational, non-partisan association of eminent individuals concerned with the policy implications and social consequences of rapid advances in different fields of knowledge. Among its founders were J. Robert Oppenheimer and four of the eleven signatories of the Manifesto—Albert Einstein, Bertrand Russell, Joseph Rotblat and Hermann Muller. They also included five Nobel Laureates and the founding Director Generals of UNESCO, FAO and WHO: Joseph Needham, Lord Boyd Orr, and G. Brock Chisholm.

During this period, untoward events continued to unfold dramatically, reinforcing their concern and the need for action. Two years later in October 1962, the Cuban Missile Crisis brought the world to the brink of nuclear war. This was followed by the first Nuclear Test Ban Treaty in 1963 and the Nuclear Non-Proliferation Treaty in 1968.

It was also a period in which dramatic technological advances in transport and telecommunications brought the world closer together. In parallel with the invention of powerful weapons, science brought succor to humanity in the form of life-saving antibiotics and vaccines, such as the polio vaccine developed by WAAS Fellow Jonas Salk. These developments had unanticipated social consequences.

Falling death and infant mortality rates led to the population explosion that began in the ‘50s and growing threats of famine in the following decade when growth in food production could not keep pace with the growth of population. The social consequences of population growth and food production became issues of major concern to WAAS during its first decade.

2.2. Reliable Knowledge

The need for new ways of thinking permeated the work of the Academy. A sense of responsibility for the consequences of scientific discoveries and an approach to phenomena from a transnational, indeed global, perspective were prominent characteristics that distinguished WAAS from the approach of most other organizations at the time. But the Academy’s founders also realized that solutions to complex social problems require knowledge that transcends disciplinary boundaries and can only be effectively addressed by

* Hugo Boyko, “The Need of a World Academy of Art and Science”, Science and the Future of Mankind, Dr. W. Junk Publishers, Netherlands, 1961

an effort to comprehend underlying root causes and transdisciplinary social processes. From single issues, they gradually extended the scope of its work to embrace the full gamut of social challenges related to peace, disarmament, population, food and the even more complex problems related to the environment.

From its outset the mission of the Academy has been to transcend conventional thinking and seek out new perspectives integrating science and art with ethics and universal values. WAAS was founded to study the impact of knowledge on policy and society, which means its relevance to human beings. Out of this effort has emerged a multidimensional conception of reliable knowledge based on an inclusive and integrated transdisciplinary perspective applicable to social problems and opportunities in all fields.*

Figure 1: Reliable Knowledge



2.3. Integrating Art and Science

"Science without art is sterile, art without science is blind".

– Leonardo da Vinci

"Science is the search for truth; art is the expression of truth".

– Max Planck

"All religions, arts and sciences are branches of the same tree. All these aspirations are directed toward ennobling man's life, lifting it from the sphere of mere physical existence and leading the individual towards freedom."

– Albert Einstein

*For a discussion of reliable knowledge, see "[Retrospective and Reflections on WAAS@60](#)", by Garry Jacobs, Donato Kiniger-Passigli, Winston P. Nagan, Ivo Slaus, Alberto Zucconi, *Cadmus Journal*, June 24, 2021.

The Academy's founders recognized that scientific knowledge alone was insufficient to either understand or guide humanity through the complex nexus of forces propelling the rapid evolution of global society. They regarded art and science as two complementary ways of knowing, one founded on objective facts and rational thoughts, the other on subjective values and intuitive perception. These diverse perspectives converse and converge with one another to generate a way of knowing greater than the sum of its parts.

Art and Science were perfectly integrated by geniuses such as Leonardo da Vinci, who was a master of both universes. Scientific knowledge, as Einstein said, has a very precise contour and dimension, while artistic imagination and creativity are boundless. Science without Art is unimaginative and mechanistic. Art, through a scientific approach, transforms abstract knowledge into concrete applications.

There is no dichotomy between these two branches. Creativity in science and art are closely related processes. Serious efforts are needed to accelerate the integration of these two branches of knowledge in education and in various forms of knowledge discovery and expression. Our complex and interconnected global problems necessitate an interdisciplinary approach by which leading thinkers across disciplines and sectors share ideas and insights.

WAAS is a melting pot of thinkers from diverse disciplines, professions and fields of life experience. It offers a platform where they can collaborate to come up with holistic and sustainable solutions. The Academy was founded as a transnational, trans-disciplinary academy of art and science in order to integrate the objective perspectives of science with the subjective insights drawn from the arts. At the heart of the Academy are the values which motivated its establishment and continue to inspire its work. Its work was to focus on the social consequences and policy implications of knowledge. Its aim was to provide thought leadership as an "Agency for Human Welfare."

"Let us create the scientific basis which is necessary to enable us to live and work together peacefully. Let us use all our imagination to make an art of living."

*– First International Conference on Science & Human Welfare,
Washington DC, 1956*

3. New Paradigm Roadmap 2010-2020

Earlier efforts to align the work of the Academy with the pressing needs of the 21st century were initiated by the WAAS Board in 2010 and renewed in 2020 before the onset of COVID-19. Both initiatives concluded that the Academy's original mission remained fully relevant to the rapidly changing environment of current times, but the scope, magnitude, speed and complexity of the issues required a reframing of strategy and focus. Both concluded that a piecemeal focus on single issues would be inadequate at a time when the inter-linkages and interdependencies between issues, disciplines, sectors, regions and cultures of an increasingly globalized world had become so evident and determinative.

3.1. Human-Centered Economics

The first major thrust for WAAS after the 2008 Financial Crisis was the establishment of *Cadmus Journal* by WAAS Fellows in 2010 and the formation of a transdisciplinary working group on New Economic Theory which eventually grew to include more than fifty members drawn from a wide range of disciplines, both within and outside the conventional boundaries of Economics.* During the next decade WAAS partnered in five international colloquia and more than twenty other conferences and seminars exploring diverse dimensions of current economic theory, policy and social impact at the national and global level. The thrust of the program was the call for formulation of human-centered economic theory (NET), which placed security, welfare, well-being and sustainability as the foremost objectives of economic policy. The program has generated more than 100 articles on various dimensions of economic theory in *Cadmus*.†

In 2019 WAAS was invited to partner with UNCTAD and the UN Office for Partnerships for the launch of the Future Capital Initiative at the UN in New York‡ which led to a shift in focus to the role of money, capital and financial strategies as an engine for human security and well-being and for funding Agenda 2030. The Future Finance project led to the publication of nearly fifty articles in *Cadmus* and ten books and reports by WAAS Fellows on related issues. This activity includes ongoing collaboration with [Force for Good](#)§ on the role of finance and technology in global development and with the [Tao of Finance](#)¶ on an innovative application of central bank digital currencies to bridge the funding gap that is needed to achieve the human security and sustainable development objectives of Agenda 2030.**

The work on economic theory exposed fundamental limitations in the prevailing approach to addressing global challenges and opportunities, which gradually led to a shift in the central focus of the Academy's work. First, it made evident the need for a transdisciplinary theory of economics which takes into account the growing interconnectedness and interdependence of other dimensions of global social activity, including the evolution of political systems and human rights, technological development and environmental impact. Second, NET underlined the fact that all the major challenges confronting global society are inter-related and interdependent and that none can be effectively addressed in isolation from the others. Therefore the 17 SDGs should be addressed in concert with one another. Third, it highlighted the need to take into account subjective factors in the functioning of economic systems, including the influence of social values and the subtle play of all forms of social power, as reflected in the Academy's conception of reliable knowledge. Finally, it also made evident that globalization imposed severe limitations on the ability of nation-states to apply policies and goals inconsistent with the wider consensus of global society due to the porosity of borders, the growing interdependence of supply chains and markets, and the increasing impact of global forces and challenges on nation-states. The interdependence between the

* [NET Working Group activities](#)

† [List of major conferences and seminars related to economic theory and policy](#)

‡ [Future Capital](#)

§ [Force for Good](#)

¶ [Tao of Finance](#)

** [Future Finance Program](#)

nations and people of the world compelled the evolution of a new consensus in economics. The unanimous adoption of the 17 Sustainable Development Goals (SDGs) under Agenda 2030 by 193 countries was an expression of that compulsion. Problems related to poverty, migration, biodiversity and, most especially, climate change, could only be addressed through global multilateral cooperation. These conclusions led inevitably to a broadening of the Academy's focus from economics and finance to a need for new thinking on the complex nexus of forces and issues posing challenges to global society in the 21st century.

3.2. New Paradigm for Global Development

In 2013 WAAS initiated a project in collaboration with the United Nations Office at Geneva (UNOG) to study the multidimensional global challenges confronting humanity and the deep-seated processes driving global social evolution in areas related to peace, health, food security, economic inequality, employment, finance, environment and climate change. During this period the world came under increasing distress from rapid technological, economic, financial, social, environmental and cultural forces. This distress had created deep fissures in the existing system and institutions of global governance. Confidence in government, business and the media had already begun a steep decline. Only science retained high levels of public trust and confidence. The widening divergence of progressive and regressive forces had begun to disrupt social cohesion, undermine confidence in the multilateral system of international relations, sow seeds of discord in society and spur a retreat from democracy. The zigzag patterns of advance and retreat, affirmation and denial, challenged conventional theories and concealed deeper lines of social evolution advancing beneath the surface turmoil.

The project led WAAS to the conclusion that the challenges of our times share a number of common characteristics. All are global in scope, and none can be effectively addressed by individual nation-states or even regions acting independently of one another. Thus, a transnational approach with emphasis on the role of multilateral institutions is imperative. Actions in each sector have to be understood and addressed in coordination with the others.

The project also drew two other important conclusions. First, that all these changes would not be feasible unless they are based on fundamental changes in our concept of knowledge. Building on earlier efforts of the Academy it projected a comprehensive, integrated conception of Reliable Knowledge. This resulted in a series of more than a dozen curriculum development programs examining existing concepts and theory and sketching the outlines for evolving new perspectives and approaches to global issues.

Finally, the project challenged traditional concepts and forms of leadership deemed inadequate to cope with the challenges confronting humanity today. Innovative approaches will be needed to fill the leadership vacuum. This gave rise five years later to the launching of the GL-21 project, Global Leadership in the 21st century, in 2019 in renewed collaboration with UNOG.

3.3. Catalytic Strategies for Global Leadership

Building on the work of the Millennium Development Goals during the previous 15 years, in 2015, 193 nations of the world came together and adopted for the first time a

comprehensive program of action to achieve 17 Sustainable Development Goals (SDGs) which were delineated by 169 specific targets to be realized by every nation. As Jeffrey Sachs pointed out, these goals for the first time sought to generate concrete commitment of the world to ideas first enshrined in the Universal Declaration of Human Rights in 1948.

The unprecedented landmark agreement of 193 nation states to achieve the SDGs was a source of encouragement and optimism during the period 2015 and 2019. The formulation was a dramatic achievement of the multilateral system and demonstrated the indispensable role it would have to play in the future in order to effectively address global challenges. The initial enthusiastic commitment of nation-states to the SDGs led to considerable progress during the first five years and growing confidence that many of the goals could be achieved.

But the magnitude of the challenges humanity confronted soon made it evident that business-as-usual and more of the same strategies would not be sufficient to achieve the goals. The political composition of the multilateral system and the self-interest of national governments and public opinion and vested interests posed too great an obstacle to be overcome by a mere public commitment to Agenda 2030 without the authority and resources required for implementation. Fundamental changes would be required in both the architecture and strategies employed.

In 2020, WAAS and UNOG renewed their collaboration to address the increasingly evident leadership gap by drawing on the expertise and experience of some 60 collaborating organizations, 14 working groups, and 250 experts from multilateral institutions, governments, business, academia, civil society and the arts.* The project examined global challenges and opportunities and explored the potential for a wide range of catalytic initiatives to overcome obstacles to global progress. The interim report issued by WAAS and UNOG in September 2020 addressed five interdependent pillars of a comprehensive approach to building global leadership and social momentum—Redefining Multilateralism, Sustaining Peace and Human Security, Mobilizing Civil Society, Innovative Strategies for Financing Implementation of the SDGs, and Transforming Global Education. Under each pillar, it identified key thrust areas for breakthrough initiatives. It also outlined issues to be addressed by further work.†

This report concluded that in spite of the unprecedented global challenges, there is a growing recognition among a wide range of international stakeholders that the current crisis situation also offers a unique opportunity to launch humanity into a more dynamic, equitable, resilient, and sustainable phase of global social evolution.¹ Those related to human security, finance, loss of trust in the media, and strategies designed to mobilize global public opinion first proposed in 2020 were revisited during the 2023 Athens meeting and are discussed further in this paper.

The aim of GL-21 was to stimulate new thinking for a renewed multilateral system. It sought to empower, energize, and mobilize global civil society to support a new paradigm in human relations. It was clear at the outset that such an objective was revolutionary and would require deep-seated changes in global society. But anything short of such change appeared

* [Global Leadership in the 21st Century](#)

† [Report on Global Leadership for the 21st Century Conference Report.pdf \(worldacademy.org\)](#)

and turned out to be inadequate to overcome the inertia, resistance, and opposition of existing power structures, vested interests, and reactionary forces, anticipating what more recent events have brought to the surface. It also emphasized the importance of innovative strategies to create a voice for global humanity, new models for coordinating scientific research and policy-making with social equity and implementation, new pedagogy and delivery systems for global education, new approaches for private and public sector financing of the SDGs, including the introduction of central bank digital currencies and measures to realign private sector investment with global social objectives, and strategies to enhance the credibility of the media, harmonize global cultural integration and enrich cultural diversity.

Although the reversal of global social progress was sudden and unexpected, the inadequacy of performance on Agenda 2030 was perceived long before the sudden collapse of peace and international cooperation became apparent. From the commencement of the GL-21 project, efforts were focused on how to redirect a much greater quantum of financial resources to the SDGs. Pioneering research was undertaken by Force for Good, a WAAS strategic research partner, and released at GL-21 in December 2020, estimating a huge deficit in funding for Agenda 2030 far in excess of the estimates of the UN and other agencies. The report called for strategies that would promote much larger investments in the SDGs by private sector financial institutions which manage two-thirds of global financial assets. It presented an analysis to identify the causes of the deficit, the obstacles to reducing it and possible strategies to do so.*

The need for radical reform of the structure and culture of UN institutions was also highlighted along with the need for a new model of research institutions linked closely with science diplomacy, policy making, financial resources, business and civil society, based on a model for an international research institute for human security presented by WAAS to Ban Ki-moon.

Of particular significance was the focus on human security as a complementary, bottom-up strategy to reinforce the top-down strategy of nation-states envisioned in Agenda 2030. The Academy argued that full support for the SDGs and multilateral reform required winning the minds and hearts of wider sections of global society. A person-centered approach that focuses on the personal security, welfare and well-being of each individual is likely to generate far greater attention and public support than the traditional impersonal approach to macro-level goals and targets for national and global society.

A report was also issued by UNOG and WAAS summarizing conclusions of the sessions of the final conference of GL21 which was conducted at the UN in Geneva on December 15-16, 2020, with over 60 speakers—diplomats and representatives of the United Nations system, scientists and practitioners, civil society actors and journalists, members of academic institutions and the business community youth representatives. It focused on the inability of global leadership to keep pace with the rapid and dramatic changes that have taken place in recent decades. It called for a new social and economic paradigm, the importance of Agenda 2030 and the Paris Accord, addressing issues from the perspective of human security

* [Capital as a Force for Good: Capitalism for a Sustainable Future](#)

and human dignity in all dimensions. It emphasized the need to restore public trust in the institutions of global and national governance and to address the challenge posed by fake news in the media.*

3.4. Counter-Revolution & Context 2023

The sudden onset of COVID-19 in January 2020 and growing awareness of the rapidly increasing threat of climate change soon began to dampen enthusiasm and led to a reaction among nations, sectors, cultural forces, institutions and special interest groups which resisted the call for rapid, radical change and sowed the seeds for a counter-revolutionary reversal.

Recent history beginning with the invasion of Ukraine, the revival of Cold War competitive nationalism, renewal of the arms race, retreat into nationalist economic and social policies, widespread threats to democratic values and processes, the acceleration of global warming, and the sudden onset of war in the Middle East, are too prominent in the media and minds of humanity to require narration at this point in time.

All of a sudden, confidence and progress in achieving Agenda 2030 were replaced by a slowdown in all 17 spheres. The attention of governments and the general public shifted away from a global program designed to promote peace, prosperity, and sustainable development for people and the planet. Rising expenditures in military budgets drew away precious resources essential for achieving the SDGs. Rising distrust and animosity replaced the spirit of global cooperation which gave force to the SDGs. While surveys showed that confidence in UN agencies ranked higher than that accorded to national governments and business, the blatant inability of the UN system to cope with the sudden collapse of international cooperation fueled disenchantment and reduced support for the multilateral system.* Nations began to realign themselves into opposing groups. Violence between peoples and nations spread from Ukraine and Russia to Syria, and multiple points in Africa before exploding in Gaza and spreading to surrounding countries of the region in Fall 2023.

A number of salient factors stand out prominently at the time of writing this paper:

1. Wars in Europe & Middle East, rising geopolitical tensions, revival of the Cold War mentality & nuclear arms race.
2. Acceleration of climate change and ecological imbalances poses the greatest long-term challenges to Human Security & Sustainable Development.
3. Loss of momentum in the implementation of the SDGs and rising threats to human security.
4. Growing disparity between the speed of technological changes and the capacity of society to adapt.
5. Institutional disconnect between public policies, science, technology, education, business, media, religion, universal values, human security and sustainable development.

* [GL-21 Conference Report](#)

† <https://www.pewresearch.org/short-reads/2023/08/31/people-across-24-countries-continue-to-view-un-favorably/>

6. Despite achievements in some key areas, such as COVID-19 vaccines, the growing role of business in scientific research and technological innovation in terms of discovery, development, application, security & legal compliance made global coordination difficult.
7. The 4th industrial revolution is spurring advances in connectivity, with AI, cybernetics & biotechnology generating unprecedented opportunities and risks.
8. Decline in quality of leadership, power and effectiveness of national governments & the multilateral system.
9. Decline in effectiveness of democracies accompanied by rising levels of authoritarianism, extremism, polarization, populism and societal instability.
10. Rising levels of disinformation and misinformation combined with declining trust in science, academia and other traditional social institutions.
11. Rising inequality, social segregation, persistent hunger & poverty generated by current economic models.
12. Weakening of multilateralism and global rule of law
13. Growing uncertainty, insecurity, anxiety and concern about threats to human rights, security and welfare.

4. Social Impact

In 2020 the Academy's work shifted the focal point of its programming to integrating knowledge with social impact, from understanding and analyzing problems and their root causes to formulating strategies, policies, and institutional mechanisms capable of meeting humanity's shared needs for security, welfare and well-being.

4.1. Program Strategies for Leadership in Thought that Leads to Action

1. To examine the biggest issues concerning global challenges and opportunities related to Peace, Human Security and Sustainable Development, such as the impacts of war, climate change and misuse of AI.
2. To apply a comprehensive, integrated, values-based, evolutionary theoretical framework including science, arts and humanities, that reflects the complexity, interdependencies, contribution of both objective and subjective factors, underlying forces, and root causes.
3. To formulate policy prescriptions founded on an integrated, human-centered theoretical framework as described above, practical experience, proven models and scalable initiatives.
4. To combine WAAS expertise with outstanding individuals and networks of partners for each level of conception, analysis, program design and implementation.
5. To be a catalyst and engine to complement, supplement, support, and extend—but not to replicate the work being done by others.

4.2. Rising Insecurity as a Root Cause of Global Social Turbulence

All the prominent sources of social unrest, conflict and instability that characterize recent global events share a single underlying characteristic or root cause. They are all either the causes or results of a growing sense of insecurity of people at all levels of society around the world—economic and political insecurity, ethnic and religious tensions, resource insecurity, geopolitical competition, technological disruptions, polarization of society, revival of extremism, threats to health arising from the pandemic, concern about climate change, erosion of democracy, international terrorism, etc.

The deeper underlying cause behind many of these manifestations is a pervasive sense of insecurity—at the level of individuals, communities, nations and global society as a whole. This insecurity can lead to a search for certainty and stability, sometimes through extreme or reactionary measures. Addressing these underlying feelings of insecurity through policies that promote economic stability, social cohesion, effective governance, and international cooperation is essential for mitigating the various manifestations mentioned earlier. ***Addressing the various individual manifestations of human security mentioned above may not be sufficient to stop the growing momentum of social turbulence and upheaval. The rising sense of insecurity is itself a root cause of social disruption. Human insecurity must be addressed directly and eradicated at its roots.***

4.3. Human Security for All (HS4A)

While obstacles and reactions to coordinated global progress were gaining momentum, in Fall 2020 WAAS was invited by the United Nations Trust Fund for Human Security (UNTFHS) to collaborate on a project to augment the top-down effort of nation-states to achieve the 17 SDGs with a complementary bottom-up effort to mobilize global society around the goal of human security for all through a comprehensive, integrated approach first outlined by UNDP in its 1994 Human Development Report.

Human Security for All (HS4A), a global campaign* for human security, was developed and finally approved for funding by UNTFHS in September 2022, with WAAS as its official campaign partner. WAAS research centers Global Security Institute (GSI), Force for Good (F4G), and The Mother's Service Society(MSS) became primary partners in the campaign.

The central objective of the campaign is to highlight the importance of enhancing human security in all dimensions, all sectors and at all levels of global society. The campaign seeks to promote awareness of the great importance of addressing the psychological underpinnings of social turbulence and unrest, promoting strategies to eliminate the sources of that insecurity, and replacing them with positive measures to enhance human security for all.

4.4. Redefining Security†

- The concept of security is a common denominator for all of the disparate global challenges confronting humanity today—the pandemic, climate change, nuclear proliferation, wars in Europe and the Middle East, and threats relating to AI.

* [HS4A Global Campaign](#)

† [President's Report from Athens](#)

- None of these global challenges can be effectively addressed by the traditional approach to national security based on the existing multilateral system intended to safeguard the sovereignty of nation-states, rather than the universal rights of people as embodied in the Universal Declaration of Human Rights.
- The prevailing concept of security has proven grossly inadequate to meet the needs of billions of people for food, employment, education, health care, a sustainable environment, human rights, social equality, and any of the other essential elements of human security enshrined in the UDHR (1948) and unanimously adopted in the 17 SDGs.
- HS4A addresses the critical need for redefining, reframing, and reinventing the concept of security. It approaches all issues related to the multidimensional global challenges from the perspective of their impact on people.

HS4A's main objective is to promote the concept of people-centered security. Its aim is to refocus priorities in all sectors of global society to prioritize efforts that directly focus on enhancing the personal safety, security and well-being of people at all levels of society, to provide a safe, peaceful and healthy environment for people and other life forms on the planet. Its strategy is to broaden the representation and influence of business, educational institutions, scientific research institutes, religious and inter-faith organizations, NGOs and other sectors of global civil society in shaping the direction of global events.

The campaign seeks to engage business leaders, technological innovators, financiers, parliamentarians, scientists, educators, interfaith groups, filmmakers, artists, NGOs and youth organizations with the call of human security for all. Its ultimate aim is to mobilize the global public to aspire and press for a concept of security that places people first and shifts the focus from competitive nationalism to an inclusive movement of human security that excludes no one.

"We need to have the spirit of science in international affairs, to make the conduct of international affairs the effort to find the right solution, the just solution of international problems, not the effort by each nation to get the better of the other nations, to do them harm when it is possible"

– Linus Pauling

The response to the campaign during the first year dramatically exceeded expectations. The campaign was launched in collaboration with the Consumer Technology Association (CTA) in January 2023* as the official theme of the Consumer Electronics Show before an audience of 120,000 business and technology leaders from around the world and 5000 members of the global press. The organizers were so convinced of the importance of the HS4A messaging for its members that they once again adopted the theme of human security for CES2024 in early January 2024, where the audience exceeded 130,000 and the UN's Special Envoy for Technology participated in support of the campaign messaging.

* [Technological Innovations for Human Security: HS4A at CES2023](#)

CES was a landmark event in the effort of the Academy to shift the focus of our work from thought to action. The response to the campaign by other key sectors of society has also involved a similar shift. IAP, the Inter-Parliamentary Union of 170+ national parliaments, has included human security in its top priority messages to its members and is collaborating with WAAS to develop a training programming on human security to be disseminated to the MPs of all its member states. Similarly, IAP, the Inter-Academy Partnership (IAP) of 150 national, regional and global science academies, selected human security as the core message to be projected to its members and disseminated internationally to governments, and educational and research institutes around the world in 2024. CoNGO, Conference of NGOs in Consultative Relationship with the United Nations with 600+ members, also adopted human security as one of its main priorities. An enthusiastic response also came from leaders of major religious and inter-faith groups. A program to project the message to 100,000 school students is underway in India. Similar initiatives are being planned to address other key sectors including the arts and cinema.

The human security framework has been adopted to view all of the challenges confronting humanity from the perspective of their impact on the security of people, including the deleterious impact of global society on the natural environment which emanates from human behavior and is fast emerging as the greatest of all threats to humanity, for these environmental threats to all life on earth can only be addressed by fundamental changes in human behavior conducive to the sustainable development of all life on the planet.

Figure 2: Interrelated Nature of Human Security and Sustainability Goals



Human Security is conceived in terms of eight interdependent dimensions—food, health, ecology, economy, technology, politics, community, and individual security. These dimensions largely coincide with the 17 Sustainable Development Goals. Human Security

is a comprehensive umbrella that encompasses them all. It is the cross-cutting theme that connects them all together.*

“WAAS seeks to evolve from an intellectual think tank into an impactful organization with the capacity to effectuate concrete changes in the world at large. Our aim is to ensure a better future for all. Human Security for All provides us with the overall framework, direction and perspective true to the Academy’s founding vision.”

Agenda 2030 and Human Security are complementary approaches to address these global challenges—the former from the top-down global perspective of science and governance, the latter from the bottom-up perspective of every individual and community. The SDGs are an expression of the organized political will of humanity to work collectively to address their common problems. Human Security represents the collective aspiration of billions of people for a secure and sustainable way of life for everyone on Earth.

The Academy’s challenge today is to continue the shift from understanding to action. This shift calls for a fundamental change in the way we think. It calls for effective measures to fully engage the wide-ranging potential of the Academy’s membership to approach global challenges from a comprehensive, integrated, transdisciplinary, transnational, human-centered, values-based perspective as initially envisioned by our founders. It will require reframing our knowledge within a comprehensive, integrated theory of social development and evolution based on fundamental advances in our way of thinking and concept of knowing that integrate the objective insights of the sciences with the subjective perceptions derived from the arts and humanities.

Our objective is to elevate the fundamental values of humanity, fostering global peace, promoting global citizenship, reorienting education towards the acquisition of integrated knowledge, offering values-based scientific knowledge and wisdom to advise policy and decision-making, and combat the threats of disruptive technology. With a clear action plan to achieve measurable outcomes, WAAS seeks to evolve from an intellectual think tank into an impactful organization with the capacity to effectuate concrete changes in the world at large. Our aim is to ensure a better future for all. Human Security for All provides us with the overall framework, direction and perspective true to the Academy’s founding vision.

4.5. Strategic Rationale for HS4A

Following robust debate on the topic by the Board of Trustees, the wording and objectives of ‘human security’ and ‘human security for all’ have been adopted as a program framework for the work of the Academy for a number of reasons:¹⁸

* [Impact Initiatives, HS4A & F4G](#) by Ketan Patel

1. **Global Relevance:** It addresses the highest priority needs of the whole world community
2. **Complement to SDGs:** It is a catalytic strategy for achieving Agenda 2030 that complements the top-down, global approach of the 17 SDGs with a person-centered, context specific approach related to the needs and well-being of individuals and communities.
3. **Inclusiveness:** Its inclusive scope and direct relevance to virtually all of the program areas WAAS has been focusing on, from war, nuclear weapons, climate, economics, finance and environment to education, employment, energy, food, health, the social relevance of basic scientific research, business, technology, AI and all types of existential risks.
4. **Support for Multilateralism:** It seeks to build broad-based public support for the efforts of UN agencies to address major global challenges on behalf of all humanity.
5. **Building Networks:** It is dramatically expanding the reach of WAAS by helping us forge active partnerships with UN agencies, governments, international organizations, science academies, universities, NGOs, faith-based groups, business and finance, environmental and youth groups.
6. **Integrated Approach:** The campaign strategy is based on a human-centered, transdisciplinary, integrated approach that bridges gaps and missing links between disciplines and between research, policy, implementation and social impact.
7. **Public Awareness:** HS4A has generated unprecedented visibility for WAAS in terms of mainstream press & social media coverage.
8. **Opportunities for Impact:** HS4A has opened up opportunities to transition from campaigning to education, training, policy-making, and other impact initiatives in collaboration with the UN and other partners.
9. **Fundraising:** HS4A enhances the credibility, eligibility and capacity of WAAS to raise funds.

5. Strategic Planning Process

With this history and in this context, the WAAS Board of Trustees initiated a Strategic Planning Process (SPP) in August 2023 with the objective of developing a plan for the future development of the Academy for the remainder of this decade. The decision was followed by a survey of WAAS Fellows in October 2023 to seek their views, suggestions and proposals regarding the Academy's present functioning, current direction and future potential. Based on feedback from the survey and from interviews with all members of the Board, a three-day meeting was conducted at the Academy of Athens, Greece in November 2023 to consider the first outline of a strategic plan to guide the work of the Academy over the next five years.

5.1. WAAS Today

An important initial step in the planning process was to assess the current capabilities and limitations of the Academy. The WAAS Board agreed that the first priority should be placed

on maximizing utilization of existing capacities and resources, by engaging and mobilizing the rich diversity of its members' expertise and experience and by extending and multiplying the Academy's growing network of partnerships with UN agencies, governments, research institutes and academics, universities, NGOs, youth groups, businesses and the media. At the same time, it is evident that successful expansion of its program of work will require significant strengthening of its organization through the recruitment of full-time staff to complement the voluntary contributions of members, developing an effective fundraising program, and strengthening external communications.*

Figure 3: WAAS' Strengths and Weaknesses

Strengths	Weaknesses
<ul style="list-style-type: none"> • Transnational perspective • Commitment to universal values • Broad range of expertise & experience • Transdisciplinary approach • Openness to new ideas & initiatives • Reputation & trust (with limited exposure) • UN & UNESCO Consultative Status • Partnership with the UN • Multisectoral network of networks • Support of WAAS centers • Reliance on voluntary member participation and commitment 	<ul style="list-style-type: none"> • Inadequate engagement of Fellows • Inadequate diversity of membership • Need to engage younger generations • Lack of full-time staff • Nascent fundraising program • Low level of public awareness • Public relations & external communications • Clear organizational structures • Management of partner relations • Matching programs with capabilities • Dependence on voluntary member participation and commitment

5.2. Vision of Future WAAS

The SPP meeting in Athens examined the founding vision and mission of WAAS, reviewed recent developments, discussed current and proposed programs, and took decisions regarding further steps needed to continue work on the strategic plan while initiating essential measures already approved by the Board. The emerging vision of the future WAAS has the following characteristics:

- An agency dedicated to human security, human welfare and sustainable development for all
- An organization of individuals representing excellence in art, science and professional fields of accomplishment
- Seeking to embody the values, vision, commitment and the social responsibility of science as represented by our founders
- Seeking to provide Leadership in Thought that leads to Action to address the vital problems confronting humanity to promote human security for all

* [President's Report from Athens](#)

- Striving to think on behalf of all humanity from transnational, transdisciplinary, non-partisan, unbiased, multi-cultural perspectives
- To be a catalyst and engine to complement, supplement, support, and extend—but not to replicate—the work being done by others.
- WAAS was founded to bring a message of hope after WWII. Today WAAS can play a similar role, with AI focused on its benefits to humanity, rather than power and profit.

“We are not a scientific organization but an institution committed to the highest universal values that promotes and uses scientific knowledge for the survival, security, welfare and wellbeing of humanity.”

– Ivo Slaus, WAAS President (2011-’13)

During the Athens meeting, the Board confirmed the decision that human security represented a comprehensive, inclusive framework encompassing the full gamut of issues central to the future welfare and well-being of humanity and the sustainable development of the environment supporting all life forms on the planet. The Board also decided that it was time for a shift in emphasis from preoccupation with the conceptual exploration of the issues that have preoccupied WAAS for the past decade to a focus on efforts to apply the knowledge and insights in order to achieve practical impact in the world.

Already initiatives are underway to apply the principles of human security to the management of technology, training and influence of policy-makers, revamping of educational curriculum, and mobilization of civil society to address a wide range of social issues through education, training, public policy, institutional reform and building broad-based public support. The shift in focus in WAAS programming to application and impact must now be magnified, extended and accelerated.

At the same time, the Board recognized the need for very significant efforts to enhance and accelerate the conscious evolution of WAAS. It identified areas in the Academy’s administration and management that require strengthening as well as potential opportunities for future programming.

Among them are the need to expand, diversify and enhance the breadth and depth of expertise among WAAS membership, encourage Fellows to more actively contribute to the Academy’s future work, expand and diversify programming, improve internal and external communications, launch a professional fundraising campaign to support new programming and organizational development, and recruit paid staff to support programming, fund raising, internal and external communications. Special emphasis was placed on programming with concrete, measurable impact. These issues are now under study and will be taken up for action during 2024.

In order to expand the scope of membership awareness, engagement and participation, the Board also decided to conduct WAAS@64, an online conference and general assembly in mid-2024, similar in character and scope as the WAAS@60 conference in February 2021.

The 2024 event will provide opportunities for direct communication and discussion among WAAS Fellows on strategies and programs for inclusion in the new strategic plan.

6. Future Programming Opportunities

The Athens meeting also included a presentation on ongoing and proposed activities that have already been identified and are consistent with the mission, goals and objectives of WAAS. The remainder of this paper briefly describes the most salient of these activities which will be further developed and discussed at the WAAS@64 conference and in other fora.

6.1. HS4A Action Plan

In 2024 the HS4A project will shift focus from communications to impact by leveraging the relationships forged by the Academy during the first year of the campaign. Among them are initiatives already described above involving practical measures to engage the global community of business and technology leadership through CES 2024 and F4G; engagement with scientific research institutions through collaboration with IAP; training of parliamentarians through collaboration with IPU; outreach to decision makers, social media influencers and the general public via the arts, cinema and social media; introduction of year-round course content covering the full range of human security issues for children at different ages in schools in India; and extension of the Academy's research network through expanded partnerships in different sectors of society.

6.2. Human Security Concepts and Measurement

The introduction, monitoring and implementation of the SDGs within the UN 2030 Agenda are inherently related to the concept of Human Security and its components. Measurement is essential for the effective assessment and evaluation of policy measures. Developing an effective set of indicators to assess levels of attainment for all dimensions of human security should be given high priority. The "Cross-Country Metrics for Comprehensive Human Security Assessment" project, launched by WAAS partner AE4RIA, aims to develop standardized cross-country metrics to assess human security across nations to enhance global understanding and facilitate informed policy decisions.²⁰ WAAS also conducted a webinar in June 2023 which included project leader Phoebe Koundouri, Jeff Sachs and other members of the project team.²¹ The model they developed clearly shows the correspondence between human security goals and the 17 SDGs. Plans are underway to fully develop and apply measures for human security at the global, regional and national levels and, possibly also, at the corporate level, similar in nature to those already developed for the 17 SDGs. Other opportunities to extend the reach and impact of HS4A discussed in Athens are briefly described below.

6.3. Human Security – Education Upskilling and Reskilling^{*,†}

Mainstreaming Human Security concepts in Higher Education and Policymaking is essential for achieving the goals of sustainable development. WAAS supports the SDSN

^{*} Phoebe Koundouri and Konstantinos Dellis, *Cadmus*, February 28, 2023.

[†] Human Security: Quantification & Acceleration <https://worldacademy.org/conference-page/waas-talks-series/quantitative-methods-and-tools-for-human-security/>

Global Climate Hub's Unit (GCH): Education, Training, Upskilling and Reskilling.* The SDSN GCH, chaired by Phoebe Koundouri, has made it its mission to provide science-based recommendations for combating the climate crisis and preventing further deterioration. Its research teams work on the development of cutting-edge models for all major natural and infrastructure systems (e.g., climate change, water, atmosphere, land-use, food, energy, transport, marine-use systems, etc.), supported and connected by a powerful digital AI-driven infrastructure. These are put into the proper socio-economic context, through overarching economic models for the case study/ application of interest.

The GCH provides regional, national, and sub-national pathways for the transition to a climate-neutral and prosperous world. The pathways are practically optimal, dynamic mixtures of technical, engineering, technological, policy, fiscal and financial measures. These are co-designed by research teams holding the scientific expertise and model-driven information, and local stakeholders, through transformative participatory workshops. Thus, co-owned solution pathways are implemented. The whole process is based on Open Science, making data and models accessible to everyone.

SDSN GCH can help countries achieve sustainability against the backdrop of interconnected, complex challenges.† The 9 Units of the SDSN GCH represent the stages that a country should go through in order to achieve the design and implementation of detailed climate neutrality and climate resilience pathways. In this direction, there are plans for Amanda Ellis, together with Phoebe Koundouri and SDSN GCH, to deliver seminars to Parliamentarians across the globe targeting the upskilling and reskilling of the Public Administration Sector and governments.

6.4. Technology as a Force for Good

WAAS collaboration with Force for Good (F4G), a WAAS strategic research partner, has been one of the highlights of the HS4A campaign. The release of two reports on Technology as a Force for Good by F4G at CES 2023 and 2024 highlighted the indispensable role of technology for achieving the 17 SDGs and the goals of HS4A and provided a practical means by which the Academy could seek to exercise real impact on an issue of central importance. Technology is a double-edged sword and represents both unprecedented threats and opportunities. But without the support of technological innovation, it will be extremely difficult to meet humanity's aspirations as set forth in Agenda 2030. The F4G research documents the enormous untapped potential to develop and apply innovative technologies to enhance human security in all major dimensions, sectors and parts of the world. In 2023 HS4A and F4G campaigning raised awareness of the importance of technology, and we were pleased to see the UN recognize technology as an eighth dimension of human security, which prompted CTA to adopt HS4A as the theme of CES two years in a row, the only two occasions that a theme has been adopted for CES in a half century of exhibitions. These reports created greater access and impact for our work with CTA/CES and forged active relations with the United Nations Secretary General's Special Envoy for Technology.

* <https://unsdsn.globalclimatehub.org/>

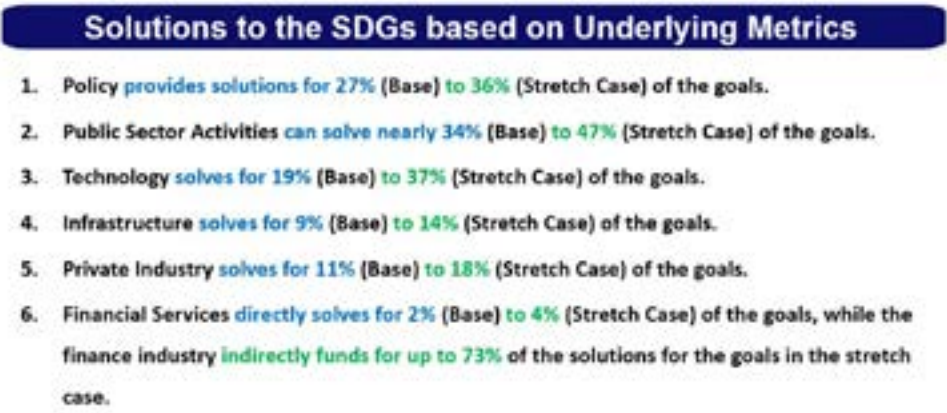
† <https://www.nature.com/articles/s41893-024-01289-8>

The 2024 F4G report on technology reports:

*Existing technologies enabled by AI can close nearly 50% of the gap if scaled and deployed globally, and can help position the world in a more risk managed manner for the transition to the Information Age. The leading three critical initiatives that lay the foundations for achieving the SDGs and effectively levelling up the world are universal connectivity, leveraging generative AI across the SDGs, and mass financial inclusion.**

One component of the F4G research focused on the dramatic impact of financial technology on providing access to bank accounts, bank credit facilities, government incentives and insurance for 500 million Indians. The F4G initiative worked with the Government of India to promote the idea that offering its fin-tech platform and solutions free of charge to other countries would drive global financial inclusion to the benefit of the world, especially the Global South and India. The Indian government, in its G20 leadership year, hosted an event in April 2023 at the UN, in the ECOSOC chamber, to discuss their technology and offer it to the world with representation from the UN, the Indian ambassador to the UN and F4G. The report also identifies five other pivotal SDG high impact areas which also have enormous transformative potential: affordable housing, mass education, impact on the individual, biodiversity and impact externalities.

Figure 4: Solutions to SDGs based on Underlying Metrics



In addition, F4G’s 2023 report on capitalism for a secure, sustainable and superior future extended the analysis to identify 15 solutions that could together address 70% of the SDG gap. Among these the greatest impact could be achieved by a green transition policy framework and sustainability disclosure standards. The report concluded that policy solutions alone could provide solutions for 27% to 36% of the SDG gap and public sector activities such as environmental impact bonds and debt for nature swap could provide an even greater amount. Combined, all the potential levers, if applied could still enable us to fully achieve

* [Technology as a Force for Good: Technology Driving the Transition to a Superior Future](#), January 2024

Agenda 2030 within the original timeframe. The report also identified six high-impact transformational initiatives, including affordable housing, mass education and mass financial inclusion. This research transcends the analysis, commonly focusing almost exclusively on financial resources. They suggest tapping into untapped potential for other impact initiatives.*

WAAS and Force for Good are committed to identifying other untapped technological and financial opportunities and practical strategies for business, research and government to close the SDG gap and enhance human security all over the planet.^{†,‡}

6.5. Science, Sustainable Development & Human Security

Aligning scientific research with the unmet needs of society is essential for achieving the goals of human security and sustainable development.

WAAS is in the process of organizing a series of events devoted to the role of science in achieving the goals of sustainable development and human security. The first event was *the World Conference on Basic Sciences for Sustainable Development*, held in Belgrade, Serbia on September 19-22, 2022.[§] That was the flagship event for Europe within *the International Year of Basic Sciences for Sustainable Development* (IYBSSD), proclaimed by the United Nations General Assembly (UNGA) in December 2021. Besides WAAS, UNESCO and The Club of Rome were among its organizers. The main conclusions of the event were that without an adequate investment in basic research as the initial link in the chain of research and development, it will not be possible to find the proper path towards the inclusive, balanced, and sustainable development of the planet, and that reaching these goals requires a full multidisciplinary involvement of all sciences, *i.e.*, basic, applied, social, and humanistic ones. The main result of the event was the proposal to the UNGA to proclaim the period 2024-2031 as *the International Decade of Basic Sciences for Sustainable Development* (IYBSSD). The proposal was approved, and *the Decade* was proclaimed by the UNGA in August 2023.

The Belgrade conference was followed by two webinars: *WAAS Talks on Science for Human Security: Biohydrogen Production and Use*, held in June 2023, focusing on the future potential of clean hydrogen fuel in the transition from fossil fuels, and *WAAS Talks on Science for Human Security: Science Diplomacy*, held in October 2023, examining the three pillars of science for diplomacy, and in diplomacy, and the use of diplomacy to facilitate scientific cooperation across borders.

The initial version of the WAAS Program of Sciences for Sustainable Development was launched in November 2023 for inclusion in the overall program of IYBSSD. The program continued the series of *WAAS Talks on Science for Human Security with Nature-Based Climate Control* on February 28, 2024, followed by future webinars on *Artificial Intelligence*, *Nanomaterials*, *Healthy Ageing*, *Fusion Energy*, *Social Inequalities*, *Sustainable Cities*, *Multilateralism*, *Green Transition*, *Ecological Anthropology*, *Cultural Architecture*, *Science and Art*, *etc.* The Program will also include *the World Conference on Science and Art for*

* [Capital as Force for Good: Solutions to Close the SDG Gap](#)

† [Technology as a Force for Good: Technology Driving the Transition to a Superior Future](#)

‡ [Impact Initiatives, HS4A & F4G](#) by Ketan Patel

§ Report on the [World Conference on Basic Sciences and Sustainable Development](#), Belgrade, Serbia

Sustainability, on September 22-25, 2025 in Belgrade, and *the World Conference on Big Science with Accelerators: Basic Sciences and High Technologies*, in June 2027.

The plan also includes a few platforms in science and technology for cooperation between the Global North and the Global South, functioning through bilateral and multilateral cooperation agreements between the involved international, regional, and national scientific and educational organizations. A number of such agreements have already been executed and are being implemented; including the themes *Big Science with Accelerators*, *Food, Water, and Energy Security*, and *Big Science in Space*. The Program will be implemented together with interested international, regional, and national non-governmental organizations, private sector entities, and individuals in coordination with UNESCO, other relevant organizations of the UN system, and some governments. All the activities within the Program will be focused on policies and regulatory measures with the aim of concretely contributing to achieving sustainable development and human security at the national, regional, and international levels.

These activities may include collaboration with universities, research laboratories and networks such as the International Universities Climate Alliance, the Earth League, the Earth Commission and the New Carbon Economy Consortium.

6.6. From Atomic Energy to Artificial Intelligence

The discovery and harnessing of atomic energy led to the recognition of science and technology as a double-edged sword with unrivaled power for social advancement or destruction. The Manhattan Project gradually led scientists to the realization that they could no longer live in ivory towers occupied with fundamental research that might someday be converted into technologies to promote or threaten human security and life on the planet. The founders of the Academy lived and worked through the period when this realization gained widespread prominence and WAAS was established to cope with the ethical and practical implications of this discovery.

At the end of the Cold War, it was hoped by many that the nuclear age would fade into the past and weapons of mass destruction would be completely eradicated. Indeed, progress was made to reduce the total number of warheads by 80% and remove the rest from critical alert status. Yet, in spite of ardent efforts by the Academy's early leadership to contain and place atomic energy back inside Pandora's Box, nearly eight decades later, humanity still confronts the dilemma of how to contain and protect itself from the consequences of its own discoveries. Today we witness once again the specter of these weapons and a renewed assertion of their power.

By a strange irony, at the very moment when the threat of nuclear weapons has once risen into prominence, Artificial Intelligence has suddenly emerged as another double-edged sword with unprecedented power for creative and destructive purposes. Once again, we confront the dilemma arising from the power of knowledge to be used to dramatically enhance the security and well-being of humanity or to undermine it.

Today the same debate is preoccupying the minds of leading scientists and engineers, corporate leaders, politicians, and diplomats regarding the lightning-fast development of AI.*

* [Information, Disinformation, Social Media & AI](#)

Figure 5: The Exponential Growth of AI



How do we contain the potential threats and harness the beneficial powers of technology for the common good and human security for all?

“The tempestuous technical development tends to throw mankind off its psychological equilibrium and possibly even to destroy it physically. Only far-seeing statesmanship in cooperation with the leading scientists in all branches of science will be able to regain the equilibrium. It will be one of the main tasks to bring such a cooperation into being.” (First International Conference on Science & Human Welfare, Wash. DC. 1956)

Recent events remind us that the discovery of knowledge is not sufficient in itself. We must also accept responsibility for how it will be utilized. At a time when we are still grappling with the consequences of renewed military conflict, we must also confront and cope with an explosion of technological developments and deployments whose ultimate character and consequences are unknown and whose governance presents a challenge even greater in scope and complexity than the threat of nuclear weapons ever presented. The future security of humanity will depend on how we respond to this challenge and if we are able and willing to develop people-centered, safe and sustainable innovations.

6.7. AI Governance for Human Security

AI ranks at the top of the list as a potential force for good in the world as well as a growing threat to all dimensions of human security. Already, important breakthroughs have been achieved by the application of AI to abridge the time required to design new drugs such as a vaccine for COVID-19 as well as a variety of new materials. According to research at Morgan Stanley, even modest improvements in early-stage drug development success rates enabled by the use of AI and machine learning could lead to an additional 50 novel

therapies over a 10-year period.* AI’s enormous potential for transforming global education is discussed later in this paper.

The potential threat posed by the misuse of AI also ranks at the top of the list along with climate change and atomic weapons as an issue of vital importance to all of humanity. Governance of AI at the global level is essential to encourage the development of AI’s positive potentials while at the same time preventing wrong applications.

The need for AI governance is multiplied by the prospect of the rapid development of AGI (Artificial General Intelligence or Super Intelligence) which exceeds the intelligence of human beings. AGI could pose existential risks to civilization as we know it. It also has the potential to positively address the full range of human security threats and vastly accelerate the evolution of global society. Research by WAAS partner Millennium Project identifies the complex factors which make monitoring and governance of AI far more difficult than those posed by nuclear weapons. The chart below compares the potential threats arising from AI and AGI.†

Figure 6: Challenges of AI Governance

Challenges of AI Governance	
Generative AI (e.g. ChatGPT, Bard)	Artificial General Intelligence
<ul style="list-style-type: none">• Data Privacy and Security• Ethical Use and Bias• Misuse Prevention• Safety and Reliability• Intellectual Property Rights• Transparency and Accountability• Regulation and Compliance• Fair Access and Inclusivity• Impact on Employment• Long-term Societal Impact	<ul style="list-style-type: none">• Data Privacy and Integrity• Ethical Frameworks, Legal Status• Safety, Control, Equitable Access• Prevention of Misuse• Global Collaboration and Regulation• Transparency and Accountability• Impact on Society and Employment• Long-Term and Existential Risks• Human-AI Interaction• Continuous Monitoring & Adaptation

As the founders of WAAS recognized the pressing need for global governance of nuclear energy at the very moment it was developed, today the Academy views efforts to promote effective governance of AI and AGI for the welfare of humanity as among the highest priorities for WAAS and the world. WAAS has already been invited to collaborate with UNESCO and other partners in this endeavor.

* <https://www.morganstanley.com/ideas/ai-drug-discovery>
† <https://www.millennium-project.org/transition-from-artificial-narrow-to-artificial-general-intelligence-governance>

6.8. AI, Media & Human Security

*“Europol, the European Union’s law enforcement agency, predicted that as much as 90 percent of content on the internet could be created or edited by AI by 2026.” – Gen.ai **

“We are witnessing a pivotal moment where the adversaries of democracy possess the capability to unleash a technological nuclear explosion... their weapons of choice are misinformation and disinformation, wielded with unparalleled intensity to shape and sway the electorate like never before.” – AI2 †

“We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don’t let yourself be lulled into inaction.” – Bill Gates ‡

The topic of fake news and information disseminated through mainstream and social media reached the headlines during the 2016 and 2020 US presidential elections and spurred many initiatives to address it, though none appeared adequate to quell the surging place of disinformation in politics and other fields. A special session conducted at GL-2020 tried to explore and find a solution to this issue but was unable to arrive at an adequate response.§

In 2024 nearly half of the world’s people will go to the polls to vote, making this a critically important year for global democracy. The rapid spread of disinformation poses a very serious and ever-growing threat to the viability of democracy and human security. The increasing use of the media to disseminate inaccurate and fake news is undermining the quality of decision-making, public opinion, and political outcomes. This trend is further aggravated by the increasing resort to social media as a major news source, especially among younger generations. Studies indicate that the reliability of information on social media ranks the lowest of all major news sources. Moreover, recent developments in AI make it possible to vastly facilitate the falsification not only of news reports but of video content cited as evidence.

Already numerous initiatives are underway by media leaders and other organizations to address the threat posed by fake news, such as a global registry of labelled fake news, fact checking mechanisms and AI and data-driven platforms to develop automatic fake news detection systems. Human intervention cannot possibly deal with the magnitude of global information flows. But recent breakthroughs in generative AI may now make it possible to harness the power of AI to counter the use of AI for falsification of information. WAAS is examining possible organizational and technological mechanisms to mitigate the falsification of information disseminated through the media.¶

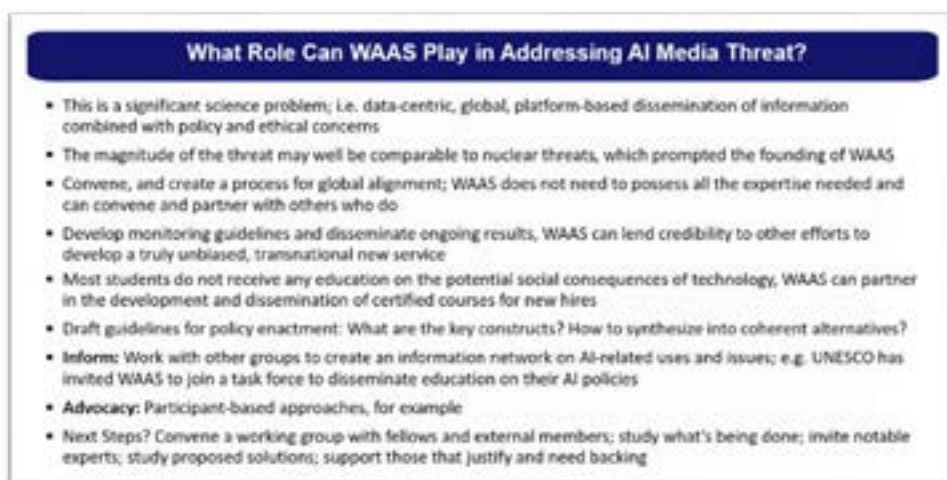
* [What will stop AI from flooding the internet with fake images?](#) | Shirin Ghaffary | Vox.com

† Oren Etzioni, Former CEO of and current advisor to AI2, a US-based non-profit research institute focusing on AI and its implications.

‡ For video of the discussion see <https://worldacademy.org/conference-on-global-leadership-for-the-21st-century-restoring-public-trust-and-the-role-of-media/>

§ [Information, Disinformation, Social Media and AI](#) by Jon Miller

Figure 7: What role can WAAS Play in addressing AI Media Threats?



6.9. Existential Risks & Human Security

The WAAS Existential Risks to Human Security Working Group (ER2H) has been studying the full range of serious challenges, risks and threats posed by existing and potential existential risks to world peace, democracy, environmental stability and human security. It is also working on a strategic approach for addressing these risks so that it can focus on solutions as well as threats. Plans are under preparation to establish a Global Futures Platform for the planet, people and peace. This platform would adopt an integrated approach, enhance capacity through education and workforce development, share knowledge and technological solutions as global goods, strengthen leadership skills, and enable good governance. An international transdisciplinary education conference focusing on solutions to existential risks has been proposed as part of the Group's activities.*

A High-Level Meeting to strengthen global governance for existential threats was convened by the InterAction Council and One Young World at the House of Lords in London in January 2024. The purpose of the meeting was to outline a process and a plan through the creation of an intergenerational Global Security Council for Existential Threats, responsible for the design and delivery of a strategy and action plan.

Follow up actions will be further advanced at the InterAction Council plenary in the spring of 2024 which is planned to be hosted by China. Next steps outlined at the meeting include inviting members to the first intergenerational meeting of the Global Security Council for Existential Threats. This will be combined with a series of High-Level Expert Meetings to formulate a living strategy supported by the development of committees that coordinate actions. Committed partners are already working together to advance an advocacy campaign and a digital platform for the Planet, People and Peace. Jo Nurse, The InterAction Council

* [A Plan to Secure the Future of Humanity from Existential Threats](#) by Joanne Nurse

advisor, and Chair of the World Academy of Art and Science's working group on Existential Risks for Humanity (ER4H), welcomes further engagement with partners.*

6.10. Climate Threat

The rapidly escalating climate crisis threatens to destabilize on every level. 2023 set another record on extreme heat and for the first time, the 1.5 degree threshold in the Paris Accord was breached in terms of average temperatures for the year through January 2024. As oceans icon Dr Sylvia Earle points out, "This decade is the most decisive in the next 10,000" for the health of our planet and all the life forms it supports. We have a rapidly narrowing window of opportunity to take radical action and hence WAAS has a critical role to play in addressing all dimensions of this existential threat. While the science is clear and solutions largely exist for immediate action, the sociological and political dimensions of the climate crisis are complex. Those with vested interests have been slowing down the transition away from fossil fuels urged in the COP28 outcome document and spending vast sums annually on disinformation and political advocacy to maintain the status quo.

Figure 8: Context: The Escalating Nexus of Existential Threats and Risks



So instead of positive progress and aligned incentives, the IMF points out fossil fuel subsidies have reached record highs: \$7.1 trillion in explicit and implicit subsidies in 2022. If these subsidies were to be removed, the IMF estimates a drop in emissions of some 34pc by 2030 - three quarters of what scientists say is needed. Hence our ability to communicate with and help influence Parliamentarians is critical. It is Parliamentarians who legislate to turn the Nationally Determined Contributions of the Paris Accord into national law, oversee budgets and hold to account their own governments and other UN members on their Greenhouse Gas reduction commitments.

* [A Plan to Secure the Future of Humanity from Existential Threats](#) by Joanne Nurse

WAAS proposes aligning with and cross promoting the current climate educational work with the Inter-Parliamentary Union, the Commonwealth Parliamentary Association and global policymakers, led by WAAS Board member Amanda Ellis at the ASU Julie Ann Wrigley Global Futures Laboratory and the proposed partnership with the SDSN Global Climate Hub led by WAAS Board member Phoebe Koundouri.*

WAAS Fellows can be invited to join the “Ask an impartial expert” function to help provide Parliamentarians and policymakers with impartial advice.

There are of course important intersections with the other existential threats discussed in this paper which WAAS proposes to address regarding both AI and disinformation that can be highlighted across all three projects.

6.11. Global Voices for Human Security

Global progress is stifled by the resistance and vested interests that retard development of the multilateral system. It is also limited by the lack of awareness, engagement and communication between policymakers and the global public. In addition, there is little or no statistically reliable information about the actual views of the public on most issues.

The GL-21 project concluded that mobilizing the voice of global civil society is a force that can alter the balance of power and accelerate progress to transform prevailing institutions and policies of global society. In response, WAAS and F4G are examining ways to exploit the power of technology, including blockchain and AI, to magnify and multiply the voice of the global general public. The objective of the project is to keep people reliably informed and interconnected by adding value to their lives. Over time, it could serve as a non-legally binding “global referendum” platform and become a powerful voice to influence decision-makers.

The project envisions creation of a global platform where everyone can express themselves on issues of critical importance to humanity in order to build global support for a global social movement. This platform would abide by human rights declarations, engage the public, and become a global voice.

Through value generation, social media engagement, gamification, online collaboration and innovative use of AI and collaborative technology, a platform of this type could have a significant positive impact on global society.†

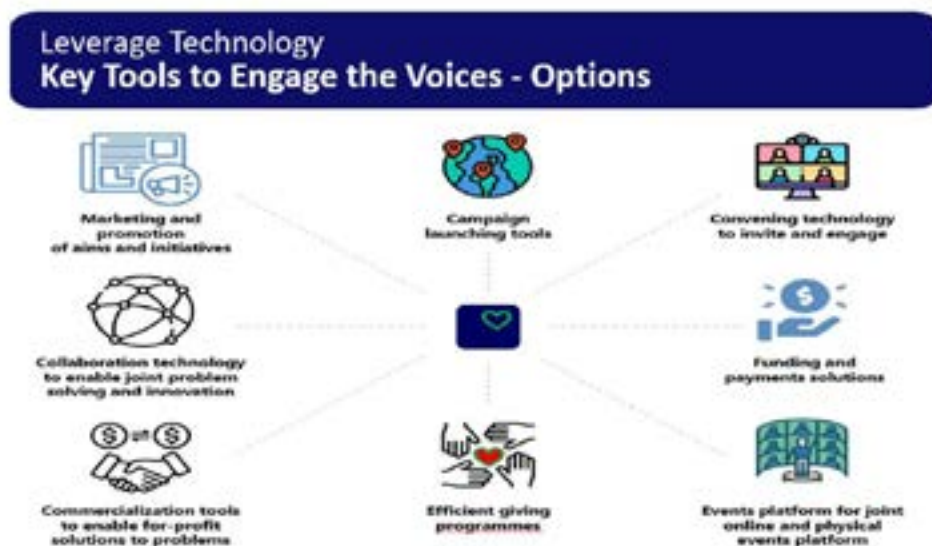
The project raises many complex issues relating to engagement, outreach, confidentiality, reliability and authenticity of inputs. The platform would adopt a liquid democracy design independent of elected authorities and institutions. It could be utilized to conduct opinion surveys and research projects, disseminate information, facilitate discussion, and conduct polls or referendums of the world’s peoples. Technology could be employed to ensure the uniqueness and privacy of participants to the extent of requiring each participant to utilize a mobile phone number. Force for Good is already experimenting on early prototype models of such a platform and examining various technological solutions. See‡

* <https://www.ipu.org/parliaments-planet>

† [Impact Initiatives: HS4A and F4G](#) by Ketan Patel

‡ [I Love This Planet](#)

Figure 9: Key Tools to Engage the Voices



If effectively established, it could become a very valuable source of information for governments, researchers and opinion-polls, providing a much clearer understanding of global public opinion as well as feedback to the public regarding prevailing beliefs, views, ideas, and attitudes. The project would require partnerships providing the required investments, sophisticated technical design, and operational management. The value of the system would depend entirely on its credibility as an impartial, transnational representative of global society. The involvement of WAAS in some capacity, either on its own or as part of a consortium of qualified partners, would be intended to primarily instill public trust and confidence regarding the impartiality of the platform and its efforts to present unbiased, fact-based information.

WAAS is collaborating with F4G to work out the technical and financial requirements for such a project, harnessing the power of AI to vastly enhance its effectiveness.*

Role of Culture in Human Security

Culture is the bedrock of relationships between people near and far and human security is a function of culture. The extremely rapid development of technological innovation and application spreading the world far outpaces the slow, haphazard and evolution of social cultures at the local, national and global levels. The gap between technological revolution and cultural evolution is a major source of the growing sense of uncertainty, insecurity, and resistance to change that is spurring the polarization of societies and rising levels of violence within and between nations. Scientific and technological progress cannot be stopped

* by Ketan Patel

or slowed down, but they can and must be analyzed from the point of view of their ethical and social impact and consequences. Human Security founded on cultural understanding and harmony is the only permanent remedy. WAAS aspires to be an embodiment and catalyst for this objective.

“How can WAAS guide humanity towards its highest level of aspiration and self-actualization?”

WAAS can play a role in this field by contributing to the development and application of ethical standards and practices based on the acknowledged social responsibility of science to serve as a positive instrument for social evolution. The Academy derives its strength from being a values-based organization. Our greatest contributions are universal humanistic values and the guidance we can offer for the benefit of all humanity. Every one of us can make a contribution towards advancing this mission. We need to reinvent and strengthen our communication lines so we can engage and activate more Fellows. The greatest engagement can come from an authentic demonstration of values.*

Figure 10: Principles of a Values-based Organization



With regard to the principles of a values-based organization, namely: peaceful co-existence, conviviality, shared humanity; universal solidarity; and co-responsibility for shared futures, we need to ask ourselves:

* [The Culture of a Values-based Organization](#) by Mila Popovich

- How do we individually embody these principles?
- How do we demonstrate them collectively as an organization?
- How do we disseminate them in all that we do?
- How can WAAS guide humanity towards its highest level of aspiration and self-actualization?

Thereby, WAAS can contribute towards the universal principles the world needs today.

7. Future Education

Education is humanity's most developed and powerful instrument for conscious social evolution and cultural development. Advancement in the content, quality, and accessibility to education at all levels is the most effective instrument for addressing the rising levels of uncertainty and insecurity. Reshaping education can enhance understanding, shape attitudes, instill values, and impart the knowledge and skills needed by citizens at all levels to adjust with the rapidity of change, seize on emerging opportunities and acquire the ability to survive and thrive in the future that is approaching. Therefore, an emphasis on accelerated development of a new paradigm in pedagogy, content and delivery systems is of paramount importance for fostering peace, human security and sustainable development.

The system of education prevalent worldwide today is far too slow in recognizing, assimilating and incorporating new knowledge, pedagogy and delivery systems appropriate for the fast-approaching future. Technology changes rapidly. Concepts, perspectives, theories, courses and disciplines evolve much more slowly and changes are subject to significant resistance from established beliefs, existing practices, and efforts to preserve the status and survival of existing institutions at a time when radical change is most needed.

Since the founding of WAAS, it has become evident that fundamental changes in content, pedagogy and delivery systems are urgently required. During the first decade of its existence, WAAS established an informal World University which operated within the Academy for a few decades. Its aim was to take initial steps toward evolution of a transnational, transdisciplinary approach to higher education and research founded on universal values and focused on addressing global social challenges.

"The world university proposes to identify and to serve the common interest of mankind. (Its) auspices are transnational and representative of the highest level of achievement in the advancement of knowledge... the emphasis is interdisciplinary and provides for continuing consideration of the social consequences and social implication of knowledge."

Since then the importance of higher education for the security and well-being of humanity and other life on the planet has multiplied exponentially. Systems, methods, theories and classifications of knowledge that were revered in the past are no longer adequate to generate or effectively disseminate the knowledge needed by younger generations to individually and collectively thrive in an increasingly complex, interconnected and rapidly changing world. Recent advances have brought into prominence the fundamental interlinkages and

interdependence between phenomena which cannot be adequately reflected or captured by specialized theories, subdisciplines and disciplinary silos.

Moreover, the soaring demand for higher education far exceeds the capacity of the existing, high-cost delivery system. A decade ago, UNESCO estimated that the demand for higher education would necessitate establishing five universities a week the size of Harvard for the next fifteen years.* The astronomical cost of such enterprise and the shortage of qualified instructors and administrators to operate it, which is already a serious problem in most developing countries, would pose extreme obstacles to the endeavor. Moreover, the serious gap in quality between the best and average institutions would only grow greater as population expanded and the speed of social change accelerated.

7.1. New Paradigm in Higher Education

A new paradigm in education is essential to overcome the fragmentation of disciplinary silos and sectoral boundaries and view the world from a comprehensive, integrated perspective. Prevailing theory in the social sciences which perpetuated outdated concepts and theories will have to be radically overhauled to reflect rapidly emerging realities. This was especially but not exclusively true in the field of economics, which prompted WAAS to launch an initiative in 2011 to identify the contours of a transdisciplinary, integrated, human-centered economic theory.

Figure 11: Call for New Paradigm in Education

Call for New Paradigm in Education	
Old Paradigm	New Paradigm
Subject - Centered	Person - Centered
Passive Transfer	Active Learning
Competitive Individual Learning	Collaborative Group Learning
Standardized Competencies	Customized, Creative Individuality
Fragmented & Compartmentalized Information	Value – based, Contextual Knowledge
Abstract Knowledge	Understanding & Critical Analysis
Mechanistic, Reductionist Thinking	Organic, Integrated & Transdisciplinary Thinking
Traditional Evaluation & Accreditation	Separation of Learning from Certification
Classroom Learning	Hybrid Model of Formal & Informal Learning
Transfer of Mental Knowledge	Development of the whole person

In 2013 WAAS concluded that radical changes in education were essential to address the whole spectrum of global challenges and it began a quest to conceive of a new paradigm in

* Garry Jacobs, New Paradigm: The Necessity and the Opportunity Cadmus Journal 2, no.2 (2014): 9-23 reprint-cj-v2-i2-new-paradigm-the-necessity-gjacobs.pdf/cadmusjournal.org

higher education.* Later the same year, WAAS conducted the first in a series of international conferences on future education at the University of California at Berkeley to explore the potentials of online education through MOOCs such as Coursera and edX, which were in the early stages of development.

7.2. World University Consortium

In 2014 WAAS joined together with a small group of partner organizations to establish the World University Consortium (WUC) with the mission of reshaping the pedagogy, content and delivery systems for global higher education. WUC's work focused on three major areas. First, design possibilities for a global delivery system that could provide world class, affordable, accessible education to all who seek it. Second, a shift from a subject-centered to a person-centered pedagogy. Third, development of original, trans-disciplinary, collaborative courses and learning experiences to provide the knowledge and values needed to address global challenges and better prepare younger generations for life in a rapidly changing world.

Over the last decade, WAAS and WUC have organized six international conferences, conducted fifteen curriculum development projects, and published more than fifty articles on these issues. One of the initiatives of the HS4A project in 2024 will be the development and delivery of courses for formal and non-formal education by a reconstitution and revamping of the World University Consortium.†

Figure 12: Roundtables, Workshops and Curriculum Development Programs



* World Academy Forum on the Future of Global Higher Education

† Future Education Program

7.3. Thought Leadership

From the outset, the work of the Academy has addressed both theoretical and practical issues related to knowledge and its expression in society. Over the past decade the WAAS has explored important theoretical issues that will form the basis for future knowledge and action through a series of curriculum development workshops at the Inter-University Center in Dubrovnik.*

Figure 13: Knowledge the World Needs

Knowledge the world needs: Potential thought contributions of WAAS
Reconciling objective and subjective ways of knowing in Science, Arts, and Humanities
Lines, drivers and process of social evolution – Theory of Change
Subjective conditions for social progress
Education as an instrument for conscious social evolution
Conversion of social energy into social power for accomplishment
Value of values in social evolution
Role of culture and evolution of global culture
Relation between individual and collective social progress
Comprehensive theory of the process of social development (theory of change)
Role of the individual as pioneer and catalyst of social development
The nature and role of Money and its evolution in society
Power of organization and its development as social institutions
Technology as the expression and application of mentality in life
Evolution of consciousness
Limits to rationality

These and other recently emerging issues will continue to require our attention in future. The quest for new ways of thinking and understanding the complexity of social reality are as relevant today as they were at the time of the Academy’s founding. Long after the mysteries of atoms, quarks and neurons are unraveled and quantum computing has vastly extended the marvelous capacities of AI, perplexing questions will remain challenging the most deep-seated convictions about fundamental issues regarding the nature of personality, individuality, social processes, the nature of money, leadership, rationality, creativity, genius and consciousness that defy resolution by prevailing concepts and methods.†

Reframing Bretton Woods for Human Security and Sustainable Development for All: The need for new thinking and theory in Economics and other social sciences has been discussed earlier in this paper. The central importance of the need for new thinking on fundamental concepts and theories is very evident in terms of governance with regard to multilateral institutions, international law and prevailing policies. For example, the need for altering the structure and policies of Bretton Woods institutions has been recognized and discussed for many decades. As understanding of the intricate interdependencies between nations, sectors and dimensions of global social existence advances, each successive version

* Courses - World Academy of Art and Science
† <https://worldacademy.org/wp-content/uploads/2024/01/spp-athens-president-report.pdf>

is compelled to take into account new dimensions omitted from earlier consideration. Events of the past four years have further reinforced both the awareness and the need for a reframing that takes into account the importance of all dimensions incorporated in the 17SDGs and places human security for all at the center of all effort to promote the future development of global society. Without advances in theory, perspective, values, objectives and understanding of the underlying processes of global social evolution, addressing this and other perplexing issues will not be possible. Thus, the focus on action and impact must be accompanied by continued examination of the theoretical premises and framework underpinning global society today. As Einstein reminds us, the source of every problem can be traced back to deficiencies in our way of perceiving and thinking about reality. A focus on identifying and fostering leadership in thinking, regardless of the field or the source, will inevitably lead to the solutions that defy logic due to limitations in our way of thinking. The ultimate answer to funding the SDGs lies here.

7.4. Potential Programming for Higher Education

The past decade of research has identified a variety of high-potential areas for future programming in the field of education, including –

1. ***Education for Human Security and Sustainable Development:*** In order to prepare youth to be informed, competent and successful citizens in a world that is emerging, all students, regardless of their fields of study or social aspirations, need to be exposed to a core curriculum of knowledge on all dimensions of human security, including environment, technology and health. A conference conducted by WAAS and WUC in 2023 involved experts from more than 20 disciplines, including natural and social sciences, law, business, engineering, and the arts. The conference highlighted the potential of innovative strategies in every field of instruction to explore the relevance and importance of all dimensions of human security to all disciplines, including the full range of natural and social sciences, technology, law, medicine and humanities. This includes the media, cinema, literature and the arts which possess the greatest effective power to inform and motivate individual and collective action to address these challenges.
2. ***Transdisciplinary and intersectoral Education***

“We are in an age that assumes the narrowing trends of specialization to be logical, natural, and desirable. Humanity has been deprived of comprehensive understanding. Specialization has bred feelings of isolation, futility, and confusion in individuals. Specialization breeds biases that ultimately aggregate as international and ideological discord, which, in turn, leads to war” – Buckminster Fuller

The quest to transcend disciplinary boundaries in search of more universal principles governing the interdependencies between fields and phenomena is far more advanced in the natural sciences than in the social sciences which grapple with more complex phenomena where the silos remain largely intact. WAAS and WUC have already

explored the possibility of developing original knowledge content addressing transdisciplinary subjects of immensely important and potential intersectoral application. Subjects of immense practical relevance such as social power, insight, intuition, individuality, life knowledge, and creativity transcend the boundaries of conventional academic subjects, theories and research. Of these, efforts to evolve a coherent theory of change or evolutionary theory of social development represent the social equivalent of the quest of physics for an ultimate theory unifying relativity theory and quantum mechanics.* Priority should be given by WAAS and WUC to support new thinking, research, course development, delivery systems in these and related fields to enhance the focus on transdisciplinary perspectives in education.

3. ***Social impact of Business and Technology:*** WAAS was founded by eminent scientists in an era when science was just awakening to the enormous power and responsibility it had for the impact of advances in knowledge on the security, welfare and well-being of society. The idea that these outcomes are someone else's business has been discredited long ago, but the tendency to divorce activity from social consequences is still widely prevalent in all fields. In a similar manner business and technology education largely ignore the social impact and social mission of their activities and the essential social role they play as instruments for human welfare. At an IEEE international conference on AI and cognitive computing a few years ago, leading experts conceded that current education in AI and related fields of technology focuses almost exclusively on technical knowledge and skills, and barely at all on equipping students with the knowledge needed to understand the potential benefits and threats posed to society by application of these technologies. The advent of generative AI has propelled this issue into the limelight globally for technology leaders, but the same sense of responsibility is relevant to all fields. The growing awareness of the importance of measures such as ESG (environment, social, government) in business and finance is a welcome recent trend, but it is primarily due to necessity rather than arising from a deeper appreciation of how central these values are to the long-term viability and flourishing of businesses and society. Content and courses focused on values, impact, policy implications related to all dimensions of human security and all fields of study need to be developed and disseminated globally.
4. ***Trauma Informed Care Best Practices:*** The costs of emotional trauma were staggering well before the COVID-19 pandemic and with increasing **conflicts** now, the worldwide burden of trauma has doubled. The costs of trauma are systemic, trauma damages individual and social health and if untreated may be passed to the subsequent generations. The Trauma Informed Care Best Practices (TIC- Project) is a network of networks created to provide free training, materials and information to people and organizations dealing with relevant issues related to psychological trauma.† It supports, connects and assists all the professionals and public and private

* A transdisciplinary theory of social development was explored by WAAS at a three-day conference in 1999 and discussed in WAAS publication *Human Choice: The Genetic Code for Social Development* by Harlan Cleveland and four other authors

† The initiative was launched by Alberto Zucconi, WAAS Chair and President of the Person-Centered Approach Institute (IACP) as an official collaboration with WAAS, WUC, Psychological Department, Torino University (UNITO), University for Sustainability (U4S), Black Sea Universities Network (BSUN), PoP Movement and the Ukrainian Psychological Association.

organizations operating in countries ravaged by violence and disasters that are in one way or another dealing with people who need to be trauma informed. Since its launch there have been numerous demands for extending the program to other regions. TIC Best Practices are scientifically sound procedures that avoid the risks of re-traumatization and can facilitate growth from trauma. The TIC Project aims to educate, train, support and empower for free all the different stakeholders around the world: thanks to the knowledge acquired, these therapists will be better able to apply its principles in their area of work. This is a model with a vast potential that needs to be scaled up and extended globally. With the spread of warfare throughout the world, this is a program that needs to be institutionalized and implemented widely.

5. ***AI for Education:*** The efficacy of online education has always been hampered by the limited ability to provide personalized attention and guidance to each student, a problem that prevails in traditional classroom education as well, though to a lesser extent in elite institutions with very small class size. Recent developments suggest that adoption of generative AI can provide the technological basis for interactive, self-paced, customized, individualized learning systems at low cost for students at all levels of education in all languages. This will provide students with an extraordinary capacity to seek information, raise questions, test their knowledge, and explore topics of personal interest.

Development of generative AI programs for personalized, interactive, self-paced learning in all fields of education will provide strong support needed for the evolution to a more person-centered pedagogy and facilitate the transition to life-long learning.

6. ***Development of higher order mental capacities and creativity:*** Before the advent of the printing press, those who could read and write were often regarded as geniuses. Much attention has been directed at the threat posed by AI to jobs as the growth of memory, data processing capabilities, language and sensory skills continues to develop exponentially. Every advance of technology has either eliminated or reduced the hardship associated with human labor, resulting in a migration of labor from jobs involving physical danger, drudgery or unthinking repetitive work to enhance their skills and migrate to work requiring higher order mental and emotional capabilities. The notion that AI will eliminate both present and higher order work opportunities for human beings grossly underestimates the scope for the further evolution of human capacities beyond the types of work that predominate today. Research is needed to identify the higher order knowledge, mental and psychological skills that characterize the work of high performing leaders, thinkers, performers, creative artists, inventors and even genius. Methods can be framed to systemically develop what are widely regarded as unique capabilities in these and other categories of people. Intuition ranks among the highest of these faculties.
7. ***AI, Mind and Consciousness:*** Advances in AI have renewed debate within and outside the AI community regarding the nature of the processes responsible for the remarkable results generated by recent breakthroughs in AI and the similarities and differences by computer responses, the processes governing thinking in the human

mind, and the presence and nature of consciousness in AI and human systems. There is widespread debate and disagreement even within the scientific community as to whether computers think or possess consciousness or will ever be capable of either. These issues may prove to have considerable importance in understanding and developing both computers and human beings, but they test and transcend the limits imposed by modern science, both in terms of its fundamental premises and methodologies. A subject which transcends the limits of objective physical science necessitates reference and consideration from the perspective of other dimensions of knowledge, namely the subjective dimensions of human experience including the arts, humanities and other forms of creativity and enlightenment. A better understanding of the similarities and differences may play a vital role in determining the human response to technological advances as well as humanity's understanding of itself and its own unique capacities for evolutionary advancement.

8. ***Rationality, Imagination and Creativity:*** Imagination and creativity are powers common to science, the arts and other fields. They mark the point at which the mind transcends the lofty limits of logic, rationality and pure reason. From Socrates, Galileo, Newton, Einstein and beyond, all discoveries depend on imagination and creativity that our education systems should encourage. The role of religion and traditions is central to this theme. Still these faculties are not understood and are regarded as lying outside the conventional domain of education. A transdisciplinary exploration of these phenomena and the circumstances in which they manifest can provide insight into ways to consciously energize and develop them.
9. ***Insight and Intuition:*** As Einstein observed, "It is not intellect but intuition which advances humanity." Intuition tells man his purpose in this life. A host of other great scientists, philosophers and creative thinkers have also testified to the fact that their greatest achievements were the result of intuitive insight rather than logical mental processes. Yet in spite of abounding evidence, insight and intuition are regarded as gifts that cannot be acquired by learning. Research needs to be conducted to study the processes of insight and intuition and to evolve methods to consciously foster development of this higher order mental faculty.

These diverse examples are in fields that fall within the wider framework in which WAAS and many Fellows of WAAS are already engaged. They illustrate the rich potential of the Academy to provide further leadership both in thought and action.

8. Proposals for Future WAAS Programming

The Academy invites project proposals that are aligned with the WAAS program framework and criteria discussed in this paper and summarized here:

- *Transnational:* Addressing global social challenges
- *Human-centered:* Promoting peace, human rights and human security for all and impacting on them

- *Values-based*: Highest ethical standards promoting universal human rights
- *People-centered*: Empowering people and communities, fostering creativity and resilience
- *Transdisciplinary and trans-sectoral*: Harnessing the richly diverse expertise and experience of WAAS Fellows to explore the interrelationship and interdependencies between disciplines.
- *Sustainable*: Intentionally becoming part of the solution of the Anthropocene quagmires
- *Engaging*: Mobilizing the rich and diverse capacities of WAAS Fellows.
- *Networking*: Forging productive collaboration with other organizations with complementary capabilities for maximum reach and impact.
- *Affordable*: Fundable projects that maximize use of existing WAAS resource capacities and those capable of attracting additional resources.
- *Impact*: Addressing all stages of the process from formulation of ideas, theories and research, to policymaking, strategy, organization and implementation and social impact.

8.1. WAAS@64 Calls for Conference Proposals

Proposals for programs, activities and working groups can be presented and discussed during the 2024 upcoming WAAS@64 conference and general assembly which will take place online or in hybrid format during the period May-June. This event is intended to provide an opportunity for Fellows to participate in existing WAAS activities, propose new programs, collaborate with other Fellows through joint projects, and involve their own networks to expand and enrich the Academy's activities, impact and outreach.

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Technology for Good Spotlights Human Security at the Consumer Electronics Show

Grant Schreiber

Global Campaign Manager, Human Security For All

Abstract

This article discusses how the Consumer Electronics Show (CES) held in January 2024 highlighted the growing connection between technology and human security. CES, held annually in Las Vegas, is one of the largest technology conferences in the world. In recent years, the organizers recognized the role of technology in addressing major social challenges and partnered with the World Academy of Art and Science and the UN Trust Fund for Human Security to promote the theme of “Human Security For All.” At CES 2024, there were over 135,000 attendees from around the globe witnessing innovations in areas like AI, smart cities, health tech, and more that have implications for human well-being and security. The event reflects how technology is increasingly shaping all sectors of society. It also serves as a platform for policymakers, industry leaders, and academics to discuss opportunities and challenges related to ensuring technology benefits humanity. The article also provides examples of new partnerships between diverse companies enabled by technological convergence. In conclusion, CES has become an important forum for moving the agenda of human security and technology forward in a collaborative way.

The lines between the physical and digital worlds will blur in the not-so-distant future. The fusion of advanced technology and the evolving needs of humanity has already begun a paradigm shift, which will further highlight the intricate relationship between human security and innovation.

At the heart of this eruption of innovation is the annual Consumer Electronics Show (CES) produced by the Consumer Technology Association (CTA) and held in Las Vegas, Nevada. CES is a global showcase of cutting-edge technologies that, for the past 50 years, have played a pivotal role in shaping the world around us. This year, as more than 135,000 attendees from around the globe gathered, it was evident that the convergence of technological advancements had become inseparable from the very fabric of ensuring human well-being. The number of attendees is remarkable, considering the event is not open to the public.

Gary Shapiro, CEO of CTA, framed the future we can expect perfectly during his keynote address when he said, “One day, all companies will be tech companies.” This profound comment should be taken seriously by CEOs, governments, scientists, and academics alike, as future competitiveness and innovation across all sectors of society will be determined by the quality and understanding of the tech tools available to us. One must look to technology to understand the future of almost every discipline today.

1. Global Events That Shift the World

To grasp the profound impact of CES, one must delve into the historical relevance of this event and the origins of other ambitious global events of more than two centuries ago. Originating in the late 1960s, CES was initially a modest gathering of tech enthusiasts. Over the years, it has transformed into a colossal platform, reflecting the pulse of the tech industry. In the past two years, as concerns about the role of technology and human well-being became more evident and complex, CES recognized the role of technology in promoting human security and how it can address some of the most significant social and environmental challenges we see today.

“CTA recognized the imperative to galvanize the industry around the concept of ethical technology as an essential tool to reinforce all dimensions of human security.”

CES can be likened to the World Fairs and expositions popular in Europe in the 1800s and stretching back to the world’s first industrial fair in Prague in 1791. The Great Exhibition in London in 1851 set the benchmark for future world fairs and was organized by members of the Royal Society for the Encouragement of Arts, Manufactures, and Commerce. The Great Exhibition sought to provide the world with the hope of a better future after two brutal decades of political and social upheaval. Britain hoped to show that technology was the key to a better future. Attendees included Queen Victoria, Charles Darwin, Karl Marx, Michael Faraday, Samuel Colt, and writers Charlotte Brontë, Charles Dickens, Lewis Carroll, George Eliot, Alfred Tennyson, and William Makepeace Thackeray. The event’s official sponsor was the world’s first soft drink, Schweppes.

Likewise, CES 2024 attracted celebrities, musicians, creatives, and a slate of senior international trade officials and CEOs from some of the world’s most innovative companies. The event in January attracted tech entrepreneur Mark Cuban, musician Will.i.am, actor Robert Downey Junior, Dimitri Kusnezov, US Under Secretary for Science and Technology, Satya Nadella, CEO of Microsoft, Apple co-founder Steve Wozniak, and many renowned captains of industry.

CES and The Great Exhibition are both events that showcased the cutting-edge technological advancements of their respective times. In the 19th century, The Great Exhibition exhibited inventions that marked the Industrial Revolution’s progress, introducing attendees to innovations like the telegraph, steam engines, steel manufacturing, the world’s first voting machine, and instruments that allowed tunneling and the understanding of our place in the universe with astronomical observation instruments.

Similarly, CES has become a contemporary hub for unveiling the latest consumer technologies. CES mirrors the digital age’s rapid evolution. Exhibitors at CES 2024 showcased futuristic gadgets, including artificial intelligence, virtual reality, flying cars, smart cities, robotics, and the Internet of Things, capturing the essence of our modern technological era.

CES 2024 saw 4,300 exhibitors and 1,400 startups from around the world present the future across 2.5 million square feet of exhibition space. That's the equivalent of 45 American football fields or the entire exhibition space of the Louvre Museum in Paris. In addition, sixty percent of Fortune 500 companies were represented at the week-long event.

2. The Convergence of Unrelated Brands, Aided by Technology

Beauty company L'Oréal was a surprise addition to CES 2024, further confirming the spread of technology into sectors previously not considered tech. Elon Musk's Tesla announced a partnership with Samsung. Amazon announced partnerships with Panasonic, BMW, and Siemens—completely unrelated brands that would have had no reason to collaborate in the past if it were not for one unifying ingredient today—technology. We will see increased opportunities for business and academia as technology weaves together previously unrelated disciplines and offers fresh solutions to business and societal problems.

World Fairs of history, and CES today, share a common goal of fostering global collaboration and innovation, providing a platform for nations to showcase their technological prowess, and promoting international dialogue. CES continues this tradition, attracting tech enthusiasts, industry professionals, and innovators from around the globe. CES has played a pivotal role in shaping societal perceptions of technology and driving forward the march of progress.

The narrative at CES 2024 was not solely about gadgets and gizmos; it was a narrative of empowerment. Wearable devices equipped with health monitoring features and emergency response mechanisms have become integral to personal safety. These devices seamlessly integrate with broader ecosystems, connecting individuals to emergency services, healthcare providers, and each other in times of need. The once passive role of technology has evolved into an active guardian, enhancing human security in ways previously unimaginable.

3. World's Largest Tech Event Adopts Human Security

The World Academy of Art and Science (WAAS), as the implementing partner of the Human Security For All (HS4A) campaign, together with the UN Trust Fund for Human Security (UNTFHS), was responsible for convincing CTA that human security was a cross-cutting theme throughout the 45 product categories represented at the show. There was hesitation at first, because the idea of human rights and security had never been paired with technology before. The case for technology and human security was made by WAAS Board Trustee Walton Stinson, who convinced CTA's CEO and its board that technological solutions are required to address the world's most pressing problems and to close the SDG gaps. CTA recognized the imperative to galvanize the industry around the concept of ethical technology as an essential tool to reinforce all dimensions of human security.

The founding of WAAS was used to illustrate the urgency of putting ethical guidelines in place from the very beginning of any significant scientific discoveries, to avoid any regrets in the future. In 1960, WAAS was concerned about the misuse of nuclear energy and weaponry, which had the potential to end all life on Earth. Scientists were no longer anonymous figures hidden in laboratories but found themselves holding the world's fate in their hands.

Similarly, today, the developers of AI and technology hold equal power in their hands. Calls are already being made to pause the rollout of AI until its full significance for humanity can be reviewed. Some are even asking if AI is the new nuclear bomb. The results of the two atomic bombs dropped on Japan are well known, with deaths estimated at up to 210,000. However, AI is not a localized phenomenon; it's global by nature and carried worldwide in seconds by millions of kilometers of Internet infrastructure, undersea cables, and satellites that deliver information to an estimated 15 billion mobile phones today. Mobile phones have transformed from simple communication tools to sophisticated delivery devices that raise many security concerns in their wake. Our energy security, financial security, pensions, health information, and modes of transport are all woven into the vast tapestry of the Internet. Should we unquestioningly trust that technological systems will keep us safe? Or should we actively create safeguards that ensure that technological developments are ethically and responsibly implemented?

By the Spring of 2022, CTA was an official partner in the campaign. At CES 2023, they themed the entire event around Human Security For All. With the WAAS brand closely aligned with the campaign, it also benefitted from this exposure, with many attendees wanting to hear more about the work of the 63-year-old organization and opening new opportunities for collaboration.

4. Policymakers Meet the Tech Creators

One of the guests of honor at CES 2024 was UN Secretary-General Tech Envoy Amandeep Singh Gill, who WAAS invited to see firsthand the manifestations of the technology policies he works with daily. A thought leader on digital technology, Gill's mandate is to leverage digital transformation responsibly and inclusively for progress on the Sustainable Development Goals. He has helped secure high-impact international consensus recommendations on regulating AI in lethal autonomous weapon systems, helped draft AI ethics recommendations for UNESCO, and helped plan a new global platform on digital health and AI.

Gill appeared alongside WAAS President Garry Jacobs at the UN in September 2023 to announce access to technology as the eighth pillar of Human Security.

Gill delivered an address at the exclusive CES Leaders in Tech Dinner—to 1,000 top leaders in technology. He called on industry leaders to embrace the Global Digital Compact, support AI governance, and help deliver the Sustainable Development Goals. He shared how the UN is working to expand access to technology as a fundamental right to pursuing human security. The UN Secretary-General, António Guterres, said, "Looking to the future, two seismic shifts will shape the 21st century: the climate crisis and digital transformation." In the same way international cooperation is critical to protecting the health of our planet, international efforts are also needed to pursue the benefits of digital technologies while mitigating their risks.

"The future of work will be radically altered with technology," says Gill, "So we need to urgently focus on the current deficit between ordinary people and the highly advanced

technology we see around us today. Many assume technology will spread organically and deliver good to the world by default. But this process will not happen automatically; it can't be left to market forces alone. Planning and collaboration within sectors are needed to ensure positive outcomes."

"CES has emerged as a beacon of progress in the grand tapestry of human security and technology, represented by WAAS and the HS4A campaign."

"A superior world with technology is possible, but only with development and investment in people, education, health, and economic systems," says Gill. "My office at the UN is encouraging governments to explore how other countries integrate AI and tech into their problem-solving and how they can adapt these solutions to their unique situation. What struck me most at CES 2024 was how technology has embraced sustainability, the circular economy, and the energy transition," says Gill of his time spent on the exhibition floor.

United Nations Member States adopted a Declaration on the Commemoration of the 75th Anniversary of the United Nations in 2020, which contains this pledge:

"We will improve digital cooperation. Digital technologies have profoundly transformed society. They offer unprecedented opportunities and new challenges. When improperly or maliciously used, they can fuel divisions within and between countries, increase insecurity, undermine human rights, and exacerbate inequality. Shaping a shared vision of digital cooperation and a digital future that shows the full potential for beneficial technology usage and addressing digital trust and security must continue to be a priority as our world is now more than ever relying on digital tools for connectivity and social-economic prosperity. Digital technologies have the potential to accelerate the realization of the 2030 Agenda. We must ensure safe and affordable digital access for all. The United Nations can provide a platform for all stakeholders to participate in such deliberations."

The ideas, innovations, business deals, and collaborations to help realize these ideals can all be found at CES.

5. A Visionary Supporter With a 250 Year Business Plan

One of the leading exhibitors at CES 2024 was the Japanese electronics company Panasonic, founded in Osaka in 1918 by Kōnosuke Matsushita. He was a unique entrepreneur who crafted the company's vision 250 years into the future. This created a natural affinity between WAAS and Panasonic, who share a reflective and holistic approach to solving problems. Panasonic North America's Chairwoman and CEO, Megan Lee, joined WAAS President Garry Jacobs at a Great Minds session at CES 2024 to discuss how thinking like an innovator can help change the world.

“Our founder had a strong conviction 105 years ago that business should exist in the service of society,” says Lee. “If you’re not adding value to society, you will not be successful as a business.” Matsushita never finished elementary school and was sickly as a young man. He was told he wouldn’t live past the age of 20. These circumstances forced him to rely on a network of people to get things done and to find new ways of collecting wisdom to apply to his growing business. It was a textbook example of innovation emerging from a dire need.

“Our strategy today is to look at environmental problems and other pressing societal issues and ask how we respond as a company,” says Lee. “Profit is a reward from customers recognizing that you’re doing something right.” Part of Panasonic’s commitment to society is to work with community colleges in Kansas, USA, to train students in skills that would guarantee them employment at the company’s new electric vehicle battery plant in the area. The Panasonic Foundation, founded in 1984, promotes STEM training for young people.

“My background is art,” says Lee. “Sometimes we must stop, procrastinate, and allow ourselves to daydream about what’s possible. Not everything is a mathematical equation. That’s why we created the idea of STEAM at the Panasonic Foundation: Science, Technology, Engineering, Art, and Mathematics. We need to understand better why we do what we do and the purpose of what we do,” concludes Lee.

6. Technology for Good Report Delivers Actionable Steps

Each year, London-based organization Force For Good releases its “Technology as a Force For Good” report, compiled by WAAS Trustee Ketan Patel. The 2024 report was released at CES 2024 and highlights ten technology solutions that can substantially contribute to achieving the Sustainable Development Goals. In addition, 19 core technologies have also been identified as the focus of the top 100 tech companies competing for the future.

“Today, we stand with one foot still in the 20th Century with its conflicts and challenges and another in the 21st Century with its rapidly emerging information age,” says Patel. “The transition ahead is harrowing, given that it requires us to let go of one for the other. This change is of the magnitude of the industrial revolution over the agricultural one, promising to change everything from our politics, economies, societies, communities, families, and the values running through these.”

Launched at a Research Summit at CES, the report outlines the journey ahead—the technologies that are set to shape our future, the companies that are investing to do so, and the countries that are competing for power over the future. It highlights the role technology can play in a civilizational shift to the information age in a secure and sustainable way and how technology can help close the US \$135 trillion SDG funding gap.

“Only one-third of the world has substantially benefitted from the Industrial Age,” says Patel. “The Information Age now allows for broader inclusion.”

7. Technology and Human Security are Inseparable Partners

The story of human security and technology is intertwined with the emergence of intelligent systems designed to safeguard individuals in an interconnected world. At CES,

breakthroughs in artificial intelligence, biotechnology, and cybersecurity have become a driving force behind ensuring the safety and privacy of individuals. Smart cities equipped with sensors, predictive analytics, and autonomous systems have emerged as a response to the pressing need for resilient urban environments. Satellite surveillance for understanding and caring for our planet has spawned hundreds of new business ideas that protect and increase agricultural yields for a hungry world. Millions of monitored data points in our oceans deliver crucial information on weather patterns and the health of one of our primary food sources.

CES has emerged as a beacon of progress in the grand tapestry of human security and technology, represented by WAAS and the HS4A campaign. It showcases the relentless march of innovation and the conscious efforts to channel these advancements for the greater good. As the effects of this successful partnership unfold, it symbolizes a commitment to a future where technology and human security are inseparable partners, working hand in hand to create a safer, more connected world.

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Human Security Starts at Home: The Case for SDG Localisation

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Abstract

This article discusses the issue of localizing the Sustainable Development Goals (SDGs) and how this is critical for achieving human security globally. It notes that while the SDGs have been successful in generating consensus around sustainability, progress has been lacking and many targets may not be met. A key obstacle is that the SDGs have not been properly localized, which is essential given that real change needs to happen at the local level. The author argues that a bottom-up, localization-driven approach is needed to complement the existing top-down monitoring approach. This would empower local actors and allow them to develop diverse solutions through connecting and sharing ideas. A proposed solution is a digital platform that is co-created with local stakeholders and facilitates the networking of local actors as well as access to expertise. This could help drive cultural and social change from the bottom-up in support of the SDGs.

1. Introduction

The Sustainable Development Goals (SDGs) are an ambitious attempt to help advance the cause of social and environmental sustainability at a global level through international cooperation. Social and environmental sustainability is in turn a prerequisite for attaining a state of human security. A world in which the SDGs were fully realised would be a secure world for all. Although it would not eliminate the possibility of armed conflict, the appetite for military adventures is reduced when human rights are respected and basic needs are satisfied in a lasting and sustainable way. Sustainable development, when it includes social justice concerns, as the SDGs do, is thus the best foundation for human security. Given that the SDGs reflect a broad political consensus, they are also the best political instrument we have to promote human security. Unfortunately, however, we are far from realising the SDGs and sliding backward on a number of key indicators. Global food insecurity (SDG 2), for example, has been on the rise again even before the COVID-19 pandemic and the Ukraine conflict, and is now excluding a fast-growing proportion of humanity from enjoying a condition of security even at the most basic and vital level. In some places, SDG2 is hardly an issue (or only at the extreme margins of society), at least for now, while elsewhere it seems like an insurmountable challenge, and yet we lack the tools to properly inflect the SDG model to make it relevant in such very different localities. This paper therefore seeks

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to address the persistent lack of SDG localisation, as one of the main structural obstacles to SDG implementation and achieving human security for all.

The SDGs have been very successful in generating an unprecedented degree of global consensus about what is needed to move the world system from the present state of dangerously unsustainable economic practices and severe inequality to a more secure future state of peace with nature and social justice for humanity. The 17 goals, 165 targets and 230 associated indicators effectively constitute a map of the key elements within an imagined process of systemic transformation. Much thought and scientific advice have gone into the making of this ‘map’, and great diplomatic efforts were required to bring about its adoption as a political program and discourse of development. The SDGs, however, are not the ‘territory’ of sustainability transformation, as it is actually unfolding in countless locations around the world. The SDGs are merely a map, coloured by the ambition to change the territory; in short, they form a prescriptive model designed to shape the transformation space and thus the future state of the world, as it ought to be, in 2030. As the Stockholm+50 conference has revealed, the future, when it arrives, will not be anything like what we had hoped. We must understand why that is so if the post-2030 agenda is to become more successful.

If the SDGs were a tentative model and guideline to encourage global action in the direction of human security, that alone would be a worthy cause and justify all the time and efforts invested by the UN and signatory nations, even if it turns out that the SDGs will not be realised completely by 2030. A prescriptive model, however, is a rather different case. It is a statement of ambition that demands compliance and results. While the initial decision to become a signatory may have been voluntary for nation states, there is an element of binding commitment, and various mechanisms of centralised control have been created to reach down not just to national governments but also to federal states and local territories. This may be well-intentioned and also necessary to an extent, but the further this bureaucratic apparatus reaches down from the visionary centres in Geneva and New York, the more it risks being perceived as an imposition, namely by those who had no say in setting or ratifying the 2030 agenda but, ironically, bear much of the ultimate responsibility for realising it: local actors and change makers. Along with the SDGs’ prescriptive agenda comes a desire to benchmark, measure and monitor from above, and a sense of puzzlement and sometimes open resentment from below.

A growing literature on SDG localisation has sought to shed light on these tensions but, I argue, has struggled to identify solutions. In part, this is because this literature does not explore the opportunities inherent within emerging networks of local actors. I propose a solution based on such networks, that is, on a complementary, reverse process of global data aggregation and simultaneous local empowerment in the service of a new global culture of sustainability, without which both the 2030 and the post-2030 Agenda are most likely doomed to failure.

2. Human Security at Home: The Trouble with SDG Localisation

The tension arising from the ambivalent, guiding, as well as prescriptive character of the SDGs is felt right through the political process of implementation. National signatories

have joined the 2030 agenda as a matter of choice but are now committed not only to the sustainability ideal but also to mandatory national progress reporting. The obligation to respond to the map of indicators is thus exerting moral pressure on policymakers to pay attention to each indicator, and somehow juggle the often intrinsically contradictory nature of these demands, for example, weighing forest and biodiversity conservation against the need for more agricultural land to reduce hunger. Then there are political interests to weigh up, such as the need to reduce carbon emissions against the pressure exerted by the national fossil fuel lobby. The vision-reality gap increases further as the implementation process moves down to the local level, where the real action needs to happen and where local actors in government, business and communities may not feel a sense of ownership of the agenda at all. Even to the extent that local actors are convinced by the plausibility of and scientific evidence base behind the SDGs, and thus half-willing to yield to the compliance demands issuing from their national bureaucracy, they may not have the necessary funding or practical know-how to accomplish the very difficult task of integrated change.

The difficulty of SDG localisation is thus a serious and potentially fatal impediment to human security, an observation made in almost every report and research paper cited herein. The approaches to remedying localisation issues differ, however, and tend to fall within two broad categories: increased prescriptiveness and monitoring vs. increased sensitivity to the uniqueness of local constraints, opportunities, priorities and creativity. Many commentators oscillate between these opposite approaches, reflecting the unfortunate fact that neither is entirely satisfactory.

The prescriptive approach is to enforce obedience to the 2030 agenda by exerting more and more bureaucratic control from the centre, with the help of an ever stricter and ever more detailed framework for regular reporting, standardised accounting and, hopefully, compliance all the way down. If this were possible, the benefit would be that the realisation of the SDGs could be guaranteed. Such a prescriptive monitoring system is, arguably, a nightmare to some, but certainly a dream, far from the reality of even the most highly developed and SDG-supportive regions of the world. For example, the European Commission's Joint Research Centre (JRC) published the 'European Handbook for SDG Voluntary Local Reviews' in 2020, and by February 2021, some 24 local city governments had submitted Voluntary Local Reports (VLRs) in response, though only 16 of these included some kind of indicator and data analysis. The relevant EU report notes that the challenge lies in "providing a framework to inspire the selection of appropriate indicators, making reviews both comparable across Europe and targeting local situations and challenges" (Ciambra, Siragusa & Proietti 2021:6). In short, the bureaucratic approach runs into difficulties because SDG localisation seems to be impossible without setting specific local targets that make sense to local policymakers and actors, but the more localised and unique these targets are, the more difficult they also are to compare. Similarly, an Institute for Global Environmental Strategies report, commenting on 15 VLRs (4 of them in Japan), notes that local governments struggle to translate their own, often quite advanced sustainability agenda into the language of the national reports (Ortiz-Moya, et al. 2020), which may explain why only a few dozen among the millions of local jurisdictions around the world have tried to do so.

The UN itself also has realised that SDG localisation is necessary and requires concessions in terms of comparability, no matter if that incurs a cost in terms of accountability and control. Thus a roadmap for localizing the SDGs was drawn up by the Global Taskforce of Local and Regional Governments, UNDP and UN Habitat to “support cities and regions to deliver the 2030 Agenda” whereby “the roadmap is not a prescriptive ‘how to’; rather, it covers a range of strategies that can be adapted to the specific contexts and needs of different cities and regions” (GTLRG 2016:1), noting that “all of the SDGs have targets directly related to the responsibilities of local and regional governments, [who therefore] must be at the heart of the 2030 Agenda” (p.7). In short, the SDGs are not locally enforceable except in a broad sense, as an exemplary cultural model for sustainable living (see UCLG 2015, recommendation no. 4). Implementing, however, is a more complex matter than visioning. This is because integrated sustainable ways of life cannot be prescribed; rather, they emerge “at the nexus of ecological, social, economic and cultural aspects as well as of normative and political issues of equity and justice” (Caniglia et al. 2021:93). Herrera (2019:107), in a study focused on SDG 6, points out that “access to water [for example] is a problem of governance—and particularly local governance—rather than merely a problem of technology, infrastructure or financing.” Such realisations remain slow in their uptake. As Fisher & Fukuda-Parr (2019:383) note, “despite their aspirational claims of transformative impact, substantively, SDGs [have] retained the centrality of metrics, data and measurement, framing development problems as ‘technical, managerial and measurable’ and, [...] “through the infrastructure of measurement, construct and reinforce an ‘evaluation’ society.” Even advanced countries like the UK struggle to overcome this attitude, and thus show a “lack of a clear national policy framework for the localisation of the SDGs” (Jones & Comfort 2019:1).

It is perhaps an inconvenient truth that sustainability, justice and security cannot simply be prescribed, and compliance measured, incentivised and sanctioned, given that the urgency of the global sustainability crisis would seem to warrant drastic measures. It is also inconvenient because, in the absence of adequate accounting and benchmarking, it is not possible to fairly incentivise local actions to further the SDG agenda if tailoring them to specific local (or even national) conditions makes these actions incomparable. It is thus unsurprising to find that top-down efforts to measure and monitor continue relentlessly, even though the problems with this approach are known. The need for benchmarking does not go away, despite the danger of being caught between the Scylla of reductionist positivism and the Charybdis of relativist particularism.

Some academics thus continue to work on lists of “recommended indicators for cities and communities” (e.g., Abraham 2021), as do major geopolitical players. For example, in an influential report, the OECD recommends the use of “the SDGs as a vehicle to enhance accountability and transparency through engaging all territorial stakeholders,” given that “at least 105 of the 169 SDG targets will not be reached without proper engagement and coordination with local and regional governments” (OECD 2020:1). Building on this report, the European Observation Network for Territorial Development and Cohesion (ESPON) prepared an SDG localising tool for the EU “to measure, monitor and benchmark the SDGs at the regional level [based on] Eurostat’s SDGs reference indicator framework, which is used to monitor progress towards the SDGs in the EU context and particularly at the

national level” (ESPON 2020:7). A pilot study was conducted in three locations, and local indicators were selected following the OECD ‘RACER’ criteria (Relevant, Acceptable, Credible, Easy and Robust). The report shows just how laborious SDG localisation can be if a top-down approach is adopted. Amidst all the measurement frenzy, consensus is also nowhere in sight. The following are but a few of the competing indicator sets: Ecological Footprint, Environmental Sustainability Index, Dashboard of Sustainability, Welfare Index, Index of Sustainable Economic Welfare, City Development Index, Energy/Exergy, Human Development Index, Environmental Vulnerability Index, Living Planet Index, and Environmentally-adjusted Domestic Product (for a comparative analysis, see Zinkernagel 2018). All this begs the question of whether it would not be easier to trust, empower and support local actors.

“Cross-sectoral engagement among different actors, including the government, the private sector, civil society organisations and individual citizens, is another important step toward SDG implementation.”

Many local governments do need help in mapping their own sustainability transformation space, however. As another report notes, “without having technical capacity or know-how, a regional government might not be able to map the field and design an adequate policy. [A] wareness raising campaigns and partnerships for capacity building and technical support might be needed” (Regions4 2018:15). Notably, many local actors lack direct access to the precise science expertise they need, and there is no global facility available yet to help them gain such access. Moreover, this access must take the form of collaborative engagement between local actors and scientists, rather than a search for prescriptive advice. As Canigli et al. (2021:98-99) note, “in research, we too often try to direct processes of change but fail to create the conditions for change to unfold. When we advocate for the implementation of policy advice based on previously done research and expect that others implement our advice, for instance, we try to direct change instead of attempting to cultivate the relationships and conditions that allow for change to unfold.” Collaborative engagement is itself a form of research, rather than a simple application thereof.

A pragmatic compromise solution to these localisation dilemmas would be to measure what can be measured and compare what can be compared, but to avoid bureaucratic monitoring and accounting overreach. There is much that speaks for allowing a wide-open space for local actors to develop an equally wide diversity of SDG solutions, having noted earlier that the SDGs are a transformation map, and not the transformation territory. No map is perfect. Indeed, while local actors could do with more central support in many ways, much of today’s sustainability innovation is also taking place independently at the local level, both in terms of problem identification and solutions. This creativity should not be stifled or dismissed but encouraged, disseminated and, where possible, scaled up.

“Promoting innovation, leadership ... [and] systems thinking” at the local level is thus a better option than exerting centralised control over every detail of local policy (NITI Aayog & UN India 2019:31). Such empowered local leadership of the SDG effort is what some researchers refer to as “deep localisation” (Lanshina et al. 2019:219). Others take a more shallow or hybrid approach, and thus tend to speak more cautiously of the need to “work with local communities to downscale global sustainability goals and co-create pathways to their achievement” (Szetey et al. 2021:2).

“What we need is a bottom-up process for facilitating SDG implementation and the promotion of human security for all.”

Cross-sectoral engagement among different actors, including the government, the private sector, civil society organisations and individual citizens, is another important step toward SDG implementation. At the local level, such engagement tends to be very strong because of the benefits of small scale and proximity. Local actors are thus well placed to take a lead in such engagement, and this presents another argument for the advantages of deep localisation.

The problem remains that a locally led SDG implementation approach, while it is very sensible in many ways and probably indispensable overall, could make it difficult to assess progress on the SDGs or sustainability transformation more broadly. That is, unless an alternative, decentralised, diversified and bottom-up process of data aggregation was available, not only to reveal what solutions local actors are in fact developing, but also to support peer exchange of innovative ideas among them. This is precisely the solution I propose to escape the currently prevailing ambivalence.

Any such solution should be globally accessible to ensure that developing countries are not left behind. As Rahman, Khan & Sadique (2020:1) point out, “in localisation of the SDGs and ensuring disaggregated and inclusive implementation of the goals, Asia [for example] is facing formidable challenges both at regional and sub-regional levels.” What would such a global and fully inclusive bottom-up process of data aggregation and networking look like, and how would it further human security and the SDGs?

3. Local Solutions for Global Challenges: Human Security from Below

What we need is a bottom-up process for facilitating SDG implementation and the promotion of human security for all, which would complement the top-down, ‘monitor, incentivise and control’ approach inherent in the prescriptive aspect of the SDG model. This would be in line with the SDG’s role as an exemplary global guideline for systemic transformation. Ideally such a local actor-driven process would deliver ‘compliance’ largely as a by-product, without the need to control, because it would build on and amplify cultural change from below. Cultural orientations are largely driven by peer-to-peer interactions, however, and that means local actors would need to become connected with one another in new ways that allow them to gain better access to diverse solutions oriented toward broadly shared common goals. Local actors could also benefit from the efforts of experts to model

change if this were done not only at an abstract, generic level (such as the SDGs) but if researchers could map the myriad of unique local actions by meta-analysis of an emerging pool of empirical data concerning the solution space. This does not preclude impact assessment, though it may sacrifice some of the more fanatical monitoring zeal in exchange for greater empirical realism and more willingness among local actors to identify with the SDG agenda.

This is consistent with what local and regional governments (LRGs) themselves have been asking for. For example, a major UCLG report to the HLPF states that “bottom-up localization works better than top-down approaches [...and yet] many countries don’t take subnational levels into consideration or conceive localization as a top-down process in which the SDGs passively ‘trickle down’ to LRGs. Approaches revolving too strongly around a top-down decision-making process can ultimately feed the misconception of the SDGs being an external burden or imposition, hindering local participation and restraining the richness and vision of local initiatives” (UCLG 2018: 11). The report instead recommends decentralized, territorial approaches to public investment, bottom-up monitoring supported by disaggregated data, and support for international knowledge exchange and peer-to-peer learning between LRGs. UCLG also understands the necessity of inter-sector collaboration as a prerequisite for “systemic action” (see Tan et al. 2019), arguing that “strong partnerships and the participation of LRGs, the civil society, the private sector, social partners and academia in national SDG coordination mechanisms, and also in the definition, follow-up and monitoring of the SDGs, are critical” (UCLG 2020:120). In all this, the role of the SDGs, they say, is to “inspire our [local] actions” (UCLG 2020:10). This inspiration should not stop with local governments but extend to all sectors, but “many [national] countries are yet to discover the full power of local partnerships (between sub-national governments, enterprises, civil society, universities, philanthropies and communities) in SDG delivery” (Revi 2017:ix).

“Digital Network Architecture infrastructure” would seem the only way to coordinate such a complementary bottom-up effort to realise the SDGs at a global scale, because it is the best available means to connect local actors globally and inclusively (ElMassaha & Mohieldinb 2020:4). As a recent Brookings report notes, “serious local implementation is unlikely to achieve meaningful scale if perceived as a compliance exercise or just another reporting requirement. [...] Increasing the spaces for sharing of best practices, challenges, and innovations, with city-specific tools and products, will be critical,” but, until now, “there is no active facilitation of city-to-city dialogues or platform for curated, city-specific information that shares and showcases implementation efforts” (Pipa 2019:2). This excellent report was based directly on the feedback of local city leaders who met in Bellagio in 2019 to discuss SDG localisation, and thus reflects the local perspective. Local leaders were reported to be

“sceptical about attempts to standardize a set of city targets or indicators that would be applicable to each of their specific contexts. Instead, they suggested identifying a small subset, or a data floor, that might be common to all cities pursuing the SDGs. They recognized a healthy tension between comparability across cities, which helps spur innovation and share lessons, and customization to their local realities” (p.3).

The city leaders recommended “an online research platform with material designed specifically for city and local governments, and curated for applicability and usefulness to make it as easy as possible to identify high quality tools applicable to a city’s specific needs” (p.7). Some researchers refer to such specific local needs as “community-defined sustainable development goals (CDSDGs)” (Winans et al., 2021:2).

“The researchers found that “only 5% of global SDG indicators proposed by the United Nations Statistics Division could be used without modification at the local level in Japan. However, approximately 50% of global SDG indicators could be used after localization”.”

A recent report by the Sustainable Development Solutions Network’s Thematic Research Network on Data and Statistics echoes these views, noting that “TReNDS’ vision is a user-centric system that actively supports public and private data users and encourages collaboration” (SDSN 2019:8). The UN Environment Programme too has proposed a ‘digital ecosystem framework,’ according to the TReNDS report. Researchers too have made similar recommendations, arguing that “modern communication technologies and social media platforms could play a major, even transformative role, in participatory decision-making” (Guha & Chakrabarti 2019:15).

These calls have not gone completely unheeded. For example, Kawakubo & Murakami (2020:1) report on experiments in Hokkaido and Kyushu, Japan, with the goal of building a “local SDGs Platform that enables stakeholders to register, search and share their efforts and best practices toward achieving the SDGs.” The researchers found that “only 5% of global SDG indicators proposed by the United Nations Statistics Division could be used without modification at the local level in Japan. [...] However, approximately 50% of global SDG indicators could be used after localization” (p.7). Such experiments are few, and even fewer are designed to map the solutions space empirically by capturing local innovations. For example, the SDG Portal (<https://sdg-portal.de/>) provided by the German Association of Cities and Bertelsmann Foundation, for now, is more focused on measuring and comparing achievements relating to SDG indicators than facilitating peer-to-peer sharing of ideas within the solutions space.

The idea of digital solutions for sustainability is of course not new, and indeed, there are already numerous platforms that aim to address some of the issues local actors contend with, as identified above. The key question is: What services should a platform ideally provide for local sustainability actors? This question, however, is not one to be answered by academic experts. If digital approaches are to avoid falling into the same pit as centralised policy-driven approaches, the answer would seem obvious: Such digital services must be built from the outset with the full participation of local stakeholders—in the initial design and continuous review of a flexible and portable set of digital tools, and in the generation of a

database of peer-generated solutions that they have tried and tested. This could be augmented by a demand-driven system for accessing scientific expertise across a wide range of themes.

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Empowering the Future of Health: Leadership and Human Security in Global Healthcare

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Abstract

This article delves into the pivotal role of transformative leadership in shaping 21st century healthcare, advocating for a model that marries human security, global leadership, and collaborative innovation. It underscores the imperative for leaders to steer healthcare systems towards holistic approaches that address the multifaceted challenges of today, such as pandemics and climate change. Emphasizing leadership's responsibility in fostering technological advancements, cross-sector cooperation, and international collaboration, the author posits leadership at the core of achieving a resilient, inclusive healthcare system aimed at securing a healthier future for all.

The 21st century presents unprecedented healthcare challenges, exacerbated by global interconnectedness. Issues such as pandemics, climate change, and socio-economic disparities have underscored the limitations of traditional healthcare systems, which often operate in silos and are driven by state-centric policies. These challenges demand a reevaluation of healthcare strategies, placing an emphasis on human security and global leadership to foster a more resilient and inclusive healthcare system.

"Achieving a transformative shift in healthcare necessitates robust international cooperation and a commitment to multilateralism."

1. Human Security as a Foundation for Healthcare

Human security, as advocated in the article *Global Movement to Promote Human Security for All*, offers a comprehensive framework that prioritizes the well-being and dignity of individuals over traditional notions of national security. It recognizes the interdependence of various security dimensions, including health, environmental, economic, and personal security. By adopting a human security approach, healthcare systems can become more adaptable and responsive to global challenges, ensuring that every individual has access to the essential services and protection they need to lead a healthy life.

This approach necessitates a shift from reactive to proactive healthcare strategies, focusing on prevention, early intervention, and the integration of healthcare services with other critical

sectors such as education, environment, and economy. It calls for the empowerment of communities and individuals, enabling them to take an active role in their health and well-being, thereby enhancing the overall resilience of societies to health crises.

“By focusing on the well-being of individuals, fostering collaborative innovation, integrating environmental and healthcare strategies, and committing to international cooperation, we can build a more inclusive, resilient, and sustainable healthcare system.”

2. Global Leadership and Collaborative Innovation

The article *Global Leadership in the 21st Century* underscores the importance of transformative global leadership in addressing the complex challenges of the 21st century. Effective global leadership in healthcare requires a commitment to shared goals, collaborative innovation, and a willingness to transcend national boundaries and interests for the greater good. It involves fostering partnerships among governments, international organizations, the private sector, and civil society to leverage collective expertise, resources, and technologies.

Innovative solutions, such as digital health technologies, telemedicine, and artificial intelligence, can play a pivotal role in transforming healthcare delivery, making it more accessible, efficient, and personalized. However, harnessing these innovations requires a supportive policy environment, ethical considerations, and a focus on equity to ensure that the benefits of technological advancements are accessible to all, particularly the most vulnerable populations.

3. Integrating Environmental and Healthcare Strategies

The interlinkage between health and the environment is another critical aspect of a holistic healthcare model. Climate change and environmental degradation pose significant risks to global health, including the spread of infectious diseases, malnutrition, and respiratory conditions. A healthcare strategy informed by human security and global leadership principles must, therefore, integrate environmental sustainability, promoting practices that protect both health and the planet.

This includes advocating for policies that reduce environmental health risks, such as air and water pollution, and supporting sustainable healthcare practices, such as reducing waste and energy consumption in healthcare facilities. By addressing environmental determinants of health, healthcare systems can contribute to the broader goals of sustainable development and human security.

4. The Role of International Cooperation and Multilateralism

Achieving a transformative shift in healthcare necessitates robust international cooperation and a commitment to multilateralism. The global nature of contemporary health threats requires coordinated responses, sharing of best practices, and pooling of resources. International organizations, such as the World Health Organization, play a crucial role in facilitating global health governance, setting standards, and providing support to countries in need.

Multilateral agreements and initiatives can also drive progress in global health, such as the Sustainable Development Goals (SDGs), which include specific targets related to health and well-being. By aligning national healthcare strategies with these global agendas, countries can contribute to a collective effort to improve health outcomes worldwide.

5. Conclusion

The 21st-century healthcare landscape demands a comprehensive and integrated approach that transcends traditional boundaries and embraces the principles of human security and global leadership. By focusing on the well-being of individuals, fostering collaborative innovation, integrating environmental and healthcare strategies, and committing to international cooperation, we can build a more inclusive, resilient, and sustainable healthcare system. This transformative model will not only address the immediate health needs of populations but also contribute to the broader goals of peace, security, and sustainable development, ensuring a healthier future for all.

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ICT & Generative Artificial Intelligence Powered Hybrid Model for Future Education

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Abstract

The Hybrid Model, powered by Information and Communication Technology (ICT) for future education, enriched with Generative Artificial Intelligence (GAI), stands today as an advanced educational learning model. It ingeniously combines the strengths of ICT and generative AI to reshape the educational experience. Numerous academic institutions and organizations are embracing this transformative approach, harmonizing traditional classroom methods with state-of-the-art technologies and AI-driven innovations. In this study, we present an in-depth exploration of this novel ICT-powered hybrid model boosted by generative AI, dissecting its intricate components. We endeavor to unravel the advantages it bestows upon both students and educators, attempting to answer the pivotal question: what added value does this hybrid model bring to education? We embark on a meticulous enumeration of the diverse challenges encountered along the path of implementing this modern model. Additionally, we underscore the critical considerations that stakeholders must consider when deploying this educational evolution effectively.

1. Introduction

Information and Communication Technology (ICT) refers to technologies that facilitate the creation, storage, processing, and exchange of information. It encompasses a wide array of technologies and tools (software and hardware) designed to manage and communicate information. Its role in modern society is pivotal, influencing various aspects of daily life, including business, healthcare, and education. ICT serves as the backbone of the digital age, enabling data transmission, storage, and processing, ultimately shaping the way individuals and organizations operate in the 21st century (Roztock, Soja, and Weistroffer 2019). In education, ICT plays a transformative role by providing access to vast resources, fostering collaborative learning, and expanding the reach of education beyond traditional classrooms (McDougall and Jones 2006).

In the context of education, ICT encompasses a diverse range of technologies. This includes hardware like computers, tablets, and interactive whiteboards, which serve as conduits for software applications and educational content. Educational software and platforms enable teachers and students to engage in interactive lessons, simulations, and

assessments. Communication tools, such as video conferencing and learning management systems, facilitate remote learning and collaborative projects, extending the boundaries of the physical classroom (Anderson and Dexter 2005).

ICT integration in education has already led to significant improvements in access, collaboration, and personalized learning, as well as in research and innovation (Wernsdorf, Nagler, and Watzinger 2022). The impact of ICT on education is profound. It is revolutionizing teaching methodologies and reshaping the learning experiences of students. The integration of ICT in the educational landscape is fostering an environment that not only facilitates learning but also empowers learners with a set of distinct advantages over traditional methods (Amutha 2020). One of the key advantages of ICT-enhanced learning environments is their ability to cultivate active and participatory learning experiences. Through digital tools and platforms, students are no longer passive recipients of information but are actively engaged in the learning process. This interactivity fosters a dynamic exchange of ideas and encourages critical thinking and problem-solving skills. Furthermore, ICT fuels creativity by providing learners with tools to express their ideas and explore their artistic inclinations. Digital platforms enable students to unleash their creative potential, whether it is through multimedia projects, digital art, or innovative storytelling. ICT also supports integrative learning, as it allows learners to explore a wide range of resources and perspectives. They can seamlessly access digital libraries, research databases, and online courses, enabling a holistic understanding of subjects and issues. ICT empowers evaluative learning by providing tools for assessments and feedback. Students can receive immediate insights into their performance, allowing them to self-assess and refine their understanding of the material. Teachers, too, benefit from data-driven insights to tailor instruction to students' needs.

Collaboration is another area where ICT shines. It promotes collaborative learning, enabling students to work together irrespective of their physical location. This interconnectedness expands the possibilities for group projects, peer learning, and knowledge sharing, enhancing the overall educational experience. In fact, research collaboration platforms have become increasingly vital in the academic world, fostering global connections among researchers and educators. Platforms like ResearchGate, Academia.edu, and Web of Science provide essential tools for sharing research findings, collaborating on projects, and staying up-to-date with the latest developments in education and beyond. Researchers use these platforms to disseminate their work, gain exposure, and connect with peers, thereby enhancing the collective knowledge base in the field. These platforms are transforming the way educational research is conducted and shared, promoting a culture of open collaboration and accelerating the dissemination of knowledge (Joshi et al. 2019).

Generative AI, a subset of artificial intelligence, focuses on creating content, including text, images, and even educational materials. Generative AI models, like ChatGPT, Bard, Claude, and Synthesia can generate human-like text and responses, making them valuable for educational content creation. AI-driven systems can provide personalized recommendations, analyze student performance, and support adaptive learning. Today, generative AI is poised to revolutionize the education sector by offering innovative solutions to long-standing challenges. This subfield of artificial intelligence focuses on creating intelligent systems/

models capable of generating content, including text, images, and more, with human-like fluency and creativity. In education, generative AI presents a range of applications, from personalized content creation and adaptive learning to intelligent tutoring systems and automated grading. Its ability to tailor educational materials to individual student needs, enhance engagement, and streamline administrative tasks holds great promise for the future of education. However, as with any transformative technology, there are also ethical considerations, such as data privacy and potential bias in algorithms, that necessitate careful exploration and regulation. As generative AI continues to advance, it is increasingly becoming a vital tool in the quest to deliver high-quality, tailored education to learners of all ages and backgrounds. Research in this field is evolving rapidly, with educators, researchers, and technologists working together to unlock its full potential (Ifenthaler and Schumacher 2023) (Tapalova and Zhiyenbayeva 2022).

However, generative AI comes with several problems, such as cheating in exams (Johnson 2023), plagiarism, data privacy, etc... That led the World Economic Forum and AI Commons to share a common objective and publish some guidelines for using generative AI. These guidelines, a collective effort involving 100 thought leaders and practitioners convened at a global summit in April 2023 (North), revolve around three pivotal themes: promoting responsible technology development, fostering international cooperation, and advancing societal progress, which includes transformative shifts in education.

In addition to the publication of UNESCO's guidance for generative AI in education and research in September 2023, this guidance represents the first-ever global guidance on generative AI in education and research, designed to address the disruptions caused by generative AI technologies and to regulate their use in education (UNESCO).

2. Key Components of the Model

The Hybrid Model of education, boosted by ICT and GAI, is characterized by different key components that work in concert to create a dynamic and effective learning environment. At its core, the model relies on cutting-edge online learning platforms, which serve as the digital backbone of the educational experience. These platforms house a wealth of educational content, resources, and assessments readily accessible to both students and instructors, promoting convenience and accessibility.

Furthermore, the incorporation of virtual classrooms plays a very important role in the hybrid model. These virtual spaces facilitate real-time interaction between students and teachers, transcending geographical boundaries and enhancing engagement and collaboration.

One of the innovative aspects of the hybrid model is the use of AI-powered content creation. Generative AI technology is harnessed to craft, customize, and adapt educational materials, including textbooks, quizzes, and assignments. This adaptive approach ensures that learning resources are tailored to individual student needs, ultimately enhancing the learning experience.

Data analytics tools constitute another integral element. By meticulously tracking student progress, these tools enable educators to identify learning gaps, thereby paving the way for

the creation of personalized learning pathways. In doing so, the model strives to address the diverse educational needs of students, promoting more effective and efficient learning.

Finally, the hybrid model thrives on blended learning, a methodology that combines in-person and online learning. This combination offers students flexibility in their educational journey, allowing them to navigate the learning process at their own pace while enjoying the benefits of a personalized and interactive learning experience. In essence, the hybrid model leverages these key components to create a 21st century educational framework that caters to the diverse needs of learners, embracing technology and innovation to enrich the educational landscape.

3. Advantages of the Model

The Hybrid Model of education, blending both in-person and online learning approaches, offers a multitude of advantages that have revolutionized the educational landscape. These benefits range from increased accessibility and flexibility to enhanced personalization and engagement. In this discussion, we will explore the different advantages that make the Hybrid Model a compelling choice for modern education.

3.1. Accessibility

The ICT-hybrid model can make education more accessible by removing geographical and physical barriers. It allows students from various locations and backgrounds, including those with disabilities, to access educational resources. For instance, Massive Open Online Courses (Anon) are a prime example of accessibility. Platforms such as Coursera (*Coursera*), Udemy (*Udemy*), and edX (*EdX*) offer a wide range of courses, allowing learners from around the world to access high-quality educational content, often for free or at a low cost. In fact, some universities and academic institutions offer a traditional course alongside a fully online version of the same course or other courses. They can compare enrollment, student demographics, and outcomes to assess the accessibility and impact of the online offering.

In France, the Ministry of National Education and Youth has created a MOOC, which is offered on the “FUN” platform (France Université Numérique) (*FUN MOOC*), made available to French higher education institutions and their academic partners worldwide. All courses on FUN are developed by professors from French universities and schools in collaboration with their international academic partners. Students and online learners can engage with these courses interactively and collaboratively at their own pace.

3.2. Personalization

Generative AI and personalized learning platforms can adapt content to individual student needs, creating tailored learning experiences that cater to different learning styles and abilities. For instance, adaptive learning software like DreamBox (*DreamBox Learning*), used in K-12 education, personalizes math instruction. The platform adjusts the difficulty of math problems based on a student’s performance and adapts the curriculum accordingly.

Many schools and universities, such as ECE—Paris Graduate School of Engineering, in France, provide their students with multiple online courses to enhance their skills in math

and physics (Anon, Anon). This has been conducted for a couple of years; however, at ECE-Paris, conducting online courses has become mandatory since the pandemic to ensure that the students have the necessary background to start the engineering program. In fact, professors have observed that the general level of students has decreased dramatically because of the pandemic. High schools were not prepared for the sudden disruption of teaching. Most of the schools were not equipped with digital and online courses, neither were the students (Plakhotnik et al. 2021). In addition, students can customize the online courses by choosing different modules according to their levels and needs. These platforms are accessible 24/7, so the students can get back to them at any time.

In fact, in March 2023, the European Expert Network on Economics of Education (EENEE) published a report on how COVID-19 has affected the learning outcomes of students. The report (De Witte, François, and European Expert Network on Economics of Education 2023) covers the research developed in this field in many European countries between 2020 and 2022 such as the UK, France, Belgium, Italy, Denmark, Sweden, Spain etc... The key findings of this report are the following:

- The repercussions of the COVID-19 crisis on educational outcomes presented a multifaceted landscape. The effects ranged from minimal disturbances in some countries to substantial adverse consequences witnessed in others.
- The detrimental impact of the pandemic on learning achievements was notably amplified in countries where the physical closure of schools persisted for extended durations.
- Nations that had already made substantial progress in digitalization and the widespread adoption of information and communication technologies in education prior to the pandemic encountered relatively milder disruptions.
- Students facing pronounced socio-economic disadvantages experienced more significant setbacks in their learning, prompting concerns regarding the pandemic's impact on educational equity.

These observations represent a kind of evidence of the importance of digital resources and online learning in education (Hongsuchon et al. 2022) (Gopal, Singh, and Aggarwal 2021) and the data were collected from 544 respondents through online survey who were studying the business management (B.B.A or M.B.A. However, it is worth noting that the lockdown and the transition from traditional in-person classrooms to virtual online learning had profound physical and psychological effects on students. This shift amplified the incidence of psychological stress, anxiety, and depression among university students. Hence, it is crucial to offer students training that can shift their perspective on the educational experience, potentially reducing feelings of depression and stress-related growth. Additionally, there is a necessity to explore improved virtual teaching techniques to alleviate students' anxiety and apprehension regarding learning and exams (Azmi, Khan, and Azmi 2022; Bangert 2004).

On the other hand, language learning apps have embraced the potential of artificial intelligence (AI) to offer highly personalized and effective language instruction. For instance, popular apps like Duolingo (Anon) tailor language lessons by adapting to the learner's proficiency level, and providing customized exercises and feedback. Babbel (Anon)

personalizes instruction based on the user's native language, goals, and previous progress. Rosetta Stone (Anon) employs AI to assess pronunciation and adjusts exercise difficulty according to the learner's performance. Memrise (Anon) adapts its content to individual learning styles, utilizing mnemonic techniques and customized lessons. Tandem Language Exchange (Anon) matches users with compatible language exchange partners for real conversation practice using AI. Similarly, HelloTalk (Anon) utilizes AI to identify areas for improvement and recommends personalized lessons based on chat interactions with native speakers. These language learning apps harness AI to enhance the learning experience, making language acquisition more accessible and engaging for users.

Several educational institutions and organizations use advanced algorithms to craft customized learning materials. Carnegie Mellon University (Anon), for instance, has embraced AI-generated textbooks and study resources, ensuring that the content caters to individual student needs and aligns with specific curricula. This has been offered by the Human-Computer Interaction Institute (HCII) (Anon). Georgia Tech (Anon) has similarly integrated AI-generated quizzes and assignments into certain online courses, ensuring that assessments are directly in line with the course's learning objectives. Scribe (Anon), as a platform, employs AI to generate personalized notes and study materials, adapting to students' unique learning styles and preferences. Additionally, organizations like OpenStax (Anon) are utilizing AI to develop open educational resources, such as textbooks, making education more affordable and accessible to a broader range of students. These examples illuminate the expanding role of AI in generating educational content, enhancing customization, and aligning materials with specific educational goals, ultimately enriching the learning experience and outcomes.

3.3. Engagement

ICT tools and virtual classrooms can enhance student engagement by offering interactive, multimedia-rich content and facilitating collaboration among students.

Virtual reality (VR) in education is an excellent, engaging technology (Oyelere et al. 2020). Educational Institutions can create virtual field trips, lab simulations, and immersive learning experiences. As a kind of experiment, a school or university can experiment with VR technology in history classes. They can measure student engagement, knowledge retention, and overall interest in history using VR compared to traditional methods. For instance, students can explore ancient history using VR tours of historical sites. Novel methodologies for designing virtual environments (VEs) hold the promise of making valuable contributions to the education and understanding of history (Gibson et al. 2022; YILDIRIM, ELBAN, and YILDIRIM 2018).

Many universities and institutions have procured recently what we call VR laboratories, particularly during the pandemic. The VR laboratory offers a secure and unhindered environment for students to access laboratory equipment and conduct experiments. This minimizes the impact of potential errors made by students and enhances the user experience by enabling experiments to be repeated from various perspectives, including some that are unattainable in a physical laboratory because of the pandemic and disabilities of a simple

incapacity (Antonelli et al. 2023; Bashabsheh, Alzoubi, and Ali 2019; Kapilan, Vidhya, and Gao 2021; Román-Ibáñez et al. 2018; Schluse, Priggemeyer, and Roßmann 2020; Shakirova, Al Said, and Konyushenko 2020).

Regarding AI-based applications in early childhood education, there are a multitude of applications and platforms that are playing a pivotal role in fostering cognitive development and early literacy among young children. For example, applications like Homer (Anon) are designed to cater to children aged 2 to 8 by using AI to deliver age-appropriate activities, stories, and games that support early literacy skills. Osmo (Anon) is another interactive educational platform which employs AI to adapt content to each child's proficiency, ensuring a balance between engagement and challenging activities while nurturing early cognitive development. With respect to the school level, Kiddom (Anon) utilizes AI to assess student performance and recommend content tailored to the developmental stage, benefiting early learners. Speakaboos (Anon), an early literacy platform, personalizes reading experiences for children with interactive stories and activities that adjust difficulty levels and content based on individual progress. Similarly, ABCmouse (Anon) harnesses AI to provide a personalized curriculum for children aged 2-8 offering activities, books, and games that promote cognitive development and early literacy skills. These are just some applications among many that highlight how AI is enhancing early childhood education by customizing content to each child's skill level and learning pace, thus delivering engaging and tailored experiences to promote cognitive growth and literacy.

Other crucial tools that capture the attention of the students and provide them with the responses to their questions in a rapid and specific manner are AI-powered chatbots and virtual assistants. These chatbots have become indispensable tools for student support services across educational institutions. Examples include "Pounce" at Georgia State University, which offers personalized assistance in areas like course selection and academic support, while UC Berkeley's "Bear Chat" streamlines admissions and financial aid inquiries. Arizona State University employs "Ask Angie" to ensure students are informed about crucial dates and academic resources, while San Jose State University's "Rosie" assists with enrollment and academic advising. EdTech companies like "AdmitHub" provide AI-driven chatbots that guide students through the college application process, addressing admissions queries, financial aid concerns, and scholarship opportunities. Furthermore, the Paris Academy has introduced a virtual assistant, "Déa" (Anon), to assist students in their inquiries related to school assignments, specific programs, financial aid, and enrollment. These AI-driven solutions ensure that students have quick access to information and support, making their educational journeys more manageable and efficient.

And today, we have AI generative tools such as ChatGPT that play a vital role in education through their capacity to provide personalized, accessible, and scalable support to learners. For instance, a high school student struggling with a complex math problem can turn to ChatGPT or an equivalent tool for an immediate and detailed explanation, enhancing their understanding and problem-solving skills. In a different scenario, a college student studying history might use these AI generative tools to receive additional insights into a specific historical event, broadening their knowledge and facilitating independent research.

Furthermore, AI generative tools' versatility shines in various subjects. A biology student can seek clarification on a challenging concept, while an aspiring writer may request guidance on improving their essays, demonstrating its cross-disciplinary applicability. The 24/7 availability of these tools ensures that students can access support at their convenience, whether they are studying late at night or during the day. This accessibility fosters self-directed learning, empowering students to take charge of their educational journeys.

One should mention that AI generative tools are not limited to aiding students; they also assist educators in content creation. For example, a teacher can use them to generate custom quizzes, brainstorm lesson ideas, or receive additional explanations for their instructional materials, ultimately saving time and enhancing their teaching resources.

With their scalability, which we will expand on in the next section, AI generative can serve many students concurrently, making them invaluable resources for both individuals and educational institutions. In the dynamic landscape of education, generative AI's role in making learning more interactive, engaging, and effective is increasingly prominent and valuable.

3.4. Scalability

The scalability of the ICT-hybrid model means that online resources and AI-driven content can be easily expanded to accommodate a large number of students without significant increases in costs. One should take back the Massive Open Online Courses (MOOCs), like those offered, for example, by Harvard University and MIT on edX. "Harvard Online" is the online platform of Harvard University. It provides online courses that unite professors and knowledge from different areas of the university. These courses connect learners worldwide to tackle important global issues.

One can take the example of Coursera which functions as a platform that provides a wide array of courses, certifications, and degrees offered by universities and organizations globally. Established in 2012 by Stanford professors Andrew Ng and Daphne Koller, it has grown to become one of the largest online learning platforms available. Within Coursera, learners gain access to diverse courses spanning fields such as business, computer science, the humanities, and more. The course durations vary from a few weeks to several months.

The example of Coursera demonstrates the high-level of scalability of this hybrid model. According to the platform, there were nineteen million registered users in 2022. This trend seems to be continuing globally (Anon).

An educational institution could experiment with a traditional lecture-based course and a MOOC-style course on the same subject. They can assess the scalability and cost-effectiveness of the MOOC model compared to traditional classes.

4. Challenges and Considerations

Several works have studied the need to transform the current higher education system such as (Olivia 2023). The hybrid model of education discussed here, which combines in-person and online learning, offers a promising path forward for modern education. However, it is not

without its own set of challenges and considerations that need to be thoughtfully addressed to maximize its effectiveness.

“Generative AI has emerged as a game-changer in education. It can significantly impact student learning by adapting content to individual needs and offering a highly personalized learning experience.”

First, infrastructure is a crucial concern. To make the Hybrid Model inclusive and accessible to all, ensuring that every student has access to the necessary technology and the internet is paramount. This challenge is particularly pronounced in underprivileged areas where the digital divide remains a barrier to equitable education. Bridging this gap through adequate technology provisions and internet access is essential to providing equal learning opportunities for every student, regardless of their socioeconomic background.

Data privacy is another critical consideration. The utilization of student data for personalized learning is a powerful application of technology and AI. However, it must be done with strict adherence to data privacy regulations. Protecting the personal information of students is not only a legal obligation, but also an ethical imperative. Building trust through transparent data usage practices is essential for ensuring the responsible and ethical application of AI and ICT tools in education.

Teacher training is another essential aspect. Instructors may need training and professional development to effectively incorporate ICT and AI tools into their teaching methods. Proficiency in using these technologies is critical to harnessing their full potential and providing a high-quality educational experience for students.

Additionally, Generative AI has emerged as a game-changer in education. It can significantly impact student learning by adapting content to individual needs and offering a highly personalized learning experience. AI-generated content can make lessons engaging, relevant, and tailored to each student’s level and learning style.

Nonetheless, the utilization of Generative AI raises copyright concerns. Creating educational materials with AI assistance may raise questions about intellectual property rights, authorship, and ownership. Striking the right balance between AI-generated content and copyright compliance is a challenge that educators and institutions need to navigate carefully.

Furthermore, managing the disruption that Generative AI introduces to education is a pressing issue. While it brings numerous benefits, its integration can be disruptive to traditional educational systems. Teachers and institutions need to adapt to these technological changes, which can alter the way education is delivered and experienced. Managing this transformation effectively while ensuring positive outcomes for students is a significant challenge in education today.

The Hybrid Model of education holds tremendous potential, but it comes with its share of challenges. Addressing issues related to infrastructure, data privacy, teacher training, Generative AI, copyright, and managing technological disruption are critical to ensuring that it can deliver on its promise of accessible, personalized, and effective education.

Addressing these multifaceted challenges associated with the hybrid model of education requires a concerted effort and a combination of strategies, as displayed in Figure 1.

Figure 1: Holistic Approach to Tackle the Challenges of ICT & GAI-Powered Models



- **Change Management**

Managing the disruption caused by Generative AI in education involves a shift in teaching methods, curricular design, and institutional policies. Institutions should adopt change management strategies to facilitate a smooth transition. Teachers should be provided with support and resources to adapt to new teaching methods effectively.

- **Collaboration and Research**

Collaboration between educational institutions, policymakers, and technology providers is vital. Research on the impact and effectiveness of the Hybrid Model, Generative AI, and related technologies should inform best practices and policies.

- **Equity-Centric Approaches**

Equity should be at the forefront of decision-making. Targeted interventions and support

should be directed toward underprivileged areas and students to bridge the digital divide, ensuring that all learners have equal access to quality education.

- **Stakeholder Engagement**

Engaging parents, students, teachers, and the broader community in discussions about the Hybrid Model's challenges and benefits can lead to more informed decision-making and foster a sense of shared responsibility for addressing these issues.

By adopting a holistic approach that combines policy development, investment, training, and research, educational institutions and policymakers can effectively tackle the challenges associated with the Hybrid Model and ensure that it realizes its potential to provide accessible, personalized, and effective education for all students.

5. Research and Data Analytics

Educational institutions have embarked on a journey of exploration and innovation by conducting extensive research and initiating pilot programs to gauge the effectiveness of the hybrid model in modern education (Chichekian and Benteux 2022; Ninaus and Sailer 2022). These endeavors are essential in shedding light on the potential of this approach to revolutionize the learning experience.

The research efforts are multifaceted and encompass various dimensions of the hybrid model's impact. A primary focus is on student learning outcomes, aiming to determine how the combination of in-person and online learning influences academic achievement and skill development. Educational researchers are closely examining whether this innovative model enhances student comprehension, critical thinking, problem-solving abilities, and knowledge retention, thus ensuring that the educational experience is not just accessible but also profoundly effective.

In parallel, these studies place a spotlight on student engagement. They seek to understand how the hybrid model affects students' motivation, participation, and interaction in the learning process. By examining the dynamics of student-teacher and peer interactions, researchers are striving to uncover how this model fosters active and collaborative learning experiences, making education more engaging and enjoyable for learners of all ages.

Scalability is another critical aspect under scrutiny that needs to be fully addressed. Researchers are evaluating the feasibility of scaling the hybrid model to accommodate a broader student population (Julia, Peter, and Marco 2021). This involves an exploration of the technologies, resources, and infrastructure required to ensure that the benefits of this model can be extended to a wide array of students without compromising quality.

In essence, educational institutions are committed to a process of rigorous examination and experimentation, driven by a shared goal of advancing education in an era defined by technology and innovation. The research and pilot programs being conducted are pivotal in providing insights that inform best practices and help navigate the path toward a more accessible, engaging, and scalable education system that empowers students to thrive in the digital age.

Regarding research works and studies on students' performance, data analytics and sciences have emerged as potent tools in educational institutions (Mougiakou et al. 2023), significantly shaping the landscape of modern education. By harnessing the capabilities of Data Analytics and Artificial Intelligence (AI), these institutions have unlocked a wealth of opportunities to enhance student learning, foster academic success, and create more personalized educational experiences (Hooshyar et al. 2023).

One pivotal application of Data Analytics in education systems revolves around the tracking and analysis of student performance (Namoun and Alshanjiti 2021). This involves the systematic collection, organization, and interpretation of a wide array of data points, including grades, attendance, engagement metrics, and even feedback from teachers. These data are then subjected to advanced analytical algorithms that unveil valuable insights into student progress and areas of potential concern (Al Yousufi et al. 2023).

One notable achievement of data-driven systems in education is the early warning system. By employing predictive analytics, educational institutions can identify students who may be at risk of falling behind academically (Lawson et al. 2016); (Nimy and Mosia 2022), (Adnan et al. 2021). This is achieved through the detection of patterns and indicators that may not be immediately apparent to human educators. These early warning systems can flag students who exhibit warning signs, such as declining grades or irregular attendance, prompting timely intervention and support.

For at-risk students, this intervention can be a game-changer. Educational institutions can proactively reach out to these students, providing additional resources, tutoring, counseling, or other forms of assistance tailored to their specific needs. This timely support can prevent minor setbacks from snowballing into more significant academic challenges and increase the likelihood of these students successfully achieving their educational goals (Iatrellis et al. 2021).

Moreover, Data Analytics extends beyond student performance tracking. It can also be applied to curriculum improvement, helping educators identify areas where students may struggle or excel. This enables the refinement of teaching methods and the adaptation of curricula to better meet the needs of the learners (Gaftandzhieva et al. 2023); (Du 2022).

6. Conclusion

In summary, the hybrid model powered by ICT and using generative AI represents an innovative and promising approach to future education. By blending traditional and digital learning methods with the capabilities of AI, this model has the potential to deliver more personalized, engaging, and accessible educational experiences for learners worldwide. However, the model also comes with challenges related to infrastructure, data privacy, and teacher readiness that need to be addressed for its successful implementation. This cannot be done only if educational institutions and policymakers address the challenges of the hybrid

*“AI-driven
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model effectively by taking a comprehensive approach, encompassing policy development, investments, training, and research. This approach ensures that the model reaches its full potential, offering accessible, personalized, and effective education for all students.

As we look ahead, AI-driven tutoring, Augmented Reality (AR) (Kamińska et al. 2023), and VR applications will further enhance this educational model, offering students an even richer and more immersive learning experience, redefining the way we learn and teach in the digital age.

AI-driven tutoring systems have the potential to revolutionize personalized learning. These intelligent systems can provide students with immediate feedback, adapt content to their specific needs, and offer customized learning pathways. This not only enhances comprehension but also allows learners to progress at their own pace, making education more inclusive and effective. In addition, as mentioned above, AR and VR are immersive technologies that can take learning to new heights. AR overlays digital information onto the physical world, making lessons interactive and engaging. For example, students can explore historical sites through AR applications, bringing history to life. VR, on the other hand, offers complete immersion into virtual environments, making complex concepts more tangible. Students can take virtual field trips or perform hands-on experiments in a virtual lab.

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Five Times Five: Reinventing Education for the 21st Century*

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Abstract

In “Five by Five: Redefining Education for the 21st Century,” the author explores the necessary transformations in education to meet the demands of the evolving world. Reflecting on the outdated 20th-century model, he emphasizes the need for adaptability, creativity, and technological proficiency in the current era. The essay covers five key aspects. The author discusses the essential traits to cultivate in the minds of youth, such as critical thinking, imagination, curiosity, discipline, and ethics. The essay envisions a future education system marked by continuous learning, modular offerings, and a blend of formal, non-formal, and informal learning formats. Ultimately, the author advocates for a holistic approach that prepares students for the challenges and opportunities presented by our rapidly changing society.

“The policies that have worked well in the past are not necessarily the best to confront the challenges of tomorrow...” – Ismail Serageldin

1. Introduction: Looking at the Future

Our education system evolved in the 20th century to produce graduates who could find employment in the economy of that century. Our educational institutions mostly stifled creativity and instilled discipline and an aptitude for taking instructions from an authority figure (the teacher in the classroom) and a capacity to put up with repetitive work that was frequently boring (drills and exercises). Grading and exams reinforced this system, which was crowned by a formal certificate at graduation.

In fact, the certification function was, and largely remains, about certifying that this graduate is a disciplined individual who can take instructions from an employer and has a core of knowledge that will allow him or her to do repetitive (boring) work at an acceptable speed and to an acceptable level of accuracy. The economy involved many repetitive tasks, whether in manufacturing factories and assembly lines, or in private sector offices or bureaucratic government agencies. This is what the employers of the past wanted in a model employee, and thus, educational establishments prided themselves on producing employable graduates.

But that was the past... The economies of the world have been transformed, and are in the process of accelerating rates of further change as the digital revolution becomes the new

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standard for connectivity and the hallmark of the new generation. Employers today value employees who are up to date on the latest technology and information, who know how to work in teams and across disciplines, and who can navigate both diversity in the workforce and constant change and transformation in the context of the work and the tools of the trade.

Education generally, and higher education specifically, has been clinging to a business model that is largely obsolete, even as private universities charge ever more for their services. But even higher education has been seeing some change in the last decades, as the internet wrought its unstoppable change and new products such as MOOCs and distance learning became possible. Society was changing rapidly, and educational establishments had to change.

So let me, in this essay, take on five broad topics:

- Five features of our changing world.
- Five characteristics of the mind we need to cultivate.
- Five kinds of education for tomorrow.
- Five aspects of the new education.
- Five essential transformations of youth.

You will note that, by coincidence, these five main headings are each comprised of five main elements. That is the basis of the title of this essay: “**Five by Five**”. Let us now discuss each of these five main topics.

2. First: Our Changing World

The 21st century has brought a profound transformation to our world. Largely thanks to the internet, we can see acceleration in all aspects of globalization, travel, trade, financial integration across nations, and social connectivity, even as new Science, Technology and Innovation (STI) bring ever newer products to the market. Rocked by at least one huge recession (2008-2009), the Euro-crisis (mostly Greece and Southern Europe), and several wars, the world economy has nevertheless grown and the world has pursued a common vision of development: first the Millennium Development Goals (MDGs) for the period 2000-2015 and then the Sustainable Development Goals (SDGs) for the period 2015-2030. The success of the first set of goals was largely helped by the enormous transformation of China, which not only grew at a blistering pace but also lifted hundreds of millions of its citizens out of poverty.

But the education crisis became apparent in the Euro-crisis, where austerity was imposed on the economies of countries like Spain, Italy and Greece, resulting in unemployment rates that exceeded 20% and youth unemployment rates that were double the national average. Despite their education, the recession not only hit them hard but also left permanent scars on many of them.

Many young people were so frustrated that they gave up looking for work or accepted any work, including dead-end jobs that offered no career prospects. The ILO estimated that the

proportion of youth among the working poor is roughly three times greater than the number of unemployed youth.

“The old disciplinary silos in education, research and teaching will no longer be adequate. We will need to cross disciplines to understand and deal with our multi-dimensional and complex problems.”

These early experiences with unemployment “scar” youth in terms of potential career development and future earning power. Furthermore, it creates distrust in the political and socio-economic systems, which erodes the fabric of society.

But that was Europe. Actually, 90% of the global youth population lives in developing countries, where employment opportunities are scarce and the institutions that govern labor markets and social security are weak. Many youths have few opportunities other than to make a meager living in the informal economy.

All this showed the inadequacy of the education system and the poor quality of its links with society at large. The Pandemic gave a huge push to online working (from home), education (distance learning), and shopping, as well as conferences and meetings. But that is only one side of the changing world, for the internet, the most transformative technology of all time, has also contributed to five profound changes in our world.

2.1. A New Paradigm of Knowledge

The way we learn knowledge, how we store and retrieve it and how we interact with it and add to it are all changing. I analyzed this a decade ago in what I called “The Seven Pillars of the Knowledge Revolution”. These seven pillars are (i) the move from print to digital, which makes the edifice of knowledge built by individual books or essays much more fluid, with websites being accessed globally instantly and updated continuously and linked by hypertext links to other essays and websites, or images and videos. The picture we imagine is no longer that of a great structure built by individual bricks (or books); rather, it is of a flowing river with many tributaries contributing to its flow. (ii) Image is as important as text, including video. (iii) Humans can no longer function without machines. They need the mediation of machines to find, retrieve and use the information with which they interact. (iv) Our global society is characterized by complexity and chaos (in the scientific sense of the terms). Our reality is complex and chaotic, meaning that complex systems have non-linear feedback loops that result in systems and subsystems that are extremely difficult to predict. Many of our models, based on simple mathematics and analogies drawn from physics, are proving inadequate. (v) Today, the concepts and techniques of computing science will become a central part of the new knowledge paradigm, and will weave into the very fabric of science and scientific practice. (vi) Transformation and convergence will become more

common. Transformation in that new discoveries will change the nature of a field of study, like DNA in biology, where genetics and all the “omics” replaced the old-fashioned focus on descriptive taxonomies. And convergence, like when we had biology and chemistry and now we have biochemistry. Today we are witnessing a convergence between Bio-info-nano technologies which will certainly presage more fertile changes in all these fields. (vii) the old disciplinary silos in education, research and teaching will no longer be adequate. We will need to cross disciplines to understand and deal with our multi-dimensional and complex problems from the environment to poverty to gender. Already much of the most interesting work is being done in between the disciplines, where they intersect or where the gaps are. All this requires is that our education systems train many people to have interactional expertise to improve their efficiency in working across multiple disciplines as well as within the new interdisciplinary area. Just as we say that diversity is enriching, so is the sharing of knowledge across disciplines.

2.2. Big Data and the Internet Explosion

The ICT revolution is continuing to expand the scope of the information available beyond anything that could have been imagined a few short years ago.

According to Forbes (Jan 2020), the International Data Corporation (IDC), one of the leading global providers of market intelligence, predicted that the amount of newly created data in 2025 would reach 175 zettabytes (175 trillion gigabytes) of new data around the world. That figure is likely to be exceeded, as have earlier forecasts.

1.7 Megabytes of data were created **every second by every person** during 2020.

90% of the world’s existing data was created in the last two years alone.

463 exabytes of data (almost **half a zettabyte**) will be generated **each day** by humans as of 2025.

So, let us ask, how big is a zettabyte? Well, if all the text in all the catalogued books in the Library of Congress was digitized, one zettabyte would be equal to more than 70 million times more!

Storage of this enormous data is being handled by the rapidly evolving “cloud” technology, with many new things on the drawing board (e.g. storage in DNA).

This internet explosion is changing everything. Analysis based on data is rapidly shifting to “Big Data Analytics,” confirming the trends discussed in the new knowledge paradigm from working with and through machines to the growing centrality of computer science.

Economies are being upended. The large tech companies now dwarf the giants of yesteryear (oil companies and car manufacturers). How can education remain static?

2.3. Social Connectivity and the Personal Hand-held Device

A predominant feature of the society that is being created before our eyes is the rapidly growing importance of the mobile phone. Today, there are more lines than human beings. A

special variety of mobile telephony, the smartphone, has allowed unparalleled connectivity and allowed the emergence of social networks, accompanied by a gradual shift from desktop and laptop to handheld devices, including tablets such as iPads.

“To be disciplined is not just about doing homework and studying diligently; it is also about how we master our emotions and remain respectful of others with whom we disagree.”

But the instrument of choice is the smartphone. That personal hand-held device has empowered a whole generation of young people to deal with data, information and communications very differently than their parents. And its power will be multiplied many times over by the introduction of the new generations of technology: 5G, 6G and beyond.

The marriage of the smartphone and the internet is the defining transformative technology, for good or ill. It brings instant news and unlimited information to the fingertips of youth, just as it allows the spread of lies and conspiracy theories on newly viable social media.

2.4. Artificial Intelligence (AI), Robotics and Brain-Machine Interface

The new era of Artificial intelligence (AI) is here. Machines can handle our production processes with much greater speed and accuracy, and in fact, robots now handle most assembly line operations in traditional manufacturing. Robots are already landing airplanes, and they will soon be driving cars without human intervention. This Artificial Intelligence (AI) revolution will be very far-reaching. The McKinsey Institute estimated that its impact will be 3000 times greater than the Industrial Revolution.

In addition, as the biological and the ICT revolutions combine their skills, they are creating new domains of achievement that will have far-reaching consequences for the interactions of humans with machines. Activities such as a direct reading of brainwaves and the rapidly expanding field of Brain-Machine Interface promise even more far-reaching transformation in the not-too-distant future.

Again, how can the designers and managers of our education systems continue to ignore these profoundly transformative technologies that are being developed before their eyes?

2.5. The Internet of Things (IoT)

The Internet of Things (IoT) is when machines talk to machines and act upon that information flow without human intervention. Many everyday uses of this capacity are undoubtedly benign and are happening every day, as when a car carries a tag on its windshield and a toll gate reads it without having to stop the car and query the driver. Security sensors in buildings to prevent fires or other problems are other examples. But that technology is evolving rapidly and will open immense fields, especially when we combine its latent power with AI and other developments of our era.

These five aspects of our rapidly changing world underline the enormous range and magnitude of the transformation we are going through. To the extent that the education system is intended to prepare our youth to better live and function in this rapidly changing society, it is clear that truly radical transformations are required in our education systems.

3. Second: The Mind We Need to Cultivate

In 1983, Howard Gardner, a distinguished professor at Harvard, revolutionized our way of looking at the education process that we were supporting in the last century. He pointed out that the emphasis on a single measure of IQ and testing and measuring through exams and SAT scores was fundamentally flawed. Our youth had at least eight different kinds of intelligences that were very different and that needed different kinds of nurturing to bring out the best in each of them. The education process would be more effective by recognizing that while an acceptable level of ability in each of these eight domains was desirable, they would shine in probably only one or two of them, and these should be the ones that we nurture.

The 1983 “eight multiple intelligences” include: verbal, mathematical, spatial, bodily-kinesthetic, musical, intrapersonal, interpersonal, and naturalist. These types of intelligence have come to be known in the classroom as “learning styles”. Where applied, they allow educators to identify the different strengths and weaknesses in individual students and nurture their strengths while they remedy their weaknesses.

But Gardner has been looking at the changing world, has evolved his thinking and recommended five aspects of the new intelligence that our education system should be developing and nurturing among our students so that they can function better in the 21st century. These five aspects that he considers desirable to nurture in the minds of our youth are the ability to **synthesize**, as well as the ability to be **disciplined, respectful, creative, and ethical**.

Doubtless, these are qualities that we would all value and each of us may have our own list of desirable attributes. In fact, a great futurist, Peter Diamandis, founder of Singularity University, wrote, in September 2018, arguing for a new kind of education, and there he valued particularly: **Passion, curiosity, imagination, critical thinking, and grit (perseverance)**. There are certainly overlaps between the two lists and each of us could also make up his or her own list. For me, I have chosen the following five attributes to highlight what the schools of the future should focus on nurturing.

3.1. A Critical and Synthesizing Mind

Much of what has been said above underlines the enormous amount of information and stimuli coming from multiple sources that our young people (with their trusty hand-held smartphones) will have to deal with. The ability to **synthesize** will be one of the most prized skills that society will need in its productive workers. Effective citizens will also need to develop their thinking and their positions based on the ability to synthesize screened information from many sources. That process of screening requires the ability to develop and apply **critical thinking** before seeking to synthesize. Thus, I see the two as intertwined.

3.2. *A Mind Endowed with Imagination and Creativity*

One of the worst legacies of the past century was the emphasis on rote learning of boring information and the stifling of the **imagination** of youth: i.e. the ability to imagine that which never was. Likewise, schools used to emphasize that there was only one “right” solution that was being taught, and did not give the students the ability to be creative in finding alternative solutions. **Creativity** was relegated only to self-expression in art class (where it definitely belongs), rather than seeing it as a part of an everyday interaction with real life or abstract problems.

“Education is not just about imparting skills. It is also about building character.”

3.3. *A Curious Mind*

Children have an innate curiosity and ask endless questions: why is the sky blue? Why are the leaves green? It is a characteristic that we must retain and that our educational institutions should help us develop into adulthood. This is especially true of nature and science... Science is not a dry list of dates and people, or of experiments to be repeated without understanding their importance and even more, why they are deemed to be important. Science is a marvelous journey of discovery, propelled by the curiosity of some remarkable individuals.... That appreciation may nurture the next generation of discoverers.

These children will become the generation that will invent the future, and they should be in Boorstin’s description of “Questers”. They must search and be encouraged that the fecundity of the questions we pose is frequently far more important than the finality of the answers we find.

3.4. *The Disciplined and Respectful Mind*

Too frequently, the enormous range of social media allows people to be bullies, to spread misinformation and to acquire a certain arrogance and insensitivity to the harm that may be inflicted on others as we continue to cater to the support of our ego.

To be disciplined is not just about doing homework and studying diligently; it is also about how we **master our emotions and remain respectful of others** with whom we disagree. These are interpersonal and behavioral skills that we learn in school by interacting and socializing with our peers. It is nurtured by student practice and teacher example.

To be disciplined is also to set goals for ourselves and to have the **persistence and perseverance** to pursue our goals and to continue despite the inevitable obstacles that will confront us. It is about not giving up at the first setback. Sometimes that is because we have a passion for the topic in question, but more often it is simply the commitment to get things done and to see tasks through to the end.

3.5. *The Ethical Mind*

Education is not just about imparting skills. It is also about building character. In fact, Wikipedia defines education as “the process of facilitating learning, or the acquisition of

knowledge, skills, values, beliefs, and habits”. Indeed, values, beliefs and habits are social skills that every citizen needs. In our society, with its increasing diversity, socialization requires increased appreciation (not just tolerance) of the multiplicity of ethnic and religious backgrounds, and of course an appreciation of the gender dimension and a commitment to greater equality in society.

These are the ethics of citizenship that we seek to nurture in our coming generations. But there are additional dimensions to ethics that make it a necessary aspect of the formation of our future citizens. The explosion of science and technology will raise ethical questions about how we deploy these new technologies. Not everything that is technically feasible is ethically desirable, just as not everything that is legal is necessarily just.

How will we fashion science-based legislation and evidence-based regulations while still observing ethical standards about such issues as limiting inequalities, ensuring access for all, and empowering the weak and the marginalized to become the producers of their own bounty and welfare rather than the recipients of charity or the beneficiaries of aid? All these questions are becoming necessary parts of the formation of character, which is an integral part of the education of the young.

4. Third: What kind of Education?

Distance learning (**guided learning**) will become a major feature of the new system. The old model of rigid linear advancement through 12 years of schooling, followed by four years of university, after which one receives a degree that certifies one’s entry into the labor force to practice some profession for forty years and then retire, will become totally obsolete.

Continuous learning will be more than a slogan; it will be an economic necessity. The market will demand new skills, and an increasingly competitive world will force enterprises to continuously upgrade the skills of their labor force. There will be modular offerings in practically every field to meet the needs of all people, including courses on such topics as painting and pottery for those who want to pursue their interests and hobbies.

Most of the institutions offering degrees will still be part of the formal education system, linked with schools and training institutions. But there will be an increase in non-formal education with community groups and other organizations. Informal education through interactions with friends, family and work colleagues will of course continue.

But all forms of education will be available in parallel: Classroom instruction, distance learning, self-learning and informal learning with peer groups.

4.1. Formal Education in Established Schools and Universities

This will continue to be the backbone of a country’s education system which will continue to grant degrees and rely on lectures, seminars and face-to-face instruction, although they will increasingly use the new technologies as part of their repertoire. (see discussion on “methods” in the next section below).

4.2. Research Excellence and the University

One of the great successes in a number of countries is the combination of research and teaching at the best universities. That not only advances the world's knowledge and understanding of complex subjects but also allows the researchers to involve the students in the research, thereby training the ranks of future researchers. This does not preclude research at other public and private institutions. This will continue, although the availability of the new technologies will affect how the professors teach, how they maintain contact with their students, and how the mentors remain in touch with their mentees. But on the whole, these will be differences in tools and techniques rather than changes in the formal structure of the institutional arrangements.

“While some are worried that robots will reduce employment opportunities, I do not think so.”

4.3. Distance (Guided) Learning

The COVID-19 pandemic forced many schools and universities to rush into various forms of distance learning. But there were already many transformational approaches that had pioneered many different kinds of distance education. Massive Open Online Courses (MOOCs) have become a part of the higher education landscape. Starting in 2011 with Sebastian Thrun's Stanford course that got 100,000 registrations to the creation of Coursera and Udacity, followed by Harvard, MIT, Berkeley and others' creation of edX and other entries into the field such as FUN, FutureLearn, NovoEd, Iversity, and many others, up to and including the University of the People. Also, short-form lectures like the Khan Academy and TED talks, as well as many institutions that post lectures on YouTube, meant that the educational landscape for distance or guided learning was already quite rich when the COVID-19 pandemic forced many institutions to introduce online teaching in parallel with—or instead of—face-to-face instruction. The pandemic period in 2020 gave a huge boost to online education everywhere in the world.

4.4. Lifelong Education for Employment

The notion that we would go through 12 years of schooling and then 4 years of college and get a degree that would enable us to practice a profession for the next 40 years and then retire is totally obsolete. There is no field of endeavor that is not affected by the explosion of knowledge and the transformative techniques that are being invented and re-invented every day. Life-long education will have to become a reality, with new professional assessments every 5-10 years. The rapidity of the change in the markets of the world will force employers to demand that their employees remain up-to-date with the explosive growth in the data and findings in their fields.

While some are worried that robots will reduce employment opportunities, I do not think so. In fact, I believe that as we went from a one-day to a two-day weekend, or as we increased the minimum wage from time to time, we will go from a two-day weekend to a

three-day weekend, thereby reducing the demand for human working hours by 20% with robots picking up the additional work. That qualitative improvement in lifestyle will also be accompanied by a qualitative change in the nature and content of the work as humans learn to work more—and better—with robots.

4.5. Lifelong Education for Personal Cultural Enrichment

The educational landscape is intimately involved with the overall cultural landscape of a country. Thus, we can expect that not only will there be an evolution driven by technology and market considerations, but also there will be an expansion of the offerings of the educational institutions in what may be generally called cultural self-improvement courses, which can be very enriching, and that the new technologies of distance learning will make accessibility to such offerings very easy.

5. Fourth: Reinventing Education

5.1. Content

In terms of content, we are becoming increasingly aware that the idea of endless repetitive drills undertaken under the discipline reinforced by an authority figure in the classroom setting is not the best way to develop a child's questioning and exploratory tendencies, their abilities to learn how to learn by discovery and not by rote memorization, and their creativity. These are all the qualities that will be increasingly valued in the emerging globalized economy of the 21st century, where repetitive tasks will increasingly be performed by robots and workers will be valued primarily for their creativity and interpersonal skills in a vastly expanded services sector.

But most importantly, we have identified the aspects of the Mind we seek to nurture, from critical thinking to ethics, from creativity and exploration to persistence and discipline, from openness to others to respect and appreciation of diversity. The content of the curricula and syllabi of the new systems must be designed to promote these values as they impart the kind of skills that will increase the self-confidence of the young.

5.2. Method

In terms of method, we will rely much less on classroom instruction and much more on guided learning and self-learning. In classroom settings, there will be flipped instruction. Instead of teachers using the face-time for lectures and then leaving the students to do the problem-solving on their own, they will present their lectures in video format, which the students can see on their own time (and repeat the parts they want to hear more than once to better understand them) and then use the face-time in the classroom for mentoring, problem-solving and teamwork among students. Drills will be increasingly in the form of video games, challenging the students to solve problems on one level and move on to the next, something they enjoy doing. Distance learning (guided learning) will become a major feature of the new system and will also allow those who learn online to go from completing one level to the next as they face harder material to learn.

5.3. The Participants in the Education Process

Participants in the education process will still involve parents, teachers, students, peer groups and the community, but the last two will include virtual as well as physical peers and communities.

5.4. The Venues

The venue, or organizational setting, the schools and universities, will not be replaced by individuals working on computer terminals or their mobile phones or other technologies, from home or from elsewhere. This is because children need to be with other children of their age to learn to interact and socialize with peers. Only schools provide the requisite setting for such socialization, an essential feature of emotional development and the formation of effective citizens.

Furthermore, as has been made abundantly clear during the 2020 COVID-19 pandemic lockdowns, parents will not be able to effectively resume work if their children are not in school. But it is not just a matter of convenience for the parents. It is essential to remember that education is not just about the imparting of skills but also about socialization, which requires that children and teenagers learn with their peers.

Libraries are special venues that are frequently presumed to be obsolete in the digital era. I think that libraries will become even more important in this period of boundless electronic information of enormously variable quality. Having too much information is as problematic as having too little for those who do not know their subject matter well.

Libraries will help by organizing coherent domains of knowledge and sharing in the global explosion of information. They will not be just depositories of books and magazines but will become essential portals through which learners—and the general public—will be helped to explore the vast and growing resources that will be at their fingertips.

5.5. Links to Society

Distance learning (guided learning) will become a major feature of the new education system. The old model of rigid linear advancement through 12 years of schooling, followed by four years of university, after which one receives a degree that certifies our entry into the labor force to practice some profession for forty years and then retire, will become totally obsolete. Continuous learning will be more than a slogan; it will be an economic necessity. The market will demand new skills, and an increasingly competitive world will force enterprises to continuously upgrade the skills of their labor force.

Although I believe that formal instruction will continue to be important, it will increasingly be supplemented by both guided learning and self-learning through myriad offerings.

Driven by curiosity and self-interest, the lifelong learners of the future will alternate between broadening themselves or pursuing hobbies on the one hand and acquiring marketable skills on the other. The offerings for both will be there.

6. Fifth: The Five Transitions and the Education System

The education system is the locus of the transition of adolescents into adults and the incubator of effective citizens. It is the custodian of the great generational transition. There are five essential transitions that occur between the ages of 15-24 in most societies and they make these years particularly important, and since the High School and the University help mediate all these transitions, it is essential that the education system focus on and improve the fashion in which it plays that role in the lives of our youth. These five transitions are:

6.1. Continuing to Learn

Whether to drop out of further structured instruction and university participation or not is the single most important decision in a teenager's life. Its repercussions and the future path of their career will be inevitably affected by it. With every passing generation, the importance of having completed a higher level of education is more valued in the employment market, and it prepares the graduate for more possibilities of starting their own enterprise.

However, specialists like Peter Diamandis point out that an average of 7,200 students drop out of high school each day, totaling 1.3 million each year. And over 50 percent of these high school dropouts name boredom as the number one reason they left. Thus, attention to the educational system's performance is key to responding to this challenge.

This decision to continue studying (from high school to undergraduate in university) is also an essential transition for those who want to graduate and continue to the professional schools that train and educate future medical doctors or engineers.

6.2. Starting with Work

The transition from a dependent student to an independent participant in the labor force occurs in these years, traditionally with a pre-college or college education, and usually starts with part-time work. The manner in which the university, and by extension, the other institutions in the higher education system, address that transition and facilitate it will have a major impact on the economy and society, not to mention the lives of the young people themselves. We will not address the issues of youth migration, which is a subject deserving another separate essay.

6.3. Developing a Healthy Lifestyle

Key decisions on smoking, experimenting with drugs, attitudes towards sex and other choices that confront youth at that age can make all the difference in terms of their adoption of a healthy lifestyle or not. Sometimes the bad decisions even lead to addiction, and even possible criminality. Psychological support from the education system is important to assist youth in coping with depression or factors that could lead them to make unhealthy decisions.

6.4. Starting a Family

Family formation starts at the older end of that age group. Thus, the attitudes that they gain at university and in the higher education system can make all the difference between a

society with solid family units and one with broken homes. Household formation is about more than demographic change.

6.5. Exercising Citizenship

The political awareness of the new generation was formed in those years. Usually, it is at university that they join political parties, start to vote and get exposed to a wide spectrum of ideas and debates. Their future attitudes as responsible, participating citizens or detached, apathetic individuals will make a major difference in the effective democratic evolution of society. The attitudes they develop towards politics and society will also make the difference between the rise of extremism and the success of pluralistic politics.

I believe that in designing policies that deal with youth in these formative years, we must include the following three broad thrusts: (i) expanding opportunities, (ii) enhancing capabilities, and (iii) providing second chances. Each pathway (opportunities, capabilities, and second chances) is to be applied to the policies that address each of the five transitions. These views are supported by the World Bank and others who have studied these questions. It is important to ensure that the maximum is done to avoid having many young people stay in long-term unemployment or find themselves locked into dead-end jobs, joining the bulk of the working poor.

These policies and pathways are important complements to the transformation of the educational system. They will assist young people from the incubator of the basic education system into the mainstream of society.

7. Conclusions

It is evident that distance education and online learning, especially after the boost that they got from the COVID-19 lockdown and emphasis on social distancing, played a big role in 2020. It is highly probable that such distance education will continue to play a big role in the future. It will force many educational institutions, especially universities and institutes of higher education, to re-examine their existing educational models, inherited from a past era where the costs have been allowed to escalate at a much faster pace than can be borne by the students and their families; cost escalations that have been so steep that they have brought into question the value of having a degree.

The existing educational system will soon become a system with new, affordable means of entry and better learning. It will be a system where learners can challenge existing ideas and invent new ones. A system that offers access to all and promises a good chance of success. A system that promotes curiosity, imagination, critical thinking, and ethics.

The new generation of students, like their peers elsewhere, is a connected group. They are growing up with the tools of the digital revolution and the allure of social media is taken for granted and part of the landscape of their adolescence. This is having some impact on the skills they value and the way they learn them best. This comes at a time when we are on the cusp of a major transformation in the educational system in terms of content, methods, participation and venues.

Those who want to seize the moment to promote a green recovery and to promote a reskilling and upskilling of their people will help push the educational system towards the new forms of education that will prevail in the 21st century. A new generation of children will flourish in a system that is driven by their curiosity and that allows each individual to reach the full extent of their abilities and give back to society to the full measure of their talents.

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Global System Change

A Whole System, Nature-Based Framework for Sustainability, System Change and Responsible Investing

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Abstract

Interest in system change is rising, driven largely by growing awareness that flawed economic and political systems are the root causes of climate change and other major challenges. This paper summarizes a whole-system framework (Global System Change - GSC) and practical implementation strategy (System Change Investing - SCI) that can guide and accelerate system change. It is based on the Global System Change books. Using whole-system thinking and extensive references, the books provide systemic solutions for all major areas of society. System change is a very large opportunity for business and society. Comparing human systems to nature shows that humanity has the potential to be nearly infinitely more sophisticated and prosperous than we are now. This paper discusses the higher-level thinking, nature-based frameworks, and practical system change strategies needed to reach our fullest potential, individually and collectively.

Human society is changing at unprecedented speed. Environmental, social, economic and political problems are expanding rapidly, while many traditional systems and ways of life are breaking down. We are in the midst of societal and systemic change. This transformation poses increasingly severe and complex challenges for business and society.

These challenges were not inevitable. They did not result from random activity or bad luck. We unintentionally created them. Actions begin in the mind. Current human society is a reflection of human thinking. Everything on Earth is part of one interconnected system. However, humans largely perceive themselves as being separate from each other and nature. This reductionism produced flawed economic and political systems that ignored relevant factors and thereby produced harmful behavior and unintended consequences.

These systems compel companies to degrade the environment and society. They are the root causes of major challenges. Improving them (i.e., system change) is the most important action needed to achieve the UN Sustainable Development Goals (SDGs) and sustainability.

New paradigm thinking is required to evolve human systems and protect business and society. As Einstein famously said, we must think at a higher level to solve complex challenges. That higher level is whole-system thinking. It recognizes the interconnected nature of human society. This paper is based on the Global System Change (GSC) framework. It uses whole-system thinking and the laws of nature to clarify sustainable society and the systemic changes and actions needed to achieve it.

This paper discusses GSC principles, systemic problems, systemic solutions, and the business role in system change.

1. Global System Change Principles

Three critical system change principles are humility, objective reality and practicality.

1.1. Humility

Throughout history, humans often thought their systems were sophisticated and beneficial but later realized they were unsophisticated and harmful. We are making the same mistakes today. Humanity has made great progress in many areas, including technology, human rights and governance. However, the most important measure of system success is results. Our governance, economic, financial and other systems often seem advanced and beneficial. But they are rapidly extinguishing life, destroying life support systems, and making billions of people unable to meet basic needs. The coordination, technological sophistication and prosperity of nature are almost infinitely greater than those of humanity. Comparing ourselves to nature shows the vast unsophistication of humanity and our almost unlimited potential for improvement.

Overarching economic and political systems often seem monolithic and unchangeable. But they always change. They are doing so now. No human creation, system or philosophy is sacred. Only life and that which sustains it (the environment) are sacred. Humility helps us see the constantly changing, vastly unsophisticated and unintentionally destructive nature of modern human systems (compared to natural systems). This provides the open-mindedness needed to evolve systems into sustainable forms.

1.2. Objective Reality

Objective reality framing is essential for successful, voluntary system change. There are widely differing philosophies, opinions and biases about human systems. These often foment debate and block system change progress.

Objective reality transcends human ideas. It is objectively true, regardless of what humans think, say or do. GSC provides an objective reality framework to guide and coordinate system change efforts. As discussed below, it is based on the laws of nature. These laws have constrained all life on Earth for 3.8 billion years. The degree to which humanity survives and prospers will be completely determined by the extent to which we abide by natural laws.

Throughout history, all human systems that violated these laws changed, usually by collapsing. These high-level systemic changes nearly always happened quickly (i.e., the American and French Revolutions, the end of US slavery and USSR communism). Rapid, widespread environmental and social degradation shows that we are grossly violating natural laws. We are in a time of accelerated system change. If we do not voluntarily evolve our systems into sustainable forms, nature and reality will do so, almost certainly in a highly traumatic manner.

Over the past 100 years, we have recovered from economic recessions and depressions without fundamental systemic change. However, this phase almost certainly is over. The

increasingly destructive nature of modern systems means that they will not last in their current forms. We might only have five to ten years to change them before they change themselves through collapse.

GSC is based on new paradigm, higher-level thinking. Traditional business thinking and strategies focus on the organizational level. This reductionism unintentionally causes widespread degradation. The widely embraced purpose-driven business concept raises business consciousness to a higher level. The focus expands from narrowly benefiting shareholders to broadly benefiting all stakeholders and society. The approach traditionally focuses on changing companies and addressing symptoms, such as climate change. GSC more effectively operationalizes purpose-driven business by emphasizing system change, the most important sustainability issue.

1.3. Practicality

Practicality is a critical system change principle. The corporate and financial sectors are powerful. They strongly influence government, media and broader society. In collaboration with these groups, they have the power and resources needed to drive voluntary system change. Traditionally, companies and financial institutions used their power to block systemic changes that benefit society but threaten shareholder returns. However, environmental and social issues have become increasingly financially relevant. That is the main reason why nearly all large companies have implemented sustainability strategies.

As the human economy expands in the finite Earth system, negative environmental and social impacts return more quickly to harm companies, often in the form of market rejection, lawsuits and reputation damage. Reducing negative impacts benefits companies in many ways, including increasing profitability and shareholder returns. However, this is only true up to a point. In general, companies can only profitably mitigate about 20 percent of total negative impacts (i.e., tangible, intangible, short-term, long-term, environmental, social). Beyond this point, costs usually go up. If companies continue to reduce harm, they will put themselves out of business long before reaching full impact mitigation. This is a system problem, not a company problem.

Modern systems unintentionally create a situation where companies must degrade the environment and society to survive. Acting in a fully responsible manner (i.e., causing no harm) and being in business are mutually exclusive. Beyond a certain point, voluntary corporate responsibility equals voluntary corporate suicide.

Nearly the entire corporate sustainability and responsible investing fields are focused on the 20 percent of impacts that companies can profitably mitigate. Traditionally, companies stopped mitigating when it became unprofitable. This leaves them between a rock and a hard place. It forces them to continue harming the environment and society, which increasingly harms companies and investors.

New paradigm corporate sustainability recognizes that full impact mitigation is only possible with system change. Companies continue unilateral impact mitigation. However, rather than stopping when mitigation becomes unprofitable, they collaboratively drive

systemic changes that enable further, and then full mitigation. Under sustainable systems (discussed in Systemic Solutions below), companies maximize profits by acting in a fully responsible manner.

“The root cause of climate change, for example, is not greenhouse gas emissions. It is the flawed economic and political systems that compel companies to burn fossil fuels and emit these gases.”

Practicality involves meeting companies where they are—embedded in current systems that place maximizing profits and shareholder returns before all else. System change is the most complex challenge facing business and society. Overwhelming complexity often produces inertia. GSC simplifies the system change process by providing a clear, objective vision of sustainable society and the practical means to achieve it. With a broader vision, companies do not need to understand all the complex details of system change. They only need to know the next few steps and how these will benefit them.

Practicality also involves emulating success. For example, Nordic countries consistently lead the world on nearly every measure of societal success. They are not fully sustainable. However, they are further along than nearly all other countries. Therefore, their systems should often be emulated and adapted to other countries.

System Change Investing (SCI) provides another practical system change strategy. Nearly the entire responsible investing field is focused on changing companies and addressing symptoms, such as climate change and other SDG problems. In other words, the field is focused on about 20 percent of the sustainability solution. SCI is a new paradigm approach that largely shifts the focus to system change and addressing root causes (flawed systems). The approach rates companies on system change performance and shifts investments to system change leaders. It is based on proven environmental, social, governance (ESG) strategies. SCI strongly engages the corporate and financial sectors in system change. (SCI is further discussed in the Business Role in System Change section below.)

One of the most important aspects of practicality is helping companies and investors realize that they only have two options, not three. Traditional wisdom showed three options: keep systems the same, collapse or improve systems. This has been true for at least the past 100 years. But it no longer is. Flawed systems are causing rapidly growing problems. Keeping them the same is not an option for very much longer. The only options are voluntary or involuntary system change. Involuntary change (collapse) would cause unprecedented trauma and suffering because human society is larger and more interconnected than ever before, and we are near or beyond many environmental and social tipping points.

Involuntary change will destroy many companies and wipe out vast amounts of investment. This shows that there essentially is only one option—voluntary system change. This might seem highly complex. However, the alternative is far worse.

Humanity collectively, and business in particular, has the resources and ingenuity needed to evolve systems into sustainable forms in the relatively short time frame that we almost certainly have. Not changing often is the easiest and most comfortable option. System change can be confusing and difficult. It is understandable that many leaders, experts and citizens would try to convince themselves that fundamental system change is not necessary. But it is. Courageous, effective leadership is needed to make it happen.

“Flawed systems and the reductionistic thinking that created them are the root causes of essentially all major challenges facing humanity.”

One final aspect of practicality is focusing on the positive. Sustainability often focuses on the tremendous problems facing humanity, the immense suffering they already are causing, and how this will rapidly get worse. Predictions frequently seem dark. However, humans are part of nature. We have the innate potential to match the high sophistication, coordination and prosperity seen there. We can be nearly infinitely more successful and prosperous individually and collectively than we are now.

Our unintentionally destructive systems and ways of life will end one way or another, regardless of what we think, say or do. However, this is not necessarily the end of humanity. We stand at the dawn of a new society, one that does what nature has been doing for 3.8 billion years and occurs in our own bodies—living in harmony with each other and nature.

This is not utopian. Believing that we can continue to do what we are doing now is utopian in the sense that it absolutely will not occur. Living in harmony with each other and nature is objective reality. It will absolutely occur in nature (unless we get hit by an asteroid). The only question is, will humans still be here when nature and reality re-establish balance and compliance with their laws? All rational people want humanity to prosper. It is within our power to achieve. Applying practical business know-how to system change will strongly facilitate the transition to sustainability.

2. Systemic Problems

This section discusses the systemic causes of the major challenges facing humanity and gives a few examples of systemic problems. The SDGs are one of the most important achievements of the sustainability movement. Many corporations, governments and NGOs are focused on achieving them. Nearly all SDG efforts focus on directly addressing climate change and other problems, for example, by switching from fossil fuels to renewable energy or offsetting carbon emissions.

However, SDG problems are symptoms. They are caused by flawed economic, political, financial and other systems. Directly addressing problems and symptoms is beneficial. But it is not nearly enough to resolve problems and achieve the SDGs. Root causes must be

addressed. The root cause of climate change, for example, is not greenhouse gas emissions. It is the flawed economic and political systems that compel companies to burn fossil fuels and emit these gases.

As noted, system change is the most important action needed to achieve the SDGs. The goals cannot be achieved under systems that created the need for them in the first place.

2.1. System Flaws

There are many specific systems flaws that force companies to cause harm and create SDG problems. These include externalities, time value of money, limited liability, over-emphasizing economic growth and shareholder returns, under-emphasizing social well-being, and allowing regulated entities (businesses) to inappropriately influence regulators (government). If all of these flaws were rolled up into one overarching system flaw, it would be the failure to hold companies fully responsible for negative impacts. This is the general mechanism that makes it impossible for companies to stop harming the environment and society and remain in business.

The corporate sustainability movement largely is based on voluntary corporate responsibility. Economic and political systems do not hold companies fully responsible for the harm they impose on society. Instead, companies are encouraged to voluntarily stop harm. It is impossible for this system to work. It is a perfect example of how humans often think current systems are sophisticated and beneficial, but later realize they are unsophisticated and harmful.

Future generations will look back on our current corporate responsibility system in the same way we look back on slavery. A whole system perspective shows the irrational, unintentionally harmful nature of current systems. To illustrate, voluntary corporate responsibility is like voluntary individual responsibility. Under this system, there might be no murder laws. Instead, citizens would be encouraged to not kill anyone but not be held responsible if they did. We would make the business case by showing how voluntarily not murdering anyone would provide a happier, more successful life. Obviously this position is absurd. But that is exactly what we are doing with corporate responsibility.

Encouraging companies to voluntarily stop harming the environment and society, when doing so will put them out of business, is irrational. It will provide some benefits, but not come close to ending environmental and social degradation. People in the future will ask, why did you not hold companies fully responsible for harm, in the same way that you held individuals responsible for murder and other crimes?

There sometimes appear to be valid reasons for not holding companies fully responsible, as there once appeared to be valid reasons for continuing slavery. It often is difficult to quantify intangible, long-term negative impacts and attribute them to particular companies. However, a whole system perspective shows that there are no valid reasons for allowing the destruction of life support systems and society. Degrading that which sustains us is not rational.

We have the ability to overcome all obstacles to holding companies to the same standard as individuals—act responsibly or be held accountable for harm. For example, expert panels

could estimate harm and hold companies responsible for the burdens and costs they impose on society. This internalization of costs could be phased in, and thereby allow a minimally disruptive transition to mandatory responsible corporate behavior.

Flawed systems and the reductionistic thinking that created them are the root causes of essentially all major challenges facing humanity. Examples of major systemic problems include inadequate regulation, public deception and division, suppression of democracy, and global instability.

2.2. Inadequate Regulation

Flawed systems essentially force companies to put maximizing profitability and shareholder returns before all else. Corporate charters generally do not require that companies maximize investment returns. Instead, this is a *de facto* requirement of the capital markets. When companies fail to put shareholder returns before the environment, society or anything else, management often is replaced, companies get taken over, or they go out of business. Flawed systems that do not hold companies fully responsible essentially force them to oppose anything that threatens shareholder returns, including actions that benefit society.

Two main strategies for blocking action are inappropriate government influence and misleading the public. Inappropriate business influence of government has occurred throughout US history. During the Civil War, corporations increased their influence over government. President Lincoln warned and accurately foresaw that they would use this power to secure even greater influence.

Over the past 40 years, campaign finance and lobbying have been used to influence the appointment of conservative Supreme Court justices. Through *Citizens United*, *McCutcheon* and other decisions, the court largely has dismantled campaign finance laws. Now individuals and companies are allowed to anonymously spend unlimited amounts on political campaigns. Giving money to politicians with the expectation of preferential treatment is considered to be bribery in other countries. But we made it legal in the US.

When businesses and their owners pay to put politicians in office, those politicians become beholden to their benefactors. Companies can compel their political servants to weaken or eliminate regulations or anything else that threatens ever-increasing shareholder returns. When companies control the entity that regulates them (government), self-regulation essentially exists. This is equivalent to no regulation. It creates a *Lord of the Flies* type situation where companies are forced to degrade the environmental and social systems that enable them to exist. Companies paying politicians to remove regulations exacerbates the primary system flaw—failing to hold companies fully responsible. As companies are held less responsible, they are forced to cause more harm. This accelerates the degradation of life support systems and society.

2.3. Public Deception and Division

Misleading the public probably is the most powerful and effective strategy for blocking actions that benefit society, but threaten ever-increasing shareholder returns. The primary

concern of the US Founders about democracy was the ease with which vested interests could mislead non-expert citizens. The main Founders, except Hamilton, were greatly alarmed by the establishment of political parties. They did not want the newly united states to be divided into debating fractions.

George Washington and other Founders warned that vested interests would use political parties to divide and disempower citizens. This would enable them to unfairly take public wealth and control government. The Founders' concerns materialized.

For nearly all of US history, vested interests have taken advantage of tribalistic tendencies and divided citizens into debating factions, such as conservatives and liberals. People agree on nearly all major issues. Essentially all citizens want a strong economy, good jobs, a clean environment, good healthcare and education, low crime, healthy communities, strong international relations, and efficient, effective government. However, public division prevents citizens from working together on their many common interests.

From 1949 to 1987, the Fairness Doctrine limited the ability to mislead, divide and disempower the public. Major media was required to present both sides of controversial issues. It essentially was required to tell the truth. Removing the Fairness Doctrine accelerated the division and degradation of society. This allowed media to present biased or inaccurate information. In effect, they are allowed to lie.

This has strongly contributed to a second great civil war in the US—the conservative-liberal civil war. Over the past 40 years, media provided a nearly nonstop invective against the other side. This caused many citizens to dislike or even hate those on the other team, party or side. People were misled into focusing on false enemies (each other) and ignoring major problems and solutions, such as protecting environmental life support systems, using public wealth to equally and fairly benefit all citizens, and ensuring democratic control of government. This public division and disempowerment have enabled vested interests to protect shareholder returns by turning citizens against actions that threaten returns.

Inadequate regulation provides a perfect example of public deception. Regulations are prohibitions against causing harm. They are meant to protect society. Companies could not effectively argue that they should be allowed to harm society so that they can increase investment returns. Citizens would not be sympathetic. They would rightly say that the protection of their children and themselves takes priority over ever-increasing investment returns. In this case, telling the truth would not work. As a result, public deception is required.

Business leaders do not intend to harm anyone. They are good people who mean to help society, and do so in many ways. Flawed systems compel good, well-intentioned leaders to harm the environment and society. These systems often essentially force vested interests to lie.

On the conservative side for example, vested interests can say that liberals want to increase regulations. Then conservatives who have been misled into disliking liberals frequently blindly oppose them, operating under the misconception that regulations harm society. But in reality, there is no civilized society without regulations that prohibit harming others.

The division of society has become more pronounced since the Fairness Doctrine was eliminated. To illustrate, a generation ago, someone usually could safely say something like, "I generally vote conservative, but I think the liberals are right about three things." However, if conservatives said that today, they often would be attacked. They are pressured to fully go along with conservative positions, rather than think for themselves and make their own decisions.

"Recent stock market growth has been driven in large part by concentration of wealth and degradation of life support systems and society. This cannot and will not continue for much longer."

Public deception also has been used to turn citizens against unions, social welfare and other programs that protect and benefit society, but threaten shareholder returns. For example, over the past 40 years, under both political parties, nearly all benefits of economic and stock market growth were concentrated at the top of society, while inflation-adjusted wages remained nearly flat. Today's young people are the first generation in US history that will be worse off financially than their parents.

As campaign finance laws were weakened and billions of dollars were spent on political campaigns, social welfare programs that benefited low and middle-income citizens were reduced, while corporate welfare was increased. The US now has nearly the highest inequality in the world.

Business owners and investors have a right to profit from their hard work and ingenuity. However, much of the wealth concentrated at the top of society results from unfair and inappropriate influence of government. At least several trillion dollars of public wealth are concentrated at the top of society each year through many forms of corporate welfare. These include externalities, limited liability, private sector money creation (fractional reserve lending), unfair taxation, unfairly low wages, unfairly high prices, and declining customer value.

Several studies have shown that politicians in both major parties focus almost completely on meeting the needs of wealthy campaign donors, while the needs and requests of low and middle-income citizens have no statistical impact on voting. As people were distracted from real problems, politicians removed regulations that benefit society but restrict investment returns.

To illustrate, during much of the 1900s, buying back shares was seen as illegal stock market manipulation. This regulation enabled extensive corporate profits to be used to increase wages. From the 1930s to 1970s, wages largely rose with economic growth. However, deregulation beginning in the 1980s made many previously illegal actions legal, including stock buybacks. Now companies often use up to 95 percent of profits to buyback

shares. This has strongly contributed to flat wages and declining employee benefits over the past 40 years.

Several European and other developed countries increasingly view the US as a Third World country. They often build factories here because they can provide far lower wages and benefits to US workers than those in their home countries. Many jobs were created in the US prior to COVID-19. But they frequently were low quality jobs that paid poverty-level wages and provided few or no benefits.

The unexpected nature of COVID-19 compelled the US to do what many other countries regularly do, but the US does much less frequently—use the public wealth to benefit all citizens. Many average citizens were supported during COVID. This protected the economy and society by maintaining demand for products and services. Some workers were better off not working. Now many people seem to be unwilling to return to their poverty-wage, low or no-benefit jobs.

When experts say that unions are needed to ensure high-quality jobs that provide a decent standard of living, vested interests frequently label unions as liberal or socialist. Then many conservatives oppose unions. They are misled into attacking those who are trying to help them and protecting those who harm them.

Dividing citizens and distracting them from real problems enabled companies to increase profits and shareholder returns in many other ways. For example, business influence of government allowed mergers and other anti-competitive behavior. This enabled increased prices and profitability. Companies often use algorithms to calculate how quickly and extensively they can raise prices without significant sales losses. As a result, they often sell products for far more than their cost. They are able to get away with this in large part because those who question price gouging often are called liberals and ignored by conservatives. In the 1980s and 1990s, the Consumer Price Index was reformulated so that it substantially undercounted inflation. This further facilitated price increases.

Dividing and disempowering citizens enables ever-increasing shareholder returns and wealth concentration. But it essentially has created a monster that vested interests apparently no longer can control. This poses growing risks to companies and investors.

As discussed below, education reform since the 1980s suppressed critical thinking and made people vulnerable to deception and division. As millions of citizens experienced flat wages, declining benefits, reduced social welfare programs and rising prices since the 1980s, quality of life declined. Financial stress and anger grew. Unhappy, suffering people are highly vulnerable to deception. They seek to understand the causes of their increasingly difficult lives. As vested interest-controlled, deceptive media distracted citizens from the actual causes of their declining quality of life and instead blamed conservatives or liberals, divisions grew and society declined.

Recent stock market growth has been driven in large part by concentration of wealth and degradation of life support systems and society. This cannot and will not continue for much longer. Business only has one viable option—voluntary system change.

2.4. Suppression of Democracy

One of the most alarming problems caused by the media and vested interest-driven conservative-liberal civil war is the breakdown of democracy in the US and several other countries. For over 200 years, the US has been admired around the world for our protection of individual rights, freedom and fair elections. We were not perfect. The emphasis on economic growth and shareholder returns often caused the US government and companies to create environmental and social problems in other countries.

But overall, the US has been a stabilizing and protective influence in the world, especially during crises such as World Wars I and II. Politicians made their case and won or lost elections fairly. The US endured and prospered through peaceful political transitions. However, the conservative-liberal civil war is weakening and possibly ending US democracy. This poses an unprecedented threat to US and global society.

US democracy already was weakened by the Electoral College. This constitutional mechanism was established in 1787 in large part to protect the institution of slavery. In the 2000 and 2016 Presidential elections, the Electoral College caused Democratic candidates who received a majority of votes from US citizens to lose.

Never-ending media criticism of liberals is further weakening democracy. It has caused many conservatives to strongly dislike liberals. Intense fear or disdain seems to have created an 'ends justify the means' mentality. The need to keep liberals out of office is so great, many conservatives seem to believe, that cheating is justified. Since the 2020 election, many states have made it more difficult for Democrats to vote. Several Republican-controlled states have empowered their legislatures to overturn fair elections won by Democrats.

This gross violation of the Founders' intentions and spirit of our Constitution is unprecedented in our 230 plus year history. It signals a phase where an angry, misled minority could rule the majority. It brings the US close to totalitarian states where citizens' rights and freedom are routinely violated. It will enable further vested interest control of government, concentration of public wealth, reduced quality of life, and degradation of society. It signals a new phase in global human society where the US no longer can be counted on to abide by the fair and noble principles upon which it was founded.

Using cheating and election unfairness to enable a minority of Republicans to rule a majority of Democrats is a prelude to revolution and system collapse. Many Republicans know this is wrong. They would not tolerate it if this injustice were happening to them. But deceptive media creates an overwhelming sense that defeating Democrats (by cheating if necessary) is essential for protecting society.

Discussion of how Republicans will solve climate change, inequality and other problems usually is limited or non-existent. The Republican platform often emphasizes eliminating regulations and reducing taxes. Citizens are misled into supporting society-degrading actions. Some regulations are ineffective and should be changed. But regulations are like murder laws. They hold companies responsible for harm, and thereby incentivize responsible behavior. Removing regulations in competitive markets often compels companies to harm society.

Cutting taxes on those who receive the most benefits from society (wealthy individuals and companies) frequently concentrates wealth, raises deficit spending and national debt, and underfunds essential public investments in infrastructure, education and other areas.

The purpose here is not to say that Democrats are better or should run society. Democrats have their own forms of deception. For example, Democratic politicians often say they care about climate change and other problems, but then do what wealthy campaign donors demand. As noted, inequality has risen under both major parties over the past 40 years. The problem is not Republicans or Democrats. The US has become a plutocracy (i.e. control of government and society by the wealthy). However, those who profit from flawed, unjust economic and political systems are not the enemy either. The real enemy is the flawed systems that compel their harmful behavior.

The January 6 Capitol attack perfectly illustrates public deception. Many Republican and Democratic election officials, legislators, and judges said that the 2020 presidential election was fairly won and there was no evidence of election fraud at a scale that could influence outcomes. (Election workers and other volunteers occasionally made minor mistakes, as has occurred throughout US history.) However, Republican leaders claimed without evidence that the election was stolen through substantial election fraud. Millions of Republicans blindly believed this false position, in large part because deceptive media conditioned them to dislike Democrats and blindly agree with Republican positions and leaders.

Their leaders told them they must fight to protect their democracy by stopping certification of the vote. As a result, they took the unprecedented action in US history of attacking the Capitol, some with the intention of killing politicians who simply were honoring their oath to uphold the Constitution. Blind faith (i.e. failing to use logic and common sense) caused them to believe that they were acting patriotically to prevent injustice. But in reality, they were manipulated into acting like traitors and terrorists.

Plutocracy-driven concentration of wealth, deceptive media-driven public division, and education reform-suppressed critical thinking have been degrading US society for 40 years. They plowed the field for January 6, making citizens vulnerable to deception and democracy degradation.

Young people often start revolutions. They frequently have the energy, drive and freedom to fight for what they believe is right. Many young people vote for Democrat because the party usually does a better job of protecting the environment and society. Citizens in some other countries are conditioned to accept totalitarianism and having their rights violated. However, US citizens are used to freedom. Young people will not tolerate having their voice and rights unfairly suppressed, especially by a party that is not protecting the future world they will inhabit.

Winning by cheating is a formula for disaster in the US. It will quickly drive major, possibly catastrophic, problems. The superior strategy for the Republican Party is to win fairly by developing a more appealing platform, in particular one that protects the environment and society that young people will need to survive and prosper.

2.5. Global Instability

In addition to deceptive media, the US conservative-liberal civil war is driven by foreign adversaries. Extensive evidence shows that Russia, China and possibly some other countries have used social media and other mechanisms to influence US elections and divide citizens. The openness of the US is a great strength, but also a weakness. It makes us vulnerable to 21st Century warfare. In Russia and China, for example, citizens often face severe consequences for criticizing the government. However, in the US, people are free to say what they want, provided they do not incite violence.

Foreign adversaries have used this vulnerability to severely weaken the US. They employ social media to further divide conservatives and liberals. When we are divided, we are conquered. Political parties focus mainly on beating each other and rarely work together on protecting citizens' common interests. Politicians in office regularly are attacked by the other party. This produces gridlock.

The conservative-liberal civil war neuters the world's largest economy and most powerful military. It greatly weakens our ability to promote democracy and freedom around the world. For example, the inability of the US to respond effectively makes it easier for Russia to invade Ukraine and China to invade Taiwan. Multinational corporations usually require stable economic and political systems to prosper. The US and other democracies have provided this environment at least since World War II. However, this appears to be ending.

James Madison, John Adams and other US Founders said that self-government requires moral and virtuous leaders. Our Constitution cannot work without this. US leaders take an oath to uphold the Constitution. There have been many biased, partisan political leaders throughout US history. But they largely upheld their oath and respected the peaceful transition of power. When US leaders encouraged citizens to stop the constitutional transfer of power on January 6th, through violence if necessary, they violated their oath.

Many Capitol attackers waived the US flag as they perpetuated one of the most egregious violations of the Constitution in US history. This shows how extensively they were misled. Growing division in the US makes winning paramount. This attracts leaders who will say or do nearly anything to beat the other side. It elects the type of leaders that the US Founders feared—those who violate their oath to uphold the Constitution and are not guided by virtue, fairness and justice. Self-government cannot succeed under these conditions.

The unprecedented breakdown of democracy in the US and some other countries shows that global society is in the midst of system change and possibly collapse. Businesses increasingly will not be able to rely on the peaceful and fair societal structures, practices and conditions that enabled them to prosper.

The corporate and financial sectors have the power to reduce or end the conservative-liberal civil war, restore democracy and put the well-being of society first, as the US Constitution demands in its most important Preamble goal—promote the general welfare. Business and investor prosperity will require substantially different strategies going forward, with a primary focus on system change. The following sections frame up the system change challenge and summarize the optimal business and investor roles in system change.

3. Systemic Solutions

Systems theory, economic reform and many other aspects of system change have been studied and addressed at least since the 1970s. Many experts and organizations have focused on particular systemic changes, such as incorporating external costs into prices or developing more accurate measures of social well-being than economic growth. More recently, experts have often emphasized principles and processes for achieving system change, such as initiating and managing collaborative system change groups.

“The illusion that we are separate from something that we actually are a part of is the foundational cause of essentially all major human problems.”

All of these ideas and actions are beneficial. They frequently are the optimal solution in certain situations. However, in spite of all this good work over the past 50 plus years, the environment and society are rapidly declining in many areas. This strongly indicates that new approaches to system change are needed.

Humanity is part of one interconnected whole system. As a result, a true whole-system approach probably is the only way to voluntarily evolve human society into a sustainable form. Global System Change provides such an approach. It was launched in 2005. The tagline was and still is—Aligning human ideas and systems with reality and nature. This provides a clear and simple definition of human sustainability and system change. The problem is that we are not aligned with nature, which also could be called reality. The solution is to align with it.

The sophisticated results of nature, or natural systems such as the human body, imply whole system thinking or some type of integrated consciousness. The implied thinking and actual systems and laws of nature have controlled all life on Earth for 3.8 billion years and will continue to do so going forward. They are almost infinitely more sophisticated and advanced than those of humanity.

Discussing how humans could match the thinking, systems and results of nature can seem impractical, idealistic or even utopian, because they are so far beyond where we are now. Some people might say that we should focus on the here and now and practical next steps, rather than a distant and perhaps impossible future. But this future is not impossible. It is absolutely guaranteed. Humans will align with and abide by the implied thinking and laws of nature. Or we will not be here.

Another important Global System Change principle is putting the What before the How. It means identifying the goal before figuring out how to achieve it. In this sense, the emphasis on system change process sometimes is premature. System change content (goals, systemic changes—What) should take priority because it defines the optimal process (How) for achieving goals. When going on a trip, the first task is to identify the destination. This determines the optimal means of getting there.

This does not mean that developing practical next steps for business is ignored. Rather it is temporarily set aside, while the big picture is considered. Paradoxically, this is the most effective and probably only way to identify practical, effective next system change steps. Developing strategies out of context (without a clear understanding of the whole system) almost certainly will not achieve the goal.

Using whole system thinking to stand in the future and look back from sustainable society (i.e. humans abiding by the laws of nature) illuminates root causes, societal interconnections, systemic barriers, key leverage points, and optimal solutions. This often shows that the apparently logical next step is counterproductive, while the not-obvious one is ideal. Companies do not need to know all the steps required to get to sustainable society. However, keeping the whole system in mind greatly increases the likelihood that next steps will be the most effective.

Putting the What before the How facilitates system change by weakening vested interest arguments against it. For example, to protect harmful systems that unfairly concentrate wealth, vested interests often argue that system change will be too expensive, difficult or disruptive. Putting the What before the How means honestly identifying problems and solutions, before figuring out how to implement them.

To illustrate, whole system thinking shows that flawed systems often are harming and killing current and future generations, for example, by causing environmental degradation, pollution and inadequate social welfare programs. Understanding what is happening can compel us to say that we will do whatever it takes to protect people now and in the future. This means that companies no longer will be allowed to profit by degrading life support systems and society.

To block changes that threaten returns, vested interests frequently will say that system change is too expensive or difficult. Putting the What before the How shows that they effectively (though certainly unintentionally) are saying, we must continue to harm and kill people because it would be too expensive or difficult to stop doing so. This accurate perception of reality makes these anti-system change arguments untenable.

Global System Change uses the laws of nature to provide an objective reality framework for system change. It helps groups to move beyond the inertia and inaction often caused by various philosophies, biases, vested interest deceptions, and other inaccurate perceptions of reality. It provides a clear, simple vision of sustainable society and how to achieve it. This clarity is essential for building public demand for system change, probably the greatest force driving it (aside from reality and nature). An objective reality framework also helps to guide and coordinate the many local, regional, national and international system change efforts needed to achieve sustainability.

This section discusses the whole system framework needed to develop practical business and societal system change strategies. These strategies are discussed in the Business Role in System Change section. As noted, humanity must emulate the implied thinking (or consciousness) and actual systems and laws of nature to survive and prosper on Earth.

Thinking precedes action. Therefore, consciousness is discussed in the following section. Then the Global System Change framework is used to summarize the laws of nature and how to achieve a society that abides by them.

3.1. *Consciousness of Nature*

Human society is a reflection of human thinking. Every major challenge facing humanity is foundationally caused by flawed thinking and perspective. Higher-level, reality-based thinking is the foundational solution. Nature models the higher-level thinking needed to survive and prosper.

The *Global System Change* book series introduced a new model of individual and collective human consciousness. It describes the consciousness evolution needed to reach our fullest potential. The model discusses three levels of consciousness—unconscious unity, conscious separation and conscious unity. Nature implicitly operates in unconscious unity. Non-human life forms are guided in ways that produce essentially infinite coordination and technological sophistication. Nature operates as the one interconnected system that it is in reality. The results of nature imply unity consciousness, like the implied consciousness that coordinates a healthy human body. Non-humans apparently do not self-reflect, and therefore could be called unconscious at an individual level.

When humans began self-reflecting, the spiritual beliefs of original people show that they often retained awareness of their unity with nature. This accurate perception of reality enabled them to operate in harmony with nature and survive over the long term. But over time, many humans perceived themselves to be separate from each other and nature. This phase of human consciousness, the phase we still largely are in, could be called conscious separation. This illusion that we are separate from something that we actually are a part of is the foundational cause of essentially all major human problems.

The consciousness of separation produced fear that needs would not be met. This created a belief in the need for competition. In this environment, those with greater physical strength, aggressiveness and competitiveness (men) often were more highly valued. When power is defined this way, men innately have more power. Many studies show that women innately have more wisdom, when it is defined as cooperation, empathy, whole system thinking, multitasking, relationship skills and intuitive wisdom. (These generalizations are irrelevant at the individual level. Everyone is different. All men and women have power and wisdom.)

In our separatist, competitive world, the unique qualities of women often are undervalued. Cooperation and empathy frequently are seen as weaknesses. Widespread environmental and social degradation shows that humanity has an abundance of power and a lack of wisdom. To achieve sustainability and abide by the laws of nature, we must emulate the implied unity consciousness of nature. We must exit the illusion of separation and enter the reality of unity. As we consciously understand our interconnectedness with each other and nature, we will enter the third phase of human consciousness—conscious unity.

Competitive systems and society show humanity's immense lack of sophistication compared to nature. The overwhelming force in nature and healthy natural systems is

cooperation, not competition. When the overwhelming force is competition, as in a body with terminal cancer, the system dies or changes.

The frequently undervalued qualities of women are exactly what is needed to ascend to conscious unity, abide by the laws of nature, and prosper over the long-term. This does not mean that women should control society, although a more balanced leadership structure obviously would be beneficial. The priority is balancing power and wisdom. We must teach all people that both are equally important. Power without wisdom is destructive, as we see in the world today. Wisdom can do nothing without power. Power can do nothing right without wisdom. Elevating the status of wisdom will elevate women to a position of true equality with men.

Considering the unity of nature shows the wisdom of the world's great religions. Primary suggestions of essentially all major religions are to treat others with love and respect, help the needy, and protect God's creation (the environment and all life). These are universal truths. They enhance the quality of life for all who practice them. They are based on the reality of our unity with each other and nature. This higher-level thinking shows that helping someone else ultimately is the same as helping oneself.

Some might say that living on this basis (unity consciousness, living in harmony with each other and nature) is too difficult for humans. It is too far away from where we are now. However, this happens all around us and in our own bodies. It has been happening on Earth for 3.8 billion years. We are parts of nature. We have the innate wisdom and power to do what nature already does.

Some people see one animal eating another and conclude that nature is brutal and competitive. This is the perspective of limited, separatist consciousness. (It also is logical from an individual survival perspective because we might be the ones eaten.) Higher consciousness sees the whole system. Nature's creatures (except humans) take only what they need. As a result, forests and other natural systems achieve immense individual and collective prosperity.

In many ways, purpose-driven business is a manifestation of unity consciousness. Why should companies help society instead of only themselves? Because they are part of society (unity) and cannot prosper apart from it. Profiting by degrading that which sustains companies (business behavior compelled by current systems) is irrational and suicidal.

Getting from where we are now to sustainable society can seem overwhelmingly complex from our current level of thinking. However, as parts of nature, we have access to the essentially infinite implied wisdom and intelligence of nature through intuitive function. Open-mindedness and teaching people to access intuitive wisdom will facilitate the transition to sustainable society.

We each are walking around in an economic system that essentially is infinitely more sophisticated and effective than capitalism, socialism or any other modern human system. Recognizing this empowers us to question and improve current systems. We do not have the luxury of taking our time to transition to sustainability. We are on the fast track now, whether we like it or not.

Limited consciousness and the five senses create the illusion of separation. If cells in the body acted like they were separate from each other (as humans do), the body would quickly die (the inevitable outcome for humanity if we do not change our thinking, systems and behavior). None of us can survive in outer space. A human is as much a part of the whole Earth system as the hand is of the body. The illusion of separation and the competition it fosters are causing humanity to act like cancer on Earth. We are destroying life at a rate not seen since the last great extinction. Unity consciousness does not mean that we ignore our individual nature. Like cells in the body, we are simultaneously separate and connected—individual parts of one interconnected system.

Through meditation, people can access unity. They can actually experience the reality of oneness with everything, and the indescribable peace and joy that come with it. However, this experience of unity is not necessary for humanity to operate on a united basis. It can be achieved with logic and rational thought. It is obvious that protecting the environment that sustains us is essential for survival and prosperity. It also is obvious that treating other people well produces the most fulfilling and successful life. Cooperation is logical and essential for survival.

Humans do not produce the immense coordination, sophistication, sustainability and prosperity of nature because we think at a lower level (separation consciousness). Up to this point, self-reflection made us less intelligent, in terms of results (the most important measure of sophistication). The implied unity consciousness of nature, implemented through instinct and other mechanisms, coordinates non-humans in ways that produce immense success. Humans can begin to match the essentially infinite prosperity of nature when we begin to think and act like what we are in reality—interconnected parts of one whole system.

Some philosophies support individualism and condemn collectivism. This reductionistic thinking produces the tragedy of the commons. Individuals appear to prosper in ways that harm others. Whole system thinking shows that individual and collective wellbeing ultimately are not in conflict. Individuals cannot survive apart from the larger systems that sustain them. This higher-level, reality-based thinking is essential for maximizing the wellbeing of business and society.

In the Southern US 200 years ago, it often was seen as impolite to point out the barbaric nature of slavery. We are making the same mistake today. Companies are rapidly degrading life support systems and making people suffer (because flawed systems compel them to do so). However, pointing out the immense destruction caused by business and investing often is seen as impolite or inappropriate in business and similar settings. Instead, the focus usually is on the good that business and capitalism do in the world.

Of course, there is good. Businesses would not exist if they did not provide benefits. However, doing good does not justify or allow causing harm. People in the future will see many of our business and economic actions as barbaric and suicidal. We must be far more clear and honest about what is happening in society. This will increase the motivation to change.

The preceding ideas about unity consciousness illustrate the higher-level thinking needed to abide by the laws of nature. Current illusory, separatist thinking is the foundational cause of unsustainable society. Reality-based unity thinking is the foundational solution. Having discussed the implied consciousness of nature, the next section discusses its actual qualities.

3.2. Global System Change Framework

Nature's laws, systems and results are observable, logical, consistent and often proven by science. The laws of nature provide an objective reality framework and show what absolutely will occur on Earth. This is essential. We must clearly see the whole system goal (i.e. sustainable society—humans abiding by the laws of nature and evolving within this context), and then move to it as quickly as possible. We almost certainly do not have time for incremental approaches or reductionistic philosophies.

Philosophies often are based on well-meaning, but limited human opinions or perceptions. Stakeholder capitalism, for example, seeks to improve the current, unintentionally destructive form of capitalism by benefiting all stakeholders. This incremental approach potentially could work, especially if we had many decades to implement it, which we almost certainly do not. A faster and more effective strategy would be to clearly understand sustainable society, and then do whatever is necessary to get from here to there quickly.

The SDGs provide a framework for human sustainability and action. However, they are human-centric, and therefore not reality-based. The SDGs are focused on humanity, implying that we are the center of life on Earth. But in reality, human society is a sub-element of the whole system of nature. This whole system determines the sustainability and prosperity of all life, including human life. Nature is the reality-based, whole-system frame of reference for humanity.

The SDGs describe many aspects of sustainable society. But they are reductionistic in the sense that they do not provide an integrated, whole system vision of sustainable society, how it functions, and how it can be achieved. GSC was designed to provide this whole system, high-level framework.

The goals probably were not intended to provide a whole-system vision and describe how to achieve it. Instead, they discuss qualities of sustainable society, and thereby facilitate planning and action to achieve them. Groups focusing on one goal often do not adequately address the whole system. As a result, their efforts can produce unintended consequences that inhibit the achievement of other SDG goals. This reductionism is the root cause of SDG problems. Reductionism cannot be fixed with more reductionism. Whole systems thinking and action are required.

Focusing on the SDGs or implementing a particular philosophy will not determine human survival and prosperity. That will be completely determined by the extent to which we abide by the laws of nature. Making them our foundational goal and guiding standard is the only way to achieve the SDGs and implement a sustainable economy, possibly including stakeholder capitalism. Abiding by the laws of nature will produce the outcomes described in the SDGs.

Abiding by natural laws and emulating nature's economic and other systems does not necessarily mean getting rid of capitalism or any other human system. It requires first identifying the natural law aspects of sustainable society and the most efficient paths to get there. That often involves keeping and improving effective parts of current systems (of which there are many) and transforming or improving the harmful parts.

Many aspects of capitalism align with the laws of nature. The system's partial success indicates this. High productivity, individual initiative and decentralization occur in abundance in nature. We almost certainly could evolve the current destructive form of capitalism into one that abides by the laws of nature, provides far more benefits, and eliminates harm. This is what nature has been doing for 3.8 billion years. It is going to happen one way or another. We obviously are better off voluntarily changing our systems rather than having the change imposed on us.

Global System Change uses the laws of nature to provide an objective reality framework for sustainability and system change. It clarifies sustainable society and the objective (not philosophical or subjective) means to achieve it at a high level. It makes the path to long-term human prosperity easy to understand. It guides and grounds experts as they dive deeply into the immense complexity and details of evolving human systems. By clarifying the What (system change content), it facilitates the How (system change processes).

3.3. Sustainable Society Defined by the Laws of Nature

The GSC framework provides an integrated, whole-system vision of sustainable society and how to achieve it. The framework describes how living systems, such as the human body and whole system of nature, function. It includes three major parts—sustainable society defined by the laws of nature, systemic changes needed to achieve it, and the actions required to bring about these changes.

Taken together, the laws of nature provide a whole-system vision that describes the environmental, social and governance characteristics of sustainable society. Observable laws of nature include seeking balance not growth, producing no waste, living on renewable resources, equitable resource distribution, widespread cooperation (with limited competition at the individual level), equally valuing generations and species, enabling individuals to reach their fullest potential, and decentralizing production and governance (except in limited cases where broader or global governance is most effective). Implied operating principles of nature include democracy/self-government, equality, total cost accounting, no externalities and full employment.

These laws define sustainable society at a high level. They show what nature demands and what humanity must achieve to survive and prosper. While these laws are absolute, there are many ways that humanity could abide by them (e.g., rural versus urban living).

The limits of nature (i.e. planetary boundaries) are receiving growing attention in the sustainability field. It is useful to know how much pollution nature can sustainably absorb, for example. It also is helpful to understand corporate emissions in the context of environmental limits. However, nature's laws should take priority over its limits. Even if limits were known,

the key question would be, how do we live within them? The answer is abiding by the laws of nature. These laws illuminate how to live within the limits of nature. We almost certainly will be within the limits when we abide by the laws.

“Education reflects society. Our society is focused on maximizing economic growth and shareholder returns.”

3.4. Necessary Systemic Changes

These laws define sustainable society at a high level. They show what nature demands and what humanity must achieve to survive and prosper. While these laws are absolute, there are many ways that humanity could abide by them (e.g. rural versus urban living).

In the same way that there are many forms of sustainable society, there also are many methods or paths to achieve it. However, there also are absolutes. Clarifying the characteristics of sustainable society at a high-level (nature-based requirements of sustainable systems) illuminates objective, high-level systemic changes needed to get from here to there.

The second part of the GSC framework identifies necessary systemic changes. The GSC books describe many essential economic, political, social and financial system changes. Two of the most important overarching systemic changes are implementing democracy and abiding by the rule of law.

Democracy is the only sustainable form of government. It is based on the innate human rights to equality and self-government. However, as the US Founders well knew, democracy is an unworkable form of government for more than small groups. Citizens usually do not have enough time to study and make well-informed decisions about every issue. As a result, democracy must be implemented through republican forms of government, where elected politicians, often assisted by experts, make decisions that maximize the long-term well-being of society. Obviously, this requires that politicians equally and fairly serve all citizens, a condition that does not exist in the US and many other countries.

The rule of law probably is the most effective way to frame up economic and political reform. This principle says that individuals and companies should be free to do what they want, provided that they do not harm others. As discussed, the meta economic and political system flaw is the failure to hold companies fully responsible for negative environmental and social impacts. In competitive markets, allowing harm often compels companies to cause it. There are many specific system flaws that cause harm. They all have the common fundamental problem of not holding companies fully responsible.

The rule of law is an ideal system change framing device because it is objective and not debatable within the realm of logic. It transcends philosophies, biases and vested interest deceptions. Companies cannot logically argue that they should be allowed to profit by degrading the environment and society. The rule of law boils system change down to one simple meta solution: hold companies fully responsible for negative impacts.

It can guide specific system changes, such as reforming externalities, time value of money and limited liability. We will know that these and other systems are reformed and sustainable when they hold companies fully responsible.

3.5. Actions Required to Achieve System Change

Once sustainable society and necessary system changes are clear at a high-level, the third part of the GSC framework identifies actions needed to bring about system change. Actions are required in all major areas, including government, the general public and corporate/financial. The following discusses government and general public actions. Corporate/financial actions are discussed in the Business Role in System Change section below.

Government reform is an essential aspect of overall system change. Nearly all economic changes require government change. For example, only government can enforce the rule of law and hold companies fully responsible for harming the environment and society. Government also influences or controls many actions needed to abide by the laws of nature. For example, it strongly influences the degree of democracy, how societal success is measured and managed, the extent of centralization and decentralization, fair and equitable use of public wealth, and creation and management of the money supply.

Governments in the US and several other countries largely are controlled by vested interests, instead of all citizens through democratic processes. As a result, pressure to change often comes from outside the government.

Actions needed in the general public are the most important over the long-term. Citizens collectively are the most powerful force in society. They could quickly change any company or government (even totalitarian ones), if they understood and acted upon their common interests. However, as shown in the US and many other countries, it unfortunately often is easy to divide and disempower citizens. They are manipulated into acting in ways that benefit the small group that is deceiving them, while their own lives become more difficult.

Many actions are needed to empower citizens and end the civil war between conservatives and liberals. Key transformation areas include political parties, media and education.

3.5.1. Political Parties

The US Founders were greatly concerned about political parties. Vested interests have used them for all of US history to divide and disempower citizens. The major US parties appear to have partly different agendas. But for the past 40 years, public wealth was concentrated at the top of society, while life became more difficult for the large majority of citizens, regardless of which party was in power. Political parties potentially could play a useful role in politics, if major changes were made. Like governments, they largely are controlled by wealthy campaign donors, and thereby facilitate plutocracy.

James Madison argued that many different interests in society would prevent any one group from dominating others. However, these interests have been reduced down to two major party platforms, both of which are controlled by vested interests. Political parties are not mentioned in the US Constitution. George Washington called them the worst enemy of elected government in his Farewell Address. Every party-line vote is a violation of

the Constitution because citizens are not controlling the government. Vested interests are controlling it. Political parties and government structures should be reformed so that they are truly democratic and well represent the different interests of society.

3.5.2. Media Reform

Media reform is essential for voluntary system change. Democracy cannot exist if citizens do not have accurate, honest information. Corporations did not have Bill of Rights protections in the early US. But over time, they used their growing influence over government and judicial appointments to compel their political and judicial servants to provide these protections. Media does not have a right to mislead citizens or lie to them in ways that benefit the vested interests that control media through ownership and advertising.

It is no coincidence that radical, deceptive media rapidly grew after the Fairness Doctrine was eliminated in 1987. This single act of deregulation potentially is the most destructive in the past 50 years. It allowed media to provide biased, inaccurate, inflammatory information (i.e., lie) to citizens. It strongly drives the conservative-liberal civil war. This division of society makes it difficult or impossible to solve nearly every other problem, thus making it a highly destructive act of deregulation.

Citizens' essential need for honest, accurate information takes vast priority over media companies' (non-existent) right to mislead citizens. Empowering citizens to effectively resolve problems and protect their common interests demands that media be required to tell the truth. To achieve this, the Fairness Doctrine and similar requirements for social media must be re-established.

3.5.3. Education

Education is also essential for uniting and empowering citizens. In the 1950s and 1960s, the US was a world leader in K-12 education. However, so-called education reform since the 1980s has severely degraded the quality of US primary and secondary education.

Young people are often forced to sit in sterile classrooms for about 35 hours per week, listening to adults talk to them. They are constantly ranked against each other and made to feel inadequate if they fail to achieve superior grades. They are forced to study subjects in which they often have no interest and quickly forget. Students are constantly monitored and controlled by authorities. They are taught to blindly believe dominant societal ideas. Young people frequently learn that fun occurs outside of school.

This coercive, compulsive education system suppresses critical thinking and teaches young people to obey authorities and endure boring jobs for the rest of their lives. It creates a cowering, compliant population that can be abused by vested interests and will not question unjust economic and political systems. Education reflects society. Our society is focused on maximizing economic growth and shareholder returns. It is no surprise that young people are trained to serve this end, even if it does not meet their needs.

True education reform (i.e., actual improvement) is needed to empower citizens to protect their common interests. Young people should not be ranked against each other, as if they

were commodities. They should be taught to critically examine ideas and make their own decisions. And they should be empowered to follow their hearts in education, career and life.

Evolving human society into sustainable form (i.e., system change) is the most complex challenge facing business and society. Using a whole system approach and an objective reality framework probably is the only way to voluntarily evolve systems and society, before nature and reality evolve them for us. Global System Change provides this whole system framework. Its clarification of sustainable society qualities and necessary systemic changes and actions can guide and coordinate the highly complex system change process.

The GSC framework is essential for developing practical corporate and financial sector system change strategies. These are discussed in the next section.

4. The Business Role in System Change

When citizens are divided and disempowered, the corporate and financial sectors often are the most powerful segments of society. They can quickly drive voluntary, collaborative system change, if they see the benefits of doing so. This paper explains why keeping economic, financial and other systems the same is not an option for much longer. It discusses the severe disruption of system collapse (involuntary change). And it concluded that voluntary system change is the only practical option for the corporate and financial sectors. These could be called the stick or risk arguments.

On the carrot or opportunity side, system change provides a large opportunity for companies and investors. It is essential for protecting business, investing and profits. The goal is to produce a thriving society. Business will play a major role in this. System change will produce more efficient, effective and resilient companies.

System change probably accounts for at least 80 percent of sustainability and SDG solutions. However, one could argue that it is closer to 100 percent. Current corporate sustainability and responsible investing approaches encourage companies to voluntarily stop degrading society under flawed systems that make it impossible to do so. With sustainable systems, companies will be held fully responsible for negative impacts. When this occurs, they will maximize profits and investment returns by acting in a fully responsible manner. Voluntary responsibility and exhortations to stop harm will become far less necessary. Essentially all companies automatically will do the right thing because this will be the only way they can survive and prosper.

System change has gotten relatively little attention in the corporate and financial sectors, until recently. Leading business organizations, such as the World Economic Forum, emphasize the importance of it. Incremental approaches usually are advocated, such as stakeholder capitalism and Net Positive.

The Net Positive approach encourages companies to increase positive impacts and reduce negative ones. It is a practical, transitional strategy. Ultimately companies must be held responsible for all negative impacts. As sustainable systems are implemented, the focus will shift from net positive to zero negative impacts.

Net Positive is based on current paradigm corporate responsibility. Current systems do not hold companies fully responsible for harming the environment and society. Instead, they are encouraged to voluntarily reduce harm, for example, by striving to produce more positive than negative impacts. Environmental and social degradation often accelerates under this approach because it does not address root causes. It is impossible to end harm under systems that unintentionally compel it.

New paradigm corporate responsibility recognizes that companies must be held fully responsible for harm. This requires system change. Vested interests have traditionally argued that it is not the company's job to take care of society. Government should do that. Companies perhaps could argue that they should not be required to benefit society. However, they cannot credibly argue that they should be allowed to harm it.

The focus of current paradigm corporate responsibility could be called—Do Good. The focus of new paradigm corporate responsibility should be—Do No Harm. The focus on doing good can be a distraction. It diverts attention from the most relevant sustainability issue—harm compelled by flawed systems. To achieve sustainability, we must stop harm. This can only occur if systems are changed in ways that prohibit harm (i.e., abide by the rule of law). Increasing good is a primary strategy for reducing harm. However, the focus must be on ending harm, not increasing good. Focusing on the good can justify or allow causing harm.

At the complex implementation level, some people might argue that the environment and society could absorb some harm. As a result, limited harm might be allowed in some cases to achieve a greater good. Experts can work out this complexity. However, the bottom line (i.e., foundational, meta system change) is that companies must be held fully responsible for harm. This will compel them to act responsibly and sustainably.

Two major categories of work are needed to augment and accelerate existing system change efforts. The first is to implement a true whole system approach that provides an objective reality framework for guiding system change. Global System Change provides this and has been summarized. The second is to provide practical, profitable system change strategies, like System Change Investing. SCI is discussed below.

4.1. System Change Investing

SCI is one of the most powerful system change strategies available in all areas of society. The corporate and financial sectors are driven mainly by investing. SCI uses this strong lever to engage these powerful sectors in the most important sustainability issue.

Twenty years ago, few companies had sustainability strategies. Now, nearly all large companies have them. Responsible Investing, also known as ESG investing, was the primary factor compelling companies to engage in sustainability. As owner/investors shifted investments to sustainability leaders, companies were strongly incentivized to implement sustainability strategies.

SCI uses the proven ESG strategy to engage companies in system change. The approach rates companies on system change performance, and then uses this research to guide investment decisions and develop SCI funds. As investors shift investments from system

change laggards to leaders, companies will be incentivized to implement system change strategies and improve system change performance.

SCI has the potential to capture a substantial share of the approximately \$40 trillion responsible investing market. By focusing on system change and root causes, SCI funds can provide greater sustainability benefits than current approaches, nearly all of which are focused on changing companies and addressing symptoms. Providing the highest possible sustainability benefits will help financial institutions to increase assets under management and position themselves as global responsible investing leaders.

SCI enhances investment returns by assessing financially relevant systemic risks and opportunities that are not addressed by conventional ESG and financial analysis. More importantly, SCI ratings are strong indicators of superior management and stock market potential. System change is the most complex management challenge. Companies that do well in this area implicitly have the ability to outperform in other areas, and thereby earn superior returns.

Many ESG approaches have been developed over the past 20 years. There probably will be even more SCI strategies because the context is much broader. The frame of reference for ESG rating is negative impacts. Knowing this enables analysts to accurately assess the effectiveness of corporate sustainability strategies at mitigating impacts.

The frame of reference for SCI ultimately is the whole Earth system and its sub-element human society. System change overall must be understood before effective corporate system change strategies can be developed. Once this is clear, the optimal corporate role in system change can be identified. Aspects of this become metrics in SCI rating models and components of corporate systems change strategies.

To illustrate SCI, the first SCI model (Total Corporate Responsibility—TCR®) is segmented into three metric categories—traditional ESG, mid-level system change (sector, stakeholder, environmental/social issue-level), and high-level system change (economic, political, social system-level). Sample metric categories include system change goals and strategies, whole system thinking, public awareness and media campaigns, government influence activities, system change collaboration, addressing specific system flaws, and supporting system change organizations and efforts.

The GSC framework identifies the major systemic changes and actions needed to abide by the laws of nature. SCI uses this frame of reference to assess the extent to which companies are effectively driving and supporting these necessary changes and actions.

ESG models provide sustainability roadmaps for companies. Metrics in the models identify the essential components and actions of leading corporate sustainability strategies. In the same way, SCI models provide system change roadmaps. As investors shift investments to system change leaders, companies will study SCI models in an effort to improve system change ratings and thereby secure investment.

GSC and SCI address both ends of the system change spectrum. GSC frames up the system change challenge for business and society. SCI provides a powerful system change

implementation tool. They both are very large opportunities for the corporate and financial sectors, and society overall. The approaches are based on the nearly infinite implied intelligence and sophistication of nature. They translate this information into clear, practical business and investment strategies.

The overall goal of GSC and SCI is to help humanity reach our fullest potential by manifesting the wisdom of nature that is innately present in all of us. Our current unintentionally destructive systems and ways of life are ending. We are at the dawn of a new phase of human consciousness and prosperity. Business and finance can drive this transition in a minimally disruptive manner. GSC and SCI provide the practical and profitable means to do so.

This paper provides a whole-system framework for developing system change-based responsible investing, corporate sustainability, government reform and broader societal strategies. Contact the author for information about specific strategies.

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Reflections on Education and Employment: Relevance to Sustainability

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Abstract

This essay deems education and employment as the two separate but interrelated spheres of socioeconomic life which have consistently been the subject of observation and analysis in the fields of education, sociology, anthropology and development. The focus is on how education relates to employment, women's status, and more recently on the sustainability of development. Recently, critical observations were made of education, charging it with a) irrelevance to the real world (the ivory tower image), b) rigid institutionalization of fields as 'silos' (non-integration across fields), and c) overemphasis on the 'teaching' aspect with disregard for the 'learning' component. From this standpoint it is purported that education failed to meet contemporary needs and should be subjected to a total transformation. The author contends that much of such critique tends to be ideological rather than empirically grounded. This issue will be addressed by bringing in some empirical observations from actual studies to perhaps reach some insights on education that can guide us into thinking about contemporary conditions.

Today education is considered a key element of sustainability in development but needs fresh approaches that are not merely polemical. Some insights can be derived from systematic studies. Systematic studies are not constrained by date. Conclusions can be invoked for fresh understanding. Changing conditions do not alter patterns discerned at a particular period.

1. Comparative Data

Two particular studies which I have published in the 1980s on education and employment can be of such value. One focused on the Arabian country of Bahrain, which was at the time the most prosperous of Arabian countries with a small local population and with the most innovative development projects, and the other on Egypt, the largest Arab country in terms of influence and in population size, which was at the time having a relatively poor economy. The challenges differed in the two cases; Bahrain prior to the depletion of its fossil fuel resource and Egypt with no such wealth producing resource, and a comparison between patterns of education and employment in both cases provides a useful comparative terrain to test the role of society and culture in two situations at different economic phases. Significantly however, both societies shared the Arab-Islamic cultural tradition. In concluding remarks I will bring into the discussion my observations on the Arabian country of Qatar which had replaced Bahrain as the most prosperous country, which similarly had a small local population not exceeding 800,000 people, but which experimented with ambitious projects of sustainability,

showing some successes and some failures. Both Bahrain and Qatar had rich natural resources but relied heavily in the past on hired, imported labor, rather than on their own population to carry out their development.

Egypt, on the other hand, had and still does have a large and youthful population which enables it to carry out national and local projects of development with self-sufficiency. Its constraints were purely economic. Until recently, Egypt relied on tourism as primary economic resource but new discoveries in this decade, of gas and new initiatives in wind and solar energy, moved it out of this dependency on tourism to leading innovation in supplying green energy and on the road to prosperity.

The observations on education and employment are based on statistical figures from the period since the 1952 Revolution which overthrew Egyptian Royalty and British Occupation. Today, the picture is different. The Revolution of 2011-2013 overthrew corrupt leadership in an Egypt that was bankrupt in economy, security and morality (El Guindi 2020; El Guindi 2018). In a dramatic change with a revolutionary paradigm characterized by tight solidarity between the people, the army and the security forces, Egypt has prevailed in the issue of internal security, external existential threats and moved forward on the road to a sustainable future for its 110 million people. It is now mired in water security issues. While this article is focused on what we can learn from systematic patterns in education and employment, it also invokes societal and cultural dimensions within a comparative, cross-cultural perspective that will be shown to be valuable for meeting sustainability challenges.

2. Women's Status

The 1960s and 70s were decades in which there was much concern about the role of education and employment in determining women's status. The United Nations had proclaimed 1975 as "International Women's Year." So it was fitting for studies in the fields of education, sociology, political science, anthropology, and economics singly or collaboratively to address the issue. An enlightening classic study by a demographer contributed immensely to the understanding of the status of women as it related to education and employment by including two relatively ignored factors, the comparative factor and the domain of social structure. In 1971 Youssef published her analysis of sets of data on education and employment in Egypt (1974 [1976 Greenwood Press Reprint]), contributing new insights to an otherwise largely provincial, western focused discussion on the subject (for more on this subject see Youssef 1971; 1972; 1974).

I built on Youssef's findings and undertook a limited comparative study. I analyzed data on the Arabian Gulf country of Bahrain (El Guindi 1985), a country with low population, advanced development at the time, and much affluence, and data from Egypt (El Guindi 1983; El Guindi 1986), a country which prior to and leading to President Mubarak's era was struggling between a high population, slow development, corruption, and relative poverty. The focus of the comparison was women's status, situating it within the emergent movement of 'veiling' by women in the 1970s (El Guindi 1984; El Guindi 2003 [1999]; El Guindi 2016).

3. Affluent Bahrain

Critical to understanding patterns of education and employment are a number of factors. First, data we have used for analysis cover men and women. This comparative element was critical for our understanding of women's status. Second, the data were longitudinal, thus providing historical depth. Third, the factors of society and culture were deployed in providing interpretation to some evident patterns. In the case of Bahrain, the analysis of the data and the evident patterns showed that there were no serious obstacles at the societal and cultural level to women's participation in education at all levels. "Once granted access to education at any level and any specialization ... women's response is consistently positive" (El Guindi 1985, 87). Equally important is the behavioral pattern among men in which they provided full support for women's educational attainment at all levels. Women continue to participate in education, up to the highest levels, without apparent impediment from cultural attitudes or men sharing their society.

*"The human world
is not homogeneous,
nor are its problems.
Neither homogeneity
nor linearity should
be assumed."*

Another important find is that in the case of women, it was found that education and employment are parallel achievements (Khuri 1980). Significantly, it was shown that increasing educational attainment raised women's labor force participation, but not men's. This was in a situation of affluence which made it possible for women to enjoy the benefits of their cultural tradition which granted Arab women a position of high status enabling them to choose not to join the labor force (El Guindi 2003 [1999]).*

4. Economically Challenged Egypt of the 1970s and 1980s

Egypt shares with Bahrain a long Arab-Islamic cultural tradition. The point of cultural support for high status for women is re-affirmed when we look at comparative patterns of education and employment in Egypt which was a developing (poor) country in the 1970s and 1980s, mired in wars of defense with Israel and the West due to issues of liberation from colonial control of Egyptian resources such as the Suez Canal. It was a situation in which the society could not afford the luxury of cultural tradition. What the data on patterns of education and employment in Egypt showed is very revealing about society and culture. The data support the view that among the affluent classes of society, women were protected from public employment for wages. It was considered beneath her special status as a woman to engage in paid work. So the question was not, as in the United States, inequity of pay to women who perform equal work as men, but rather women who do not 'need' to work are allowed to acquire education to the point of qualifying only for 'top' positions in the world of employment, in which case there would be no objection at the cultural level against their employment. The data support this observation. Also significant is the pattern that, after removing constraints on access to education women tend to go into 'difficult' fields and men do not shy away from going into the arts and humanities. There was no gender difference.

* It is interesting for perspective to note at this juncture that when British and American women moved into the labor force it was during WWII only to replace the absence of men in the factories, not by free application and competition. Prior to that women were considered an extension of husbands economically and had no independent economic identity

The education system in Egypt at the time considered the professional fields of medicine, engineering, dentistry, pharmacy, and veterinary medicine to be the most needed for national development and the most difficult to attain, since the national scores for admission to these majors were extremely high.

“Teachers must re-invent themselves to accommodate big changes in modes and content of learning without relinquishing their role as teachers.”

On the basis of my study, university enrollment data by sex in Egypt shows that “the percentage increase from 1960/1961 in medicine-pharmacy-dentistry was 748 percent for females and 448 percent for males; in engineering, 1,420 percent for females and 270 percent for males.... All in all, by 1979/1980, the population census shows men increasing at a rate of 3 percent and women at 4 percent at the university in general” (El Guindi 1986: 235). The fact that women chose challenging professional fields is of high significance, particularly in comparison with patterns of higher education in the United States, where women tended to choose ‘soft’ fields. And even after the feminist movement of the 70s in the United States, women were more interested in Gender Study than engineering or medicine. And it is in such comparative situations that the cultural factor must be invoked for an increased understanding.

5. Remarks on the Relevance of Education and Employment to Contemporary Issues of Sustainability

Clearly, globalization is a force that has accelerated the tendency to homogenize the human world. In fact, the human world is not homogeneous, nor are its problems. There are diverse peoples, many cultural traditions, different languages imposing different perceptions and ways of communicating, and various ways of life. In addition, development proceeds at different points and moves at different paces. Populations differ in size and demographic character. Neither homogeneity nor linearity should be assumed. Qatar today is the Bahrain of yesterday. It continues to bask in prosperity while its native population is very small.

To function in today’s global world, the Arabian Gulf country of Qatar is served in almost everything, from labor to sports to national defense, and even in providing spectatorship in sports events, by a large paid, mostly Asian, migrant population in a relationship of patronage with their Qatari employers and with no prospects for citizenship. While aspects of this structure are now being reconsidered, no major change has taken place yet. I like to bring in Qatar as a good case study for many issues of concern. In my capacity as one who has been in the position leading sustainability reform of the social sciences at the Egyptian national university and as one who has taught classes to men and women at Qatar University and the world over, I encountered the problem of over-technologizing. Students had the latest laptops and mobiles and classrooms had high-tech equipment for viewing slides. They

relied heavily on PowerPoint presentations. It became evident that many students simply transferred their ability to memorize to their PowerPoint presentations. Also evident that, in most cases, students demonstrated little or no comprehension of what they presented. There was a robotization in the process. They were being evaluated based on memorized PowerPoint delivery rather than learning.

In order to bring learning into the picture, I had to take a drastic measure. I requested from the Dean to remove the high-tech equipment from the classroom and install a regular chalk board. It was quite a challenge to find chalk for the chalkboard in Qatar. I insisted. Students were not allowed to use laptops, to bring mobiles to the classroom, or present class materials in PowerPoint format. They were to make their presentations using chalk to write on a chalkboard. The results were phenomenal. This switch forced students to 'think', to 'comprehend', and to creatively engage. Other changes are beyond the scope of this article but were equally introduced to meet a challenge that was caused by a rapid dependence on technology which worked against sustainability in education. This is also an example showing the importance of combining teaching and learning to achieve "education". I do not support the popular approach in some circles today that teachers should not teach but must instead learn from students what they need to learn. It must be stressed that teachers should acquire the expertise to teach students to learn. They must accept the challenge today and re-invent themselves to accommodate big changes in modes and content of learning without relinquishing their role as teachers.

For education to be sustainable reform must take into consideration conclusions from systematic studies, must respect different cultural traditions, must not be bound by linear approaches, and integrate learning with teaching while respecting expertise. Innovation and flexibility in teaching are what should be stressed.

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Problems, Problem Solving, and Education: An Inquiry into “Convention” as a Problem and What We Might Do About It

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Abstract

Adequately responding to our deteriorating environmental and social situation is a matter of increasing urgency. An obstacle to achieving a concerted response is the way that we have normalized “convention,” or as some authors claim “thoughtless convention.” The author takes on this obstacle (i.e., convention, thoughtlessness) as the primary subject of this paper. We all live in the everyday, averaged-off way things are done, understood, and thought about in our respective cultures (this is convention). Problems are typically framed, embodied, and emplaced from within convention using a “metaphysics of control and mastery or dominance” over the biophysical world. Conventionally, this is the doctrine of scientific positivism mixed with neoliberal capitalistic economics. It plays out in complex ways with consequences. Too often, this approach blocks what should count as our appropriate relationship (“sustainability,” coexistence) with the world, including non-human life. Accepting convention (status quo), which is very widely accepted, absolves us from thinking too deeply or looking at ourselves and our problems. This doctrine keeps us in a certain kind of dialectic of the “practical,” concrete, and literal. In turn, this translates into the present social and political organization of our culture, problem solving heuristics, and academic curriculums. As a deeply rooted psychological mindset and way to frame problems, convention serves as an existential coping mechanism to avoid examination of self and culture, actual problems, and a way to reject promising alternatives, especially integrative functional approaches. Perhaps convention is so widespread because of these evolutionary/psychological dynamics and because there are so many problems—personal to global—that we do not understand or know how to address. Consequently, it is extremely hard to even question the pervasive conventional framing of our situation and current entrenched thought and operations. Fortunately, some people move beyond convention integrating conventional and functional understandings to address problems. An integrative standpoint looks for connections, relationships, and systems properties across social processes and decision making. It offers a way to orient to problems more reliably than convention allows. Frameworks exist for integration that have proven helpful. As an inquiry into convention, the author looks at our contemporary problems, our evolutionary history, problem solving, the academy and education, and offers a brief overview. Recommendations are about (1) helping people, leaders, and institutions, (2) learning integrative concepts and operations for effectively orienting to problems, functionally in realistic and pragmatic ways, and, (3) developing education in the academy to upskill students and address problems. The future,

our global solidarity, and any global movements to address problems will depend on the learning and transformations we can bring about.

1. Introduction

There is no doubt that humankind is going through the most critical period in its history.¹ Since 1970, our problematic situation has become clear with irrefutable data supporting a growing and interconnected suite of diverse issues (e.g., climate change, disruption of ocean currents, massive extinctions, social and political unrest, rising expectations of violence, and a host of conflicting individual anxieties, demands, and movements). These issues and many more are interconnected and complex.² For example, the Alliance of World Scientists with 25,781 scientists has been a leader in characterizing our situation. They have a Scientists' Warning Publication Series with eleven new scientists' warning articles published or in press, in addition to the nine previously published articles.* There are many related assessments from other sources confirming these results.³ Taken together, documents and sources firmly characterize the problem(s) we face.⁴ Yet, we may not have a full enough picture of the problem to know how best to respond. Are we doing enough to address them?

At the end of the day, it appears our social and environmental problems are outpacing our good efforts to address them. First this paper introduces "the problem" of convention. Simply stated, convention limits our understanding of humans and how we should order our relationship with other humans and nonhumans. Further, it hinders effective problem-solving. And, it obstructs how we organize the academy and education retarding needed perspectives, knowledge, and skills for tackling social and environmental challenges. Second, this paper makes recommendations, focusing on people, leaders, institutions. It also offers integrated problem-solving concepts and operations to help us overcome convention's limitations. And third, this paper discusses prospects for global solidarity, mass movements, and a different content to higher education. Finally, this paper contributes to the broader rivers of thinking and problem solving that have built up over the centuries.

2. Methods

I bring together the writings of many thinkers. This paper rests on the works of integrative policy scientists and allied scholars. It is based on my experience of diverse applied cases internationally and teaching over five decades at colleges, universities, workshops, and field trips. I welcome a constructive dialogue about these important matters.

The integrated method is grounded in my approach using a jurisprudential method.⁵ This jurisprudential orientation is labeled the policy sciences or the configurative approach. Brunner summarizes and appraises this approach.⁶ The term "integrated" in this paper is equivalent to the configurative or policy sciences. Terms in the educational literature and the "interdisciplinary and transdisciplinary" community are labels somewhat equivalent to the integrated approach, at least in intent. I use the term "integrated," yet I use these three terms interchangeably. The integrated method is grounded in pragmatism, functionality, and contemporary systematic legal, social, and political thought. This distinctive approach of configurative jurisprudence is focused on "human dignity" in healthy environments.

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3. “Convention,” Its “Normalization” as a Problem

What might explain our “shortfall” in addressing diverse social and environmental problems? Hannah Arendt’s label for the problem or arguably a big part of it is our overreliance on “convention,” or “thoughtless convention.”⁷ The term, “thoughtless convention,” means that we humans tend to just go along with the mainstream, averaged off thinking, status quo in our respective fields, communities, and cultures. It suggests that we do not question basic assumptions and we tend to stay within frames of accepted citizen, professional, and cultural thinking and practices.⁸ Arendt’s books and writing include *On Origins of Totalitarianism* (1951), *The Human Condition* (1958), and the *Life of the Mind* (1977). Also, she wrote *Arendt and the Eichmann Trial* (1961-1963) and *Men in Dark Times* (1968). Can we move beyond this problem to the extent it exists?

“If we narrowly stay within the bounds of convention (as normalized), we likely miss much of the richness of the world, a deeper awareness of self and other life, and limit our understanding and options to respond to interconnected problems.”

Michael Bonnett’s collective works, especially his 2013, “Normalizing catastrophe: sustainability and scientism”, *Environmental Education Research*, 19(2), 187-197, is insightful. He offers reasons for the normalization of our views and work (convention). Bonnett notes that “normalization” constitutes our conventional (both thoughtful convention and thoughtlessness) views.⁹ Convention tells us what to understand—ourselves, society, and the environment or nature—and what to make of our everyday experiences. It tells us who and what counts or matters in an appropriate relationship to nature, other people, and the world. It tells us what is ethical and practical. It tells us what problems we should recognize and attend to.

Both Arendt and Bonnett provide clarion calls to recognize and address sides of the same problem: thoughtless and thoughtful convention, hereafter convention. Convention vitiates effective engagement with the natural environment, ourselves and our cultural world, and our problems. It does so by subverting our sensitivity and attentiveness to our own existential, social, and value directed character (compared to our conventional selves).

This limits our understanding of our own perspectives and actions. Functional interconnections are often overlooked by those who uncritically and unreflectively use convention. Convention frames thought and reality in a way that collapses any questioning of them back into convention and as such questions appear absurd to conventional citizens and colleagues.¹⁰ This normalized convention (thoughtless or not) leads to at least some of our problems. Bonnett develops this view more deeply than space allows.

When Arendt's accounting is combined with Bonnett's argument, we have an explanation for shortfalls in addressing our problems. Taken together, combined with other observations, this explanation says our underperformance is due to "normalized thoughtless convention." This is not to denigrate vast efforts by millions of people and national and international leaders and governments undertaking on the ground cases, policies, and activists' movements to address problems. Many gains have been made. Each of us can determine if "thoughtless convention" is really what we are up against.

Breaking the bonds of normalized convention is a meta-challenge for us to advance to more sustainable futures. Decades of research from different disciplinary perspectives have coalesced into the limitations in our capacity to recognize and move beyond convention. Underlying considerations include: (1) our limited self-awareness and self-understanding that is too often blocked by our own ego defensive psychology, existential coping, and conventional culture, (2) we are finding it hard for those reasons and others to deal with the discomfort we experience when we think about the magnitude of the problems we have created for ourselves and the scale and scope of what is needed to address them, and (3) our beliefs, expectations, and the lives—and cultures—that we have come to live within. I bring this literature together, although with the work of others, to interrogate a multi-dimensional convention. Thus, this paper helps explain why "convention" is a global problem, and based on this problem definition, proposes robust alternatives.

Convention instills a very deep, pervasive framing of who we are as a species, as individuals, and as cultures that set us in a particular version of reality or system of meaning making.¹¹ Our genetics, evolution, and social-conditioning through acculturation, socialization, and institutions, such as family, state, and educational and media systems all come together to shape views of reality. Views of reality—conventional or otherwise, serve as a metaphysics (i.e., an ontology, epistemology, axiology, ordination, and pragmatist approach).¹² As such, views of reality function to normalize both thought and thoughtlessness, which can come to dominate our sense of self, our agency, and our individual and collective efforts to address our social and environmental problems. If we narrowly stay within the bounds of convention (as normalized), we likely miss much of the richness of the world, a deeper awareness of self and other life, and limit our understanding and options to respond to interconnected problems. What are we to do?

4. Problems: Writ Large

Problems are really a reflection of how we view the significance of possible harmful futures. Or put another way, what are the foreseeable consequences of ongoing trends and conditions, if we do nothing? For example, what happens to humans and civilizations, if we do too little to address climate change? What happens if we change the North Atlantic Ocean currents? What happens because of all the extinctions? I clump interrelated substantive and process challenges into three sets: about people, social concerns, and environmental matters.

4.1. Standpoint Challenges

First are problems with how we construct our sense of self and meaning that prefigure or limit our understanding of the world and its problems. We typically do so conventionally.

We know that there is great variability among people's attentiveness, observations, and judgments across individuals and cultures. We know that people vary fundamentally in existential psychodynamics, personality and value commitments, education and experience.

"The lack of widespread shared basic knowledge about our own evolutionary, psychological, and cultural standpoint creates a highly fragmented and conflictual social situation."

Different forms of convention exist everywhere, as a kind of localized "uniformity" of perspective and it shapes how we see problems. Yet, "noise" exists in our lives and it affects our judgments.¹³ It can lead to fragmented, divergent, and limited perspectives. Further, it can lead to divisive rancor and violent conflict as people act on how they see the world differently.¹⁴ Importantly, it leads to dysfunction in problem recognition and solving. Whether individuals possess "democratic character" or not makes a difference in their interactions and collective outcomes.¹⁵

4.2. Social Challenges

The second theme concerns problems with goals. Much has been written on the overriding goal of humankind, ranging from secular (physical) to religious (metaphysical) texts. The goal is really about the meaning of life, human dignity, and human rights, at least in western nations.¹⁶ The choice before us is between systems of public and civic order that promote a commonwealth of human dignity in liberal democracies or garrison police states as totalitarian regimes. Our goal is to understand our relationship to nature and all non-human life. Currently, there is disagreement on goals across humankind, (e.g., contrast ISIS - K in Afghanistan vs. social democracy in Sweden). I collapse these immensely complex matters into a short review below.

Global goals are in critical international documents of the "judicial revolution" of human dignity and rights, now underway since 1945 (post WW II). These include the Declaration of Human Rights 1948, the revised Geneva conventions of 1946, and the international convention of asylum of 1951. Goals address whether morality and values (e.g., respect, well-being, rectitude) are universal.¹⁷ Individual, social, and political dynamics are typically based on deeply felt images of self, identity, authenticity, status, role, and power.

The third issue concerns problems with the social and political organization and institutions within and among societies. Fundamentally, social matters are about the basic educational and moral commitments that individuals, groups, and societies aspire to. This includes matters of population size, growth, and consumption. Questions arise, such as: What is the relationship between human rights, democracy, and constitutionalism? Ignatia (2001) suggests that human rights standards will be compromised by gulfs between universalistic declarations and national interests in our crises ridden world. The human "capacity to come closer to realizing aims is widely questioned, especially prospects outside of our now highly

organized communities of human rights activists,” notes Gutman (1994., pp. vii-viii). Today the “human dignity” revolution is far from complete.

“The goal of our colleges and universities is or should be to cultivate graduates who are willing and able to be self-governing in their personal and social lives, and contribute to problem resolution—personal and societal.”

4.3. Environmental Challenges

Environmental problems are an outward manifestation of standpoint considerations and social and political problems. Today, humankind is divided into many parochial ideologies and cultures each with its own goals and modes of living. These are organized often as nation states to smaller, more localized kinship and tribal groups at varying spatial scales and degrees of control. Each shows a different life script for individuals and its collectives. Some have a long history, transmitted intergenerationally through oral history and traditional knowledge systems. Others have a long history of formal constitutions, bodies of law, and public and advanced institutions, especially governance and educational ones. Critical here is the problem of social and political fragmentation. Also, there are questions about the use of science, and even the validity of science itself in some social circles.¹⁸ The ongoing COVID-19 case and the anti-science and anti-vax contingent well illustrate problems.

Take these few environmental problems. First is about climate change and its consequences for the human enterprise. Unless we rapidly address this problem, some observers think that the collapse of civilization is the most likely outcome. The Earth’s poles are warming at two to three times the rate of the rest of the world. Second is about the extinction crisis. It also poses existential threats to civilization. Biodiversity is declining worldwide, wreaking havoc on ecosystems. Third is about changes in the Atlantic Ocean that may be heading for collapse because of climate change. The consequences of a collapse would be far-reaching. Currently there is a weakening of the Atlantic Meridional Overturning Circulation, which transports warm, salty water from the tropics to northern Europe and then sends colder water back south along the ocean floor.¹⁹

Finally, there is the problem of the overall human environmental footprint on Planet Earth. The World Wildlife Fund says we are not on a sustainable path for our planet’s future.²⁰ Another way to look at this is to say that it would take 1.6 Earths to produce all the renewable resources we use today. And worse, the growing human population is expected to use the equivalent of two Earths of renewable resources per year by 2050. NASA’s data supports the conclusion that humanity would need five Earths to produce the resources needed if everyone lived as Americans.

“We are demanding nature’s services—using resources and creating CO₂ emissions—at a rate 44 percent faster than what nature can regenerate and reabsorb,” a NASA document

said. One article asks, *World's Population Booms, Will Its Resources Be Enough for Us?* New projections of escalating human population growth increase the tension between humanity's expanding needs and what the planet can provide. The Scientists-warning@lists.oregonstate.edu effort tracks these and many other vital trends and conditions. Clearly, we need to upgrade our problem-solving knowledge and skill urgently, and take action.²¹ And then there is war, which all people hope can be avoided.²² In sum, history shows devastating disagreement among nations and cultures.²³ Conflicts stem from a lack of agreement on the overriding goal of humankind, the needed social, political, and economic organization, and our relationship to nature and all non-human life.

5. Humans, Problem Solving, Education

Problems derive from our thinking, social organization, and individual and collective actions—from personal existential matters to large scale policy processes. The evolution and psychology of humans, as well as our social and political organization, prefigure how we go about problem solving and educating the young, especially in colleges and universities, to recognize and attend to challenges. Briefly, I review these three dimensions, each showing the latent power of convention that encourages or forces people into a certain, often limited mode of thinking and behaving.

5.1. Humans – Us

The biggest problem we face stems from (mis)understandings about our basic nature, biology, cultural history, and our relationship to nature and all non-human life. This is a neurological, philosophic, social, and political matter.²⁴ We are no longer a secret to ourselves. In the last 50 years, a huge volume of hard evidence from paleontology, anthropology, psychology, and sociology has given us data into our basic nature and how that plays out in our respective societies, cultures, and individual and group behavior.²⁵ This data describes and explains why people behave the way they do. The ape that became human over the last 100 thousand years has retained its biology today while it invented and continues to evolve symbolic culture—systems of meaning.²⁶ We did so, one word at a time, over tens of thousands of years, but especially in the last 10 thousand years.²⁷ Our present science of humans is our knowledge about ourselves.²⁸

As I see it, the lack of widespread shared basic knowledge about our own evolutionary, psychological, and cultural standpoint creates a highly fragmented and conflictual social situation—locally, nationally, and internationally. There are huge differences in perspective/identities, political systems, and actions everywhere. Diverse views abound over what “humankind” is. And, what are our goals, ideal living arrangements, and responsible relationships? Also, these differing views vary about our responsibility to nature and all nonhuman life. History shows dramatically different, often hardened perspectives on all these issues, divergent systems of meaning, and social organization that cause conflict (e.g., WW1 and WW2, the Cold War, and proxies). Many differences seem intractable. This situation will likely persist.

We are a species with an individual termination date (death) struggling to come to grips with our highly complex symbolic, technological, cultural, and its proper relation to nature.

Reconciling all this is the basic problem we face.²⁹ This reconciling matter is proving difficult due to the hold of convention across societies, cultures, and time. The single best alternative is that we need to educate ourselves about these matters, especially about our evolution and psychodynamics, and actually use our best knowledge and skills to approximate the overriding goal of “human dignity” for all.

Today, the dominant conventional view of ourselves is anthropocentric and this fosters an instrumentalization of nature, other life forms, and other humans. These conditioning factors combine with our existential psychodynamics and conventional notions of ourselves, society, and the environment to make it easy for people to conventionally seek short term self-interest, ego enhancement, personal value commitments, and support existing social and institutional order. I realize what I just said is too simple of a problem definition.

5.2. Problem Solving

The next problem is that there is no clear agreement on what the problems are that we face or useful methods of problem solving—rational problem orientation.³⁰ Today the dominant, conventional view of knowledge and problem solving is positivistic. Its benefits and limitations are widely known. There are counter epistemologies in competition with positivism (e.g., pre- and post-positivistic, traditional and local knowledge, critical theory). Positivism reinforces anthropocentrism, materialism, and instrumentalization of nature, other life forms, and other humans. Yet, it has obvious material advantages.

Problem definitions are about meaning, implications, and often urgency. They reflect how we think and talk about our concerns, often implicitly and conventionally. Defining problems as discrepancies between goals and actual or anticipated states of affairs attests to the fact that problems are socially constructed.³¹ Problems are really a reflection of how we make meaning and how we think and talk about our concerns. Perhaps the single most important task before us is to use and apply a problem oriented (integrative, functional) approach (noted below). All scholars and practitioners can do is help society produce realistic problem definition(s). Problem definitions function as a “package of ideas that includes, at least implicitly, an account of the causes and consequences of undesirable circumstances and a theory about how to improve them.”³² Without a clear problem definition, there is NO basis for even talking about solutions (options), much less for appraising choices or implementing them. There are many obstacles to realistic and actionable problem definitions, including our presently normalized conventional thoughtlessness.

5.3. Education

The goal of our colleges and universities is or should be to cultivate graduates who are willing and able to be self-governing in their personal and social lives, and contribute to problem resolution—personal and societal. The academy is the chief training ground for future citizens, professionals, and leaders. Ideally, the academy is concerned about advancing education in the common interest and in ameliorating social and environmental problems through empirical enquiry and analytic judgement.³³ Yet, today the dominant, conventional view of education is scientism and economism—neoliberal capitalism, often.

Education is given through a mix of courses, books, discussions, and experiences that inspire and unite, ideally. It should, more broadly, education, done well, should teach us about our intellectual and social heritage, and our larger context over evolutionary time. It should teach us about our culture, foreign cultures and our human struggles across the ages. Sometimes, it falls short.³⁴ With Richard Wallace and myself, we noted that the goal muddle and dominance of conventional approaches in the academy “puts into sharp relief the inadequacy of some academic programs to address major social and environmental challenges.” Are we both fragmenting and complicating education and actual problem solving by our overreliance on convention?

Last is the fragility of integrated problem solving, now in its infancy. It is in a weak position, status-wise, as are integrated scholars and educators themselves. There is a lack of a shared, grounding identity across members of the academy in many different departments, programs, and institutions, which is problematic. In response, some colleges and universities are going to the “big tent” model of education, wherein more and more disciplines, epistemologies, perspectives and ideologies are added to the curriculum. Is this thoughtless convention at work?

5.4. A Problem Overview

The UN Sustainable Development Goals dominate the global discussion currently. Regardless of how goals are stated, the ideal approach is to bring about constructive change in all the channels that we can influence, and quickly. Take the evidence of climate change or biodiversity extinctions, for example. How about our social and political problems? What are we doing and is it successful?

We collectively know the barriers to constructive change across diverse arenas. The world is full of conventional thought and inaction, normalized because of our own fears, unsustainable self-stories, and dysfunctional institutions that block promising ways of organizing our lives and living together. Among the obstacles to a transition are status quo cognitive, social, and political pressures. Convention has too often foreclosed our consideration of integrated approaches to challenges. This makes it difficult for us to provide a healthy future for the next generation (and all nonhuman life on the planet). The key question is what is our relationship to nature? In other words, what are we supposed to get out of nature, and do we relate to her and transact with her in order to get what we need? Perhaps we need to ask, what is our major social duty to renew depleted nature? Do we have an obligation to pass on healthy nature to future generations?

6. Recommendations

Numerous authors have offered recommendations that variously target individuals/groups, national and international leaders, mass social movements, and the academy. Others favor focusing on climate change, population growth, or substantive subjects (e.g., extinctions, oceans, or subnational to local issues). Still others prefer upgrading processes (e.g., problem solving, leadership, education). History is full of seemingly impossible change actually happening (e.g., ending of the Cold War). Future success depends on how people see problems (and themselves), define them, and act on them. What are some options?

6.1. People, Leaders, Institutions

Change is in the air, for better or worse. We must address problems commensurate with the content and size of the problems. What might we do if the underlying problem we face is conventional? What changes are needed on the part of people, leaders, and institutions to move us toward more integrative thinking, understanding, and action? If successful, change would alter our perspective on ourselves and nature, and our relationships with other humans and nonhumans.

“The rise of global movements seems to have come from a recognition of the interconnection of all peoples around a common cause.”

6.2. People

Targets for upgrading should include individual people (their standpoints, knowledge, skills) and our collective social outlooks. The question here is how can we best attend to future thinking and work “outside and ahead of convention,” while reaping benefits out of the convention’s advantages? How can we get down to specifics and actions that make a real difference for the better?

Considering recommendations, Bonnett argues that we are operating now with an impoverishment of experiences and perception with nature and ourselves. We are trapped inside a conventional concern for “mastery over nature” that insulates us from the world and knowing ourselves deeply. Convention, with its doctrine and formula, objectifies, materializes, and commodifies nature. He thinks this buries us in a particular form of untruth. It limits our understanding of engagement with problems—self, social, and environmental. He argues that this makes us insensitive and even dismissive of experiences of normative aspects of the natural world and our own lives. In an earlier paper, he asks what a new kind of awareness looks like, as part of our moral sensitivity to nature and non-human life.³⁵ In the end, his recommendation is a call for a “re-awakening” in and of ourselves about our environment.³⁶ Changing people’s perspectives is an important target. The academy could lead such an effort.

6.3. Leaders and Institutions

Change targets should include national and international leaders too. For example, Falk argues that our way forward is to engage globalism and whole human communities at appropriate scale, including leaders. He says that we need to affirm that our shared collective striving for recognition and a dignified material, social, and political life is in the realm of the possible. We must reimagine a sense of our place in the universe. He argues that this can create a sense of solidarity, a kind of patriotism for human and nonhuman kind wherein all of us are contributing to an enterprise much larger than our individual lives. This is transcendence in action. Such a perspective would not blur differences among people;

however, it might set up a system to view ourselves as working in complementarity. Transformation is dependent on the kind of leaders we get.

This, he says, is a helpful place to start our needed transformation. Yet, as Falk notes, our current leadership and institutions (and views of ourselves), which are largely conventional, will remain impervious to change toward a more cooperative, peaceful, just, and ecologically sound world. It seems currently that we are paralyzed by normalized convention (thoughtlessness). I agree, the most urgent need is for integrated problem-oriented leadership and citizenry. There is a trend toward integrated undertakings by many people that are being carried out now, worldwide. Many of these are at the individual or small group level. They know what is to be done within their context of operations. The challenge before us is formalizing transformative education and the application of integrated problem-solving. Do we have time?

“All things are interconnected and the meaning of anything depends on its context.”

Another recommendation by Witter is that global mass movements present an opportunity for gains.³⁷ Global networks of activists can have influence well beyond national borders. He summarizes historic movements such as antislavery, the labor movement, socialist movement, the peace movement, environment movement, nuclear disarmament, movement against corporate globalization, and women’s rights movement. True, all these movements have faced furious backlash and opposition. Nevertheless, the rise of global movements seems to have come from a recognition of the interconnection of all peoples around a common cause (e.g., human dignity in healthy environments). He argues that global movements need to be organized, focused, and (self-) empowered, as they seek transformative change.

There is much work ahead. Perhaps most important is to make a change in the world around oneself. This is the situation in which we can be most influential and constructive. There is no guarantee they will be successful in overcoming the powerful normalized convention that now dominates most everywhere. Nevertheless, there are promising avenues for constructive change that reinforce hope for the transformation needed.

6.4. Integrated Problem Solving

Perhaps the most promising way to bring about constructive change is to teach and use integrative problem solving. As a key target or opportunity, this is likely the most direct, transformative way to upgrade our actions. Here are five considerations that make up integrated problem-solving. This approach is being taught successfully in the academy now and in applied work.³⁸ These five considerations taken together function to help us overcome the limitations of operating within convention.

6.5. Five Key Perspectives

There are five important perspectives to take on any program or policy to understand it and ameliorate problems. By “perspective,” I mean a distinctive way to look at the program or policy in question. Each perspective is important if you want to avoid being

misled by ignorance, convention, or by a promoter—a propagandist, lobbyist, or partisan promoter or salesperson, for example. These five and their foundation come from social and political thought and are abstracted into the policy sciences or configurative framework. The framework consists of a logically complete set of mapping categories that can help us understand and address policy problems. This framework is a practical means of organizing our thinking, our knowledge, and our problem-solving efforts, and therefore it allows us to define a problem usefully and understand its context. Doing so opens up options.

This *integrated, problem-oriented approach* permits users to:

- *find* the important pieces of information on a program or policy in a maze of reports that is typically incomplete and distorted;
- *identify* what pieces are important but missing in those reports and actions;
- *organize* the pieces into a coherent picture of the problem and response under inquiry;
- *evaluate* that picture from rational, political, and moral standpoints; and
- *construct* a more educated perspective of the program or policy or a new program or policy of your own.

The five perspectives follow. First is *standpoint clarification*, which is about your own perspective, assumptions, and viewing angle (see notes Clark 2002, pp. 111-126). Ideally, the standpoint is about self-awareness in psychological, existential, professional, and social sense. It is about you being both a participant and an “anthropological” observer.

Second is the *problem orientation*, which directs your attention to the rationality of the program or policy—and asks whether it is reasonable enough. Problem orientation is a strategy for constructing a more rational policy (see notes for Clark 2002, pp. 85-110). The basic concepts involved in it are:

- *Goals* are preferred outcomes—something you want to achieve.
- *Trends* are past and recent events relevant to goals.
- *Conditions* are factors that shape those trends, causes, motives, policies, etc.
- *Projections* are probable future developments under various circumstances.
- *Alternatives* are courses of action—what you can do to realize goals.

In these terms, the logic of sound policymaking is to choose the alternative that you expect (on the basis of trends, conditions, and projections) is the best means of realizing your goals.

Third is the *social process* (a mapping tool), which directs your attention to the people involved in any issue, their perspectives, and the context (see notes Clark 2002, pp. 32-55). It rests on the principle of contextuality (see notes Clark 2002, pp. 29-30). This principle recognizes that all things are interconnected and that the meaning of anything depends on its context. It is comprised of seven elements: participants, their perspectives—(identities,

expectations, and demands), the situation, the values involved, strategies in use, outcomes, and longer-term effects.

Fourth is the *decision process*, which directs your attention to the politics arising from conflicts among policies (see notes Clark 2002, pp. 56-84). The decision process is a means of reconciling conflicts and achieving consensus on policy and programs through politics. Politics are inevitable because people develop and promote different policies reflecting their special interests. This brings us to the fifth task that directs us to look at “basic premises.”

6.6. Basic Premises

Fifth is about *basic premises*, or relationships among beliefs, worldviews, myths, and paradigms, which directs your attention as a problem solver to the morality of policies. That is, whether they are morally justified within the community, given the cultural myth (myth is used in anthropological terms) (see notes Clark, 2002, pp. 21-23). Premises in cultures are accepted largely as a matter of faith (not reason) through socialization and acculturation of young children and adolescents.

The political myth serves to justify and explain the possession and use of power—whether or not its assumptions or premises are true.³⁹ Myth is used here in the anthropological sense to describe the basic beliefs of individuals, communities, and cultures. In conventional usage, myth means false belief. In our use, myth is what people see themselves to be (“who am I”), how they fit in, and an explanation of what and why their community does what it does. Myth has three components as we use it.

- *Doctrine* is the part of the myth that sets forth the basic aims and expectations of the community. Authoritative statements of doctrine are often found in preambles to constitutions and other formal declarations.
- *Formula* is the part of the myth that prescribes the basic rules for progress according to the basic aims and expectations of the community. This is the basic law or constitution, which may or may not be written.
- *Miranda* are the symbols to emulate and admire in the political myth. They include the heroes, flags, and anthems that are displayed on ceremonial occasions.

Premises are continuously reaffirmed and redefined through their use in social and political discourse. Conflicts over policies, programs, and politics (the uses and abuses of power) can become so acute that they threaten to disrupt or destroy a political system. The various meanings are located in the minds of people, who occasionally and with various degrees of skill express what they mean through the manipulation of signs and symbols.

These five concepts and operations comprise integrated problem solving. They open up a functional view on convention (see notes for Clark 2002, pp. 123-125). They are practically invaluable in application. Learning this problem-oriented approach, the framework, and its skillful use requires a great deal of practice and experience. However, it is possible to understand the basic concepts and operations, including how they have been used by other

people in a course or workshop.⁴⁰ The integrated problem-oriented approach can be useful to students, professionals, and leaders alike. This brings us to education and the academy.

6.7. Education and The Academy

Currently, there are problems with conventional education in colleges and universities. This is due to their struggle to organize and teach knowledge across disciplines and educate students to become problem solvers and leaders. Despite an interest in the academy in meeting these goals, many remained mired in goal muddles, an offering of a disciplinary hodgepodge, and a curricular smorgasbord. Criticisms of conventional education and programs include claims that they tend to emphasize narrow technical proficiency. Typically, it is disciplinary based. These sources reify convention. This in contrast to education for more integrative, policy-oriented problem-solving knowledge and skills for real-world applications.

As to goals for the academy, among them should be: (1) education should aim to develop the skill of critical, independent thought, (2) it should induce attentiveness, sensitiveness of perception, receptiveness to new ideas, and imaginative sympathy with the experiences of others, (3) it should strive to cultivate an intelligent, thoughtful loyalty to the ideas of the democratic society, and (4) it should really empower those inner resources and attributes of character that enable the individual, when necessary, to stand alone.⁴¹ Targets of educational efforts should attend to these goals and support curricula. Successful academic programs could produce both disciplinary and interdisciplinary (integrated) knowledge, as well as developing students with the wisdom and skills to address complex problems and complex social and environmental matters.⁴²

6.8. Goal Clarity

We recommend explicitly adopting the overriding goal of “human dignity,” including the requirement for mutual respect and other values essential for people to live full lives in healthy, sustainable environments. “Human dignity, which is both a value position and a moral aim, is a summative symbol that represents a desired state associated with certain basic human values (such as respect, health, well-being, freedom, rectitude, and education). Environmental conditions and human dignity are tightly linked. Human dignity cannot be achieved without conservation of nature, protection of environmental quality, and thriving in all non-human life.

My colleagues and I have recommended three principles for improvement education: goal clarity, integrated problem orientation (interdisciplinarity), and skill-based pedagogy. They are: (1) an understanding of how the policy-making system works and how human value interactions constitute the core of professional work, (2) mastery of skills in critical thinking and the development of an integrated (interdisciplinary) “procedural rationality” for analyzing problems and evaluating potential solutions, and (3) development of influence and responsibility within policy and programmatic systems.⁴³ Seminars, case studies, and field trips are among the tools that can develop these skills in students and others. All these should be teaching us to be free and that human dignity is worth striving for. Finally, the educational community has great potential to improve the utility and relevance of education.

6.9. Skill-Based Education and Effective Programs

Graduates will carry out diverse tasks in their work lives, whether academic or applied, hopefully for the public good. Problem-solving activities overlap and interact with the work of public policymakers and leaders. Graduates figure into and influence social and decision process, including conducting research (basic and applied), writing and publishing technical and popular articles, monographs, and books, lecturing to professional and public audiences, commenting on matters of civic and public interest, teaching short courses, leading field trips, in-service training short courses, and formal academic courses, participating in professional and civic organizations, preparing, reading, commenting on, and reinterpreting agency and other documents and decision, advising organizations and leaders, or serving on boards and formal advisory organizations, consulting and negotiating with allies and adversaries, bringing out fact (or concealing) facts or policies that decision-makers need, and serving as ordinary or expert witnesses.

What knowledge and skills do graduates need to take responsibility in these roles? Three specific bodies of knowledge would contribute to educating students to be policy-oriented. They are: (1) understanding human interactions, (2) developing professional skills, and (3) influencing policy.⁴⁴ In sum, for many college and university programs these require changes from existing education. Many authors have laid out what they see is needed for establishing college and university programs that educate for these three in the service of “human dignity” in healthy environments. These require effective delivery of knowledge and skills via curricula.

Understanding problems and problem-solving concepts, operations, and skills must grow case-by-case over time. Among recommendations, Brunner’s *Raising standards: a prototyping strategy for undergraduate education* is important. Bammer recommends uniting, organizing, responding, and fighting for such programs. She sees that institutionalizing “transdisciplinarity” requires its practitioners to co-construct a big-picture vision.⁴⁵ Unfortunately, she notes that many people who have pioneered such an approach have often fought draining battles for even the smallest gains. She recognizes the barriers cited earlier in this paper to both her and my recommendations. And for the record, my colleagues and I, and many others, have been struggling against this conventional syndrome, which has foreclosed promising opportunities for imagination, learning, and experimenting with our own individual development and the “integrity” problem convention causes.⁴⁶

The integrated approach I recommend invites us to “reimagine a future by exploring what might be possible. This requires an initial willingness of the imagination to let go of the trappings of the present [convention] without engaging in wishful thinking,” says Falk. He sees that our shortfall or failure to date to bring about the needed transition is due to convention.

7. Discussion

This paper examined our current conventional (thoughtful or thoughtless) approach to problems, problem solving, and education in different ways as a major problem in the world today. Currently, we are all faced with huge social and environmental problems that portend

catastrophe unless we address them effectively. “More than ever, we must face the question; can the peoples of Earth, doomed to share a ravaged planet, learn to live together in a way that encourages our species to flourish in the emergent future?” says Falk (2021). What do we need to do?

“Can our gifted and educated youth, using rationality, modern science, and technology, foster a wave of mass social action? Can they overcome parochial interests, misinformation, and conventional arrangements?”

7.1. Global Solidarity

Will a new kind of global “solidarity” help us?⁴⁷ Some authors see that a global “movement” is needed. I argue that the academy could front integrated problem solving as a means to explore this option. There is much to do to get us to a shared global identity to tackle climate change, species extinctions, and widespread ecosystem degradation, much less ramped human indignity. Global solidarity is well outside conventional, parochial identities currently. There is much activism, science, and movement currently appealing to individuals’ identities, loyalties, and institutions, some helpful, some not.

What is a new global “solidarity?” Lasswell’s (1972) treatise on the *Future systems of identity in the world community* is helpful here.⁴⁸ For global solidarity to become reality, we need to understand “identity” and foster a new shared human identity of solidarity. Public civic order and social movements depend on many factors, identity being a major one. Our future will continue to be affected by the predispositions of people whose identity and loyalties are expressed in the kinds of institutions they support. People who share identity, share a self-image, a cognitive map of themselves and others.

At present, these features are organized from the tribe to the national level supporting unifying identifications and security, including nationalism and war-fighting capabilities. These are factors affecting our future and our present system of world public order. Despite the UN, European Union, and many other constructive efforts, people’s perspectives and identities are dominated by a structure that produces division and sustains the institutions of nationalism and war fighting. Just look at the present global picture of vying national states, the level of resources going into the military and security alliances.

7.2. Mass Social Movements

Will mass social movements help and are they likely to happen? The task before us is to mobilize and organize mass action in favor of decisions and institutions that can bring about the change and transformation needed to avert disaster. What the future holds will be influenced by the attitudes and actions of the young. Clearly, many youth in the world today

are disturbed by events. This can lead to alienation as problems become clearer and our ability to address them seems to recede.

Can mass social action be organized across classes, education levels, and many other features of our current divisions? In some localities, youth are poised for collective action on varying scales. Yet some are busy cancelling people they feel are opposed to them and engaged in other diversionary actions. Are the preconditions present or can they be constructed to mobilize the outpouring of the emotionality, intellect, and energy needed by youth today for constructive social action?

We need to find ways to render contingencies more vivid. In doing so, we must address injustices, as they currently fuel conflict, fragmentation, and division. Can we accelerate a convergence of lifestyles and identities without obliterating nature, other life, our individuality, and the resources on which we depend? This brings up questions of population size and consumption patterns. How do we overcome status quo interest coalitions and build new coalitions to address our urgent shared problems? Will today's youth catalyze and lead a transformation toward the needed new identity, solidarity, and action?

Successfully motivating mass action in the face of powerful, restrictive interests and forces (the status quo) is ongoing. Can we mobilize enough people/identities to make a difference in time? Can we change global and civic order to stave off disaster? Communications can help, as we now live in a world where the internet/social networks reach millions in an instant. Yet, there is much misinformation afloat—fake facts. Can our gifted and educated youth, using rationality, modern science, and technology, foster a wave of mass social action? Can they overcome parochial interests, misinformation, and conventional arrangements? Many youth think they can. How can the academy help?

7.3. Higher Education

The conventional view of problem solving and education, according to some authors, has been 'conventionalized' and "normalized"—disciplined (and hybridized). Problems, however, cannot be understood or addressed using convention or one or a mix of disciplines or hybrid disciplines alone. A combined functional and conventional approach (taken together the integrative approach) permits us to better assay a problem (using problem orientation) by interrogating the content and context (social process), and exploring options (via decision process), all the while we are aware of our standpoint (values, knowledge, skills).

Further, the academy could engage with the deep knowledge and skills that the academy now generates and transmits. Some authors argue that the academy should be featuring personal experiences of nature as a transcendent other. We should learn to see nature as an inherent value. Further, we should develop moral sensitivity. This amounts to a kind of attentiveness and ethic.

My case in this paper is to support science; in fact, we need more of it in our integrated problem solving, yet we must learn to use science in a fully integrative, contextual, and problem-oriented way. The distinction between conventional and functional perspectives and problem solving that I use comes from anthropology, psychology, sociology, and

professional policy analytic understanding of human interactions. A functional approach, can in fact, confront convention in problem solving. Presenting the functional value-added approach to otherwise conventional problem solvers can open up much insight and many opportunities for improvement. The academy can be the chief agent in doing so.

8. Conclusion

One big problem we face seems to be “convention,” thoughtless or not. We are immersed in the all-knowing, averaged-off, common sense of the anonymous “they”—what everybody knows and understands—convention. This paper included contemporary, wide-ranging literature to introduce and illustrate challenges we face across social and political organization situations, especially in the academic arena. Convention likely has deep existential and psychological origins and is thus not easily recognized as such or successfully addressed either in our individual or collective lives. We are loath to recognize or engage in these because doing so reveals our precarious situation and our anxieties. In fact, we have generated hugely successful defense mechanisms—personal and cultural—to avoid confronting them. Thus, convention dominates our thinking and actions. These blinding mechanisms are little discussed today for reasons of fear, ego maintenance, individual and collective coping in our uncertain and complex world, and because institutionalized rewards favor those that maintain the status quo. These block a deeper understanding of ourselves, the world and what to do about problems.

Addressing the problem of convention might allow us to thrive and live in a free, sustainable way with each other and the material and living environment on which we totally depend. We create problems and at the same time solve them. The basic concepts and operations in the integrated problem orientation, the social and decision process, and basic premises are tools for critical thinking and can help us address problems. With some effort, a person can expect to understand the concepts—including how they have been used. A functional problem solver looks for connections, relationships, and systems prosperities in social and decision processes. Often, this view makes connections that are frequently overlooked by those who uncritically and unreflectively use conventional, ordinary ways of understanding, talking and doing. Functional understanding depends explicitly and systematically on a comprehensive mode, map, or image of the social process to guide attention to the value and significance of details. The integrated problem solver sees the same events and processes as other people who are limited to convention, but has the added capacity to develop a richer, more complete, and more useful understanding of the meaning of things. The conventional approach assigns ordinary meaning to concrete circumstances, whereas the functional analysis looks for special meaning depending on the contents. Good problem solving integrates what is rational, authorized under law, and justified under basic premises.

Personally, as a member of the academy and interested in critical scholarship grounded in long experience and pragmatism, I hope this article can lead to improved integrative and cooperative problem solving. This paper points to promising integrative concepts and operations, and integrative education in the academy and in the field on multiple fronts. In the end, can we as a species vitalize and act toward our dreams (global goals of realizing

a commonwealth of dignity in healthy environments) for humanity by taking pragmatic actions?

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Successful Development of Global Education within Ian Donald School of Ultrasound

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Editors' Note: *The Ian Donald Inter-University School of Ultrasound serves as a model case study for global education initiatives. Its success in establishing over 140 international chapters across 70+ countries demonstrates the potential for replication worldwide. By pioneering distance learning programs and adapting to new technologies, the school showcases how to facilitate lifelong learning and adapt to the changing educational landscape. This model can be replicated by other educational institutions seeking to expand their global reach and provide quality education to diverse populations.*

Abstract

Ian Donald Inter-University School of Ultrasound is a living tribute to Ian Donald, the visionary physician who pioneered ultrasound in obstetrics and gynecology. The School is dedicated to the improvement of all aspects of perinatal and gynecologic care. The discovery of ultrasound has enabled us to see and care for the fetus as a patient as well as visualize pelvic organs noninvasively—and has therefore brought obstetric and gynecologic diagnosis out of the dark ages. The School has evolved to almost 140 international Chapters or Branches which permits the spread of knowledge throughout the world. With the rapid development of information and communication technologies, industrial nations are transforming into societies in which knowledge, although intangible, is the most valuable commodity. The traditional choreography of learning, with its long, rigidly defined school, job, and university educational periods, is already obsolete. The most important factors which have influenced the changes occurring in education have been the installation and development of the Internet, electronic multimedia techniques and artificial intelligence. Donald Schools have to reinvent themselves in order to remain relevant to the current generation. The distance learning campaign (which extensively developed in the last three years of the COVID-19 pandemic) aims to establish a distinct visual identity for Ian Donald School and to unify all its various branches and entities into a single voice.

1. Introduction

We live in a troubled world in which national, cultural, religious, and political differences

separate people—sometimes to the point of disastrous wars and/or pandemics (1). With all that mankind has achieved, it is amazing that such parochial differences continue to do so much harm. There is much that the leaders of the world can learn from the global success of the Ian Donald Inter-University School of Ultrasound (2-8).

This School is a living tribute to Ian Donald—the visionary physician who pioneered ultrasound in obstetrics and gynecology. The School is dedicated to the improvement of all aspects of perinatal and gynecologic care (9-14). The discovery of ultrasound has enabled us to see and care for the fetus as a patient as well as visualize pelvic organs noninvasively—and has therefore brought obstetric and gynecologic diagnosis out of the Dark Ages. It has been suggested—with very little exaggeration—that the three greatest contributions to modern obstetrics and gynecology have been ultrasound, ultrasound, and ultrasound.

Our school is based on state-of-the-art science as well as a collegiality that transcends national, cultural, religious, and political differences. Teachers and students alike are united in our efforts to improve the care of women throughout the world. The international brotherhood and sisterhood that exists among physician leaders from over 70 of the world's 192 countries is a special bond that represents globalization at its best. Instructors donate their time without reimbursement, as their educational efforts are truly a labor of love.

We are grateful to all the doctors who have given so much of themselves to make the Ian Donald Inter-University School of Ultrasound a testament to the power of the human spirit to work collaboratively throughout the world for the betterment of mankind. We believe that Ian Donald is smiling down from heaven at the School that bears his name (9-14).

2. Remarkable past of ID School as a predictor of bright future

In 1981, during the 4th European Congress on Ultrasound in Medicine and Biology held in Dubrovnik, Croatia, a multidisciplinary group of enthusiasts met at the Inter-University Center for Postgraduate Studies (IUC) in Dubrovnik and established an advanced course in medical ultrasound which was named after Ian Donald and planned to have annual meetings within this unique institution.

The first Ian Donald course was held in 1982, co-organized by Asim Kurjak and George Kossof, and attended by 152 participants from 42 countries. Ian Donald and his wife Alix attended the first 12 courses held at the School. Since its foundation, the School has organized numerous advanced courses in Dubrovnik and throughout the world. After George Kossoff's retirement, Frank Chervenak was named co-director.

One of our many guests, Professor Tommy Thompson, former president of The World Federation for Ultrasound in Medicine and Biology, wrote:

“Recently, I had the opportunity of taking part in a rather unique and outstanding ultrasound conference held in Dubrovnik, organized by the Ultrasonic Institute, Medical School University of Zagreb. The Ian Donald course was outstanding in that it presented the most up-to-date, state-of-the-art information on ultrasound that is available today. The faculty

was exceptional in that world leaders were brought together from more than a dozen different countries. The subjects covered included prenatal diagnosis and therapy of congenital fetal abnormalities, ultrasonic-guided puncture techniques, ultrasound in the management of female infertility, fetal, uterine, and ovarian blood flow determinations and application, and a round-table on controversies in obstetric ultrasonography. There was a free flow of information and an unusual amount of participation by the audience, most of whom were authorities on many of these subjects in their own rights. This was an intense 5-day meeting dedicated to the higher levels of ultrasound knowledge and thinking in the world and it took place in a unique and beautiful setting on the Adriatic coast. It was by all standards a superb conference geared to the leading edge of present-day ultrasound knowledge. The Ultrasonic Institute from Zagreb should be congratulated for having developed a most timely, informative and well-presented international ultrasound school."

The School has evolved to have almost 140 international Chapters or Branches. This permits the spread of knowledge throughout the world. Each Ian Donald Chapter has developed according to the character of the respective country and culture. This structure permits international cross-fertilization of ideas while remaining sensitive to the uniqueness of each participating country throughout the world.

We believe that the Ian Donald School in its 40th year of existence has had a remarkable past and we look forward to a brilliant future.

3. Ian Donald School: Education in the Globalized World

At the time of fast globalization, it is clear that no human endeavor is more adapted to the globalized world than science and medicine, for their very nature is global (15–17). This is an immense privilege, but equally an immense responsibility for the development of humanity.

Globalization is both inevitable and usually desirable and contains advantageous and disadvantageous issues. It is a source of both hope and apprehension and is an accelerating process in the flow of information, technology, goods and services as well as production means. It refers to the process of increasing interconnectedness between societies such that events in one part of the world increasingly have effects on peoples and societies far away (15-17).

Reconciling global economic growth, especially in developing countries, with the intensifying constraints on global supplies of energy, food, land, and water is the great question of our time. A new global growth strategy is needed to maintain international economic progress. If the supply of vital inputs into the economy is constrained or the climate is destabilized, prices will rise sharply, industrial production and consumer spending will fall, and world economic growth will slow, perhaps sharply. But if the world cooperates on the research, development, demonstration, and diffusion of resource-saving technologies and renewable energy sources, we will be able to continue to achieve rapid economic progress (15-17).

What's happening in the world today? The answer is simple and apparent to everyone: a crisis (wars and pandemic), without precedent in modern history. The world has been hit by the worst crisis in the last half a century, probably the worst one since the Great Depression of the 1930s.

"The increasing speed at which we acquire new knowledge, insights, and abilities is forcing 'learning' to evolve."

The crisis is without precedent, because for the first time in history, it is world-wide due to the close interconnectedness and interdependence of the global world. It is also without precedent because it is multidimensional: mankind hit by the pandemic of COVID-19 and the Ukraine war is at the same time faced with a crisis of world finances, global economy, international affairs, global security, a crisis of liberal capitalism and the relationship between cultures and civilizations (1, 3 – 5, 13).

It is clear that in the 21st century developments will fundamentally change many aspects of today's world. Modern communications technologies are changing societal and economic structures, and our knowledge is growing at a speed that would have been unthinkable only a few years back (1). Consequently, industrial nations are transforming into societies in which knowledge is the most contested and valuable good (1, 16, 17). Knowledge has become the decisive location factor for a company competing globally. Indeed, only a highly developed national economy leading to global competition, which has weathered the structural changes in the labor market, its ailing solidarity system, and the onslaught of state regulations, can remain prosperous. In this context, education is the most important investment in the national economy (4). Anyone who doesn't invest in it lags behind and has to accept gradual losses. The result is poverty. A lack of knowledge should be viewed as a risk factor (4).

With the rapid development of information and communications technologies, industrial nations are transforming into societies in which knowledge, although intangible, is the most valuable commodity (1, 3, 4). The increasing speed at which we acquire new knowledge, insights, and abilities is forcing 'learning' to evolve, as the traditional choreography of learning with its long, rigidly defined school, job, and university educational periods is becoming obsolete (1, 3, 4). Self-directed, lifelong learning is the new standard of excellence and success (6).

Rapid knowledge production is the driver of world development, as the half-life of knowledge is constantly shrinking and a person's knowledge becomes antiquated several times during his or her lifetime (3 - 5).

It has been estimated that the European Union (EU) produces almost one third of the world's scientific knowledge (2). The EU has acknowledged expertise in medical research and environmental sciences and leads the world in many areas of chemistry, physics, pharmaceuticals, aerospace, telecommunications and transport. We need a coherent approach to build a Europe of knowledge whose main engines are research and innovation. This

shows that public spending on research represents not a cost, but an important investment in Europe's future (2-4).

4. How to respond to new challenges of education: an example of Sarajevo School of Science and Technology (SSST)

SSST is committed to developing the intellectual capacity, creativity and professionalism of our students, immersing them in the rich diversity of human experience and aspirations, thereby preparing them to shape the future of our world while adding to the knowledge base of humankind.

The new academic culture at universities is changing the master-student relationship (18, 19). The student has new sources of knowledge at his/her disposal and sets before the master the task of keeping pace with progress. Students now expect from their academic teachers help, motivation, and suitable approaches to new problems (3, 4). Students enter into dialogue with their masters and expect argumentation which facilitates their intellectual development (3, 4).

The authority of the masters is no longer based on titles and distinctions; just the opposite—the merits of the master are verified by a new generation of students who reject faith in masters, but instead expect to be convinced by scientific arguments.

This culture requires both traditional direct contact and indirect contact—created by virtual space. This space facilitates a system of asymmetrical education, paradoxically, even from dead masters.

Many EU students now have the opportunity to study in the education systems of various countries. Mobility during students' years will encourage innovativeness later (3, 4). Attending university in another country provides students with new experiences and energizes behavior by "forcing" them to think in another language as a result of adaptation to different cultural conditions (2-4).

The distance learning campaign aims to establish a distinct visual identity for SSST and to unify all its various branches and entities into a single voice (1, 20). It seeks to engage, inspire curiosity and raise awareness about SSST and supports its continued growth, giving it higher visibility and helping people everywhere to understand its work and its future goals. In general, classic on-site teaching and distance learning are reflecting a universal human need to learn and understand the world around them (1, 20).

They will help develop strategies to establish new and enduring educational patterns, initiating actions and concrete solutions to rise to the 21st century global challenges, and acquiring the ability to anticipate future challenges (1, 20).

5. Education as a Treasure: Investment for the Future of ID School

Immanuel Kant made a statement about education: "It is the education of a personal character, of a free being, who is able to maintain himself and to take his proper place in society, keeping at the same time a proper sense of his own individuality." (21).

While we are living in a very different society from Immanuel Kant's, his wisdom remains so true today. With the rapid development of information and communications technologies, industrial nations are transforming into societies in which knowledge is the most contested and valuable good—and the need for continuing education is even more important. At present, creativity and ingenuity comprise at least 50 percent of the value-added chain. Just a few decades ago, the value of a machine tool was determined in large part by its material value and the cost of producing it. Today these factors account for only about 20 percent, while the biggest portion of the share consists of development, software, design, and downstream services—that is, value-added factors with a high knowledge intensity (2–4). Knowledge has become the decisive factor for any institution competing globally (4). Do globalization and the enormous acceleration of social, economic, and political transformation processes demand a different kind of education? It is clear that education is the most important investment in the national economy (16, 17). Anyone who doesn't invest in education is left behind.

Learning means change, new modes of behavior, new structures, unfamiliar situations, and creativity. The increased speed at which we have to acquire new knowledge, insights, and abilities is forcing us to divide learning into novel, shorter phases. The traditional choreography of learning with its long, rigidly defined school, job, and university educational periods is already obsolete (2–4). Self-organized, lifelong learning is becoming a necessity (6). Education is needed more than ever to give the individual the proper orientation to make good judgments. Only on this basis can he or she think and act self-sufficiently, self-confidently and self-effectively (2–4, 20).

The most important factor that has influenced the changes occurring in education has been the installation and development of the **Internet, electronic multimedia techniques and artificial intelligence** (1–4, 20). Traditional education as well as contemporary education are supported by informatic technologies in a unique system of flexible education. In order to use the advantages of flexible education, it is necessary to combine different forms of learning (1–4, 20).

Indeed, Donald Schools have to reinvent themselves in order to remain relevant to the current generation. The focus in an Ian Donald School is on knowledge augmentation and not on grades. Great learners are the product of great educators. It is hoped that Ian Donald School educators will be true, dedicated “human amplifiers”, turning education into a memorable experience.

In our newly formed Fellowship program (Sarajevo, Zagreb, Doha, Dubai, Khartoum), upon graduation, student laureates will earn a specialized diploma in Ultrasound in Obstetrics and Gynaecology, with a leadership position in the workplace. This is done with the belief that education must be driven by innovative thinking, adaptability, and worldwide collaboration (2–4). Wherever thinking happens, ideas follow, knowledge grows, and people discover new ways to unlock their potential. Although in its infancy, the fellowship program has blossomed with its wide acceptability.

The distance learning campaign (which extensively developed in the last three years of the COVID-19 pandemic) aims to establish a distinct visual identity for Ian Donald School

and to unify all its various branches and entities into a single voice (1, 20). It seeks to engage, inspire curiosity and raise awareness about the Ian Donald School and supports its continued growth, giving it higher visibility and helping people everywhere understand its work and its future goals (1, 20). In general, distance learning is reflecting a universal human need to learn and understand the world around them. In our new virtual school the campus will be virtual—students will be able to attend classes from around the world (1, 20). The Ian Donald School will be administered through a plexus of real-time information arteries. Campus activities and class sessions will be monitored to gauge educator performance and student learning progress (1, 20). Advanced ultrasound technologies will be immersed in the learning process (8). It will certainly help to develop a “lifelong learning way of life” (6).

With distant learning, we are creating a constructive, open forum for Donald School students that do not usually have a chance to interact, to create innovative, appropriate, and current solutions for the changing needs of diagnostic ultrasound in the global community (1, 20).

Innovative approaches to major education challenges should be highlighted and expanded globally (2 – 4). This will help develop strategies to establish new and enduring educational patterns, initiating actions and concrete solutions to rise to the 21st century global challenges, and acquiring the ability to anticipate future challenges (2 – 4).

We hope to identify opportunities to shape a global educational vision for the 21st century under the theme of Donald School distance learning (1, 20). The future is built on the past. The Ian Donald School has a remarkable past. It is important that teachers and students stay as futuristically thinking scientists and teachers.

In a knowledge society, where competitive edge is directly tied to innovation, the Ian Donald School has to move forward (2, 18, 19). The slumber is over. The renaissance has been long overdue. Immanuel Kant is right, now more than ever!

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How the Human Spirit, Pope Francis, UN Networks, and Enlightened Partners Can Secure Human Flourishing, Environmental Stewardship, and Upgrade World Politics Quickly

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Abstract

This article discusses the potential of the Global Compact on Education, signed by Pope Francis and religious leaders from various denominations. It highlights the need for a catalyst to engage the human spirit and implement the Compact's goals of quality education, human potential, and belief-independent spiritual growth. It suggests that the Catholic Church, with its vast network of educational institutions, can play a crucial role in fulfilling the Compact's mission. It also proposes recommendations for creating Global Education Centers and leveraging purchasing power to provide affordable access to the internet and educational resources. The article also emphasizes the importance of curriculum development, including the integration of biophilia environmental designs and the implementation of brief observation and thinking exercises for spiritual growth. It concludes by discussing the potential for increased power and impact through advisory councils and collaboration with other denominations.

"The future of the Global Compact on Education is uncertain, but it has the potential to be a powerful force for good in the world. If it is successful, it could help to ensure that everyone has access to a quality education, regardless of their background or circumstances. It could also help to promote peace, understanding, and sustainability on a global scale."

– Google Bard AI, Query 7/30/2023

Almost unnoticed, new constellations for global progress are moving into alignment. There is a compelling case that a simple catalyst can create, beginning on January 1, 2024, a new Renaissance, a spectacular upgrade for the achievement of human flourishing that is widely shared, environmental stewardship, and an upward shift in the world's political psychology that brings a future of enlightened and trustworthy governments.

* Lloyd Etheredge's recent publications include Lloyd Etheredge, "Wisdom in Politics and History" in Robert J. Sternberg and Judith Glück, eds., *The Cambridge Handbook of Wisdom* (New York: Cambridge University Press, 2019), pp. 721-753.

A catalyst can work because it is possible to engage the human spirit and use digital age technology to implement two world-changing levels of the Compact for Global Education signed two years ago (on October 5, 2021) by Pope Francis and leaders of Orthodox, Jewish, Muslim, Buddhist, Sikh, Jain, Calvinist, Quaker religions, and evangelical representatives.*† The Compact upgrades the Universal Declaration of Human Rights (1948). It includes quality education for everyone, human potential (beyond the conventional K-12 and academic subjects of 1948), lifetime learning, and successful educational methods for belief- and doctrine-independent spiritual growth.‡

Likely, most readers will be unaware of the Compact.§ The Compact's signers were nominal leaders in denominations for which 85% of the world's population says they are adherents. And the Pope called for universal partnerships and worldwide commitment to the Compact. He invited partnerships with the world's cultural leaders, "families, communities, schools, universities, institutions, religions, governments and the entire human family."¶ However, most leading news media did not report the Compact. Aside from the Catholic-oriented news media, it was likely seen as a standard ritualized statement of institutionalized religions, with press releases filed in the "Wait and See" folder.

The Pope needs a better implementation plan.

For discussion purposes, I will organize this paper into five parts:

1. Recommendation and Overview;
2. Technology and Financing;
3. Current Curriculum;
4. Belief in Independent Spiritual Growth (i.e., the Pope's To Do List for new educational methods);
5. Looking Ahead.

1. Recommendation and Overview

Pope Francis should request that each of the world's Catholic educational institutions create, within a year, Global Education Centers to fulfill the Compact.

Each Center will be open in the evenings, creating a warm and welcoming space for students and the surrounding community to have free Internet broadband, meet with peers, technical advisers, and educators, and access the world's digital resources for education. The mission of the Centers and their Directors will be to set local priorities, organize partners and

* The invitation for a dialogue to develop the Compact was issued on 12 September 2019. There are several documents leading to a relaunch and affirmation two years ago. A summary is by the Pope [<https://youtu.be/Tdau9DFtMn8>] and Robin Gomes, "Pope: Global Compact on Education Bears in Itself 'a Seed of Hope' - Vatican News," October 15, 2020, <https://www.vaticannews.va/en/pope/news/2020-10/pope-francis-global-compact-education-video-message-relaunch.html>. Current information is available through <https://www.educationglobalcompact.org/> and the Vatican's Congregation for Catholic Education.

† "Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit." United Nations, "Universal Declaration of Human Rights" (United Nations, 1948), art.

‡ <https://www.un.org/en/about-us/universal-declaration-of-human-rights>

§ A similar upgrade is part of the United Nations Development Goal 4: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." See <https://sdgs.un.org/goals/goal4>.

¶ Robin Gomes, "Pope: Global Compact on Education Bears in Itself 'a Seed of Hope' - Vatican News," *Vatican News*, October 15, 2020, <https://www.vaticannews.va/en/pope/news/202010/pope-francis-global-compact-education-video-message-relaunch.html>.

resources for local priorities outreach, and secure the benefits of the Compact now, beginning with this generation.

This catalyst can work. The Pope has a unique “On” switch. He can move globally (more quickly) than anyone else in history or the world’s governments.* Catholic education already operates a vast network of 212,000 institutions with 62 million K-12 students in 105 countries, and the system has become familiar with digital-age technology and resources.†,‡ Also, the Pope will bring 212,000 new jobs for inspired activists and give his blessing to these Directors—and then add thousands of their team members for technical and educational services and tutoring coordinators. For the right people, these activist positions can be among the most exciting, challenging, and fulfilling new jobs anywhere.

A defining priority of Center Directors and staff—and supporting Bishops and other levels of the Church hierarchy to help at national, regional, and international levels—will be to create a new context, a warm welcome message to today’s youth generation. The Compact’s testable hypothesis is that the human spirit is the missing force to accelerate progress. Thus, the Pope and the Compact’s implementers must begin to embody and engage this spirit, and their warm welcome message needs to connect emotionally. Starting now, everybody is included. Nobody is left out. Then, the human spirit may be unstoppable and more powerful than all the armies (and the world’s inertia). These framing and other details can be vital for a valid test.

The Pope should also direct the Catholic Church to leverage its purchasing power and the purchasing power of other Compact signers and allies to secure steep discounts. He and his partners can use moral credibility and this historic, future-changing investment in human potential to create the expectation that Internet and cellphone connection fees to education and health sites should be contributed as a public service or waived in low- and middle-income countries during this startup phase.§ Governments, working within the framework of the United Nations Development Goal #4 (Education), have declared an aspirational goal for sustainable development to connect all schools worldwide to the Internet by 2030. However, too many SDG cost estimates and draft budgets assume that everybody will pay retail prices.¶ The Pope can do better. [Also, the Pope, as an actor outside governmental systems, could nudge an organizing process to foster competitive bids from one or several leading global supply chain entrepreneurs (e.g., Walmart, Alibaba, Amazon, etc.) to serve as purchasing cooperative agents for educational and all other resources needed for all SDG goals.

* Even before the COVID-19 pandemic the world’s rate of progress toward Universal Declaration of Human Rights goals was losing ground. Economic recessions and increased debt burdens add to pressures on governments as well as increasing the risk of political instability. A strategic overview

† Quenton Wodon, *Global Catholic Education Report, 2023* (Washington D.C., 2022). Also online: https://www.globalcatholiceducation.org/files/ugd/b9597a_b54239f33dec48ddb4f2d735d1_0cba7c.pdf. Zoom tutoring, distance learning, blended classrooms, Google Classrooms, Microsoft Teams for Education, and other upgrade options for a global system are familiar options with experienced teachers who can teach others.

‡ For this paper I leave aside the potential roles of the 1,800 Catholic higher-education institutions worldwide and Pontifical Universities that enroll about 6 million students. In the United States, for example, these include Georgetown University and Notre Dame. Another dimension are capacities for pre-med, nursing, medical, public health, and other health-related educational opportunities: numbers vary by definitions, but there are about 5,000 Catholic hospitals worldwide, and about

§ Carlos Slim’s mobile networks in Latin America pioneered such discounts to support distance learning.

¶ <https://www.itu.int/en/mediacentre/backgrounders/Pages/digital-inclusion-of-all.aspx> Darrell West, “Six Ways to Improve Global Supply Chains,” Brookings.edu, July 12, 2022, <https://www.brookings.edu/articles/six-ways-to-improve-global-supply-chains/>. A spiritually guided global purchasing system also gains power to improve workers’ health benefits and safety in supplying countries and other benefits.

The World Bank, UN agencies, NGOs, UDC companies, and governments can benefit from the new humanitarian stance that the world's low- and middle-income countries deserve this one-time SDG investment process to engage and support their human potential without paying retail prices. Purchasing cooperatives are acceptable across the political system.]

Catholic and human spirit organizations can guard against corruption and ensure that philanthropic or corporate donations will be used well with accountability and performance metrics. It can build a global rapid learning network to create new curricula and methods, including such applications of AI as Khan Academy's new Khanmigo personal tutor.*

About Tutors: As Center staff plan local needs and outreach priorities, they will also help identify the possibility of organizing tutors and the human connections vital for motivation and quality learning. The Compact's fundamental global investment to honor human potential is like the community's commitment to build Medieval European cathedrals. Many people contributed even small parts across many centuries to a magnificent collective achievement. Assuming (conceptually) that a global startup package might add Zoom tutoring to Khan Academy translated videos for K-12 subjects, the Compact movement can find tutors from billions of people who have mastered 12 subjects, alums of Catholic education, and often, as parents, helped school age children with homework.†

The Pope also can assure resources for high-priority populations, including the 260 million K-12 students who do not attend school and disabled students. New technologies that increase participation by female students in male-dominated classes in some cultures can also be available routinely.‡

Selecting technologies and planning full global rollouts can require thoughtful analysis of local circumstances. A caution, underscored by the World Bank's Edtech Readiness Index work, arises from new and candid measurement systems showing deeper problems of performance to be analyzed and solved in UDCs. New World Bank and UNESCO assessments suggest that 53% of all children in low- and middle-income countries cannot read an age-appropriate text with comprehension by age 10.§ The right technology could make a critical difference, or the investments could be unused. Technology may not be the priority—or it could be the most urgent need, or the urgent investment should be in UDC teacher education. Without good diagnosis by experienced educators, the world does not yet know, in these cases, the urgent priority investments needed to get better educational results for today's youth generation.

* Natasha Singer, "Not Just Math Quizzes: Khan Academy's Tutoring Bot Offers Playful Features," *The New York Times*, June 8, 2023, sec. Business, <https://www.nytimes.com/2023/06/08/business/khanmigo-tutor-chat.html>.

† Older students, recent graduates, and retirees who want to make extended commitments and participate in workshops also might receive honoraria or be asked to pay back the Compact system as a volunteer tutor.

‡ The challenge of the 260 million K-12 students needs refined diagnosis and selection of technologies. There are problems of civil strife and scarce resources, governments and cultures that do not care about the education of women or different minorities, language barriers. The World Bank has a useful rapid-learning staff and blog to support EdTech choices, including options for low resource environments. See: <https://blogs.worldbank.org/edutech>. Their rapid-learning strategies include feedback systems for student advice. See: Andrew Jack, "Students Call for Better Pandemic Teaching Methods and Learning Materials," *Financial Times*, June 21, 2022, sec. FT Schools, <https://www.ft.com/content/882970a5-cc53-4ff1-9678-503ee0559238>. The participation technology invites all students in a class or seminar to type comments on keyboards. These are displayed anonymously for everyone to read before a discussion begins. The startup postings also may contribute to an early cross-fertilization process that make class discussions more productive and fun to look forward to.

§ <https://blogs.worldbank.org/developmenttalk/will-every-child-be-able-read-2030>. These data are suggestive. However the sources refer to "simulations" an more refined methods will be needed to determine local diagnoses and investment priorities.

Center Directors also will have more boundary-crossing flexibility than governments. A key role will be to consult and develop partnerships and divisions of labor to secure the benefits of the Compact quickly. For example, Center Directors might be catalysts to have the first year of college available to everyone in their communities as soon as the fall of 2024. If local communities and school systems are interested, students can use their former secondary school buildings in the evenings. Center Directors can also engage the new Google AI Translate capability to translate from 133 languages to local languages, and they can probably find tutors for first-year college subjects who will help to get courses underway and Catholic educators who can give tutoring workshops to new graduates who want to contribute. If local communities are interested, the Pope should be able to deliver an add-on first year of college education for the world beginning in the fall of 2024. The pioneering year is likely to be ragged, with many problems to be solved, and perhaps chaotic, experimental, and a great deal of fun.

2. Technology and Financing

At this point, a reader might ask: “How much is this going to cost?” and “How will the financing be organized?” Many variables are changing and will be affected by the Pope’s firmness with the capitalist system. The essential point for this strategy paper is: “The Compact’s vision is affordable.” And, given the cornucopia and extraordinary quality of the curriculum resources that are available online, it is almost criminal not to provide these to every human being now to help them realize their potential. The Pope’s leadership creates new equations: cost-free Internet and mobile connections to educational and health-related Websites; steep discounts; vehicles for high-visibility and high-impact philanthropy; a human-oriented network with the credibility to guard against corruption in UDCs and assure prudent stewardship of resources; a unique connection to potential volunteers who can contribute to Zoom tutoring as a startup investment for today’s youth generation in UDCs to realize their generation’s potential for economic growth.

Costs also need to be estimated with sophisticated diagnoses of investments required. For example, there are different diagnoses and solutions for subsets of the approximately 260 million K-12-age students who are not in school. Causes include war and civil unrest, cultural values that limit women’s education, insufficient resources to hire capable teachers, cultures favoring early marriage of young girls, national bureaucracies without the resources and expertise to select among new technologies, etc.*

The World Bank’s assessment suggests refined options for low-resource environments. For example, early technology Kindles (or new Kindle Global Education—Student Editions) can be commissioned inexpensively and supply each family and student with a year’s worth of textbooks and other instructional materials in local languages. The local language textbooks are an excellent entry-level investment. In the 17th century, in Colonial New England, teachers with textbooks produced good results (including knowledge of Greek and Latin) in one-room schools, readily using older students to help tutor younger students. It is a

* Jaime Saavedra and Halil Dundar, *Learning Recovery to Acceleration: A Global Update on Country Efforts to Improve Learning and Reduce Inequalities* (Washington D.C: World Bank, 2023). See also: <https://theirworld.org/>

minimum, entry-level investment but can be affordable at a steep discount to each family or even, with financial aid, as a gift for lifelong learning. In a world education system evolving in the spirit of the Pope's catalyst, an entry-level Kindle could be a gift, in the human spirit, to each family when their first child is born. For companies like Amazon, designing an entry-level Kindle-Special Edition for UDC families might also be attractive for corporate or personal philanthropy. A world of literate families hooked on books will be a burgeoning future for purchases from the Kindle Website and sales of many new generations of Kindles. Generosity on this scale, for this global upgrade and human potential, would deserve mention in the history books.

"Recently, the world's online education resources have become superb. It is almost criminal not to make them available to everyone."

All prices will be negotiable. However, for example, refurbished early Kindles were available on the Amazon Website in India for about \$25 in 2021.

The World Bank analysis for low-resource environments also notes the swift penetration of UDC markets by mobile devices with educational capabilities. There are billions of mobile devices in the Third World. The International Telecommunications Union (ITU) estimates about 60% market penetration for mobile devices in the world's less developed countries, a usage that has risen sharply from 40% in 2016.*

Moving slightly above this entry level for the new global education system, I attach an estimate by ChatGPT that older model (but Zoom- and tutor-capable) smartphones can be manufactured or refurbished and available for \$30 in UDCs (although the cost may be lower now). Most UDC families have at least one shareable mobile device. Moving upward from a Kindle entry-level device to an early generation Kindle Fire 7 shows a retail refurbished price of \$40 in America (although these may not be available in the quantity required).

For tutors: Potential volunteer tutors are everywhere. Billions of people have mastered K-12 subjects, and many, as parents, will have read stories to children or helped with homework. For tutors, the evolving global education system might provide honoraria of a Kindle Fire equipped with Zoom, Google Classroom, and a lifetime membership in the World Public Library system (discussed later).

3. Curriculum Resources

Recently, the world's online education resources have become superb. It is almost criminal not to make them available to everyone. The Khan Academy modules are free for K-12 subjects (and beyond). Partnerships with learners include partnerships with teachers and translations into several major languages.

* <https://www.itu.int/itu-d/reports/statistics/2022/11/24/f22-mobile-phone-ownership/>

The online resources for a new Renaissance should sell the Pope's vision to everyone. Readers who have not visited leading Websites recently might want to consult several of the more prominent, high-quality organizers – e.g., Khan Academy;

Coursera collaborates with 300+ leading universities and corporations and offers 5,000+ courses; edX (now <https://2you.com>) also provides thousands of courses and new Bootcamps (e.g., for aspiring healthcare professionals), many for free and others with testing and certification fees or charges for student projects.

At this new level of educational opportunity, many have more than a million regular enrollees online, built only with word-of-mouth advertising. Center staff also might add their own “staff recommendation” lists. Barbara Oakley's Learning How to Learn on Coursera has 3.5 million enrollees worldwide. Nobelist Robert Shiller's Financial Markets has 1.6 million, and Laurie Santos has a word-of-mouth global enrollment of 4.5 million for The Science of Well-Being. One of the most popular courses at Harvard and almost in the upper tier—and an unmet global need—is Michael Sandel's Justice, with about 550,000 enrollees (new features include the availability of German, Chinese, Spanish, Portuguese, and English video transcripts). Also, Harvard now contributes to an emerging global Divinity School vision, with its X Series Program of seven courses in World Religions Through Their Scriptures with leading-edge perspectives on interpreting sacred texts. Hopefully, it is the beginning of a global Divinity School that the world needs. Beyond these offerings, each Center's staff might want to list their discoveries on their website: It is difficult to imagine a better literature teacher than a YouTube offering like Hardcore Literature Book Club.¹⁸

Translation capabilities, now boosted by Google Translate and AI, can change resources into any language with the technical guidance that Center staff can provide. One of the great strengths of Catholic education has been its deep experience in developing teaching materials in local languages and cultures. Now, a total of 133+ widespread and local languages. Video dubbing is available online in more than a dozen major languages. (I attach a further discussion from ChatGPT-4's AI resource).*

Catholic nursing education and hospitals can develop mini-certification resources and upgrade a nation's public health system with First-Aid or medic-level training for outreach clinics or disaster workers. Health programming, rather than seeking mass audiences, can recognize a flow of new patients with unmet basic needs each year: mini-courses for mothers who are pregnant for the first time or with a newborn infant. The Compact Centers can stimulate creative thinking: Instructional videos for patients who are newly diagnosed with chronic diseases or care-givers to help bed-ridden or wheelchair patients transfer safely or show how to repair wheelchairs.†

* “The time, accuracy, and cost of using Google Translate or a similar program to translate a 350-page English language textbook into another language can vary based on several factors. Let's break these down:

† Time:

· Immediate Translation: If you were to copy and paste content from the textbook into Google Translate, the actual translation would be nearly instantaneous for smaller sections. However, there's a character limit per translation request, so you'd need to break down the content into smaller chunks and paste them individually. If you're doing this manually, the time it would take largely depends on how fast you can copy and paste.

· API Usage: Google Cloud Translation and other services offer APIs where you can programmatically send content for translation. Using this method, you could theoretically automate the translation of the entire book more quickly, but you'd still be limited by API rate limits and quotas. Depending on these constraints, translating a 350-page textbook might take anywhere from a few minutes to several hours.

The Google Translate API service charges about \$20 per million characters. As needed, the Catholic Church can negotiate Creative Commons copyrights and rights for individual users for educational and research purposes.

There are many areas for further curriculum development. UDC priorities require a solid pre-med curriculum. Medic-level training by military forces can assist public health clinics and disaster relief and pandemic relief capabilities. UDCs need clinics, doctors, nurses, public health workers, and specialists; a strong pipeline needs construction. A more complete Agricultural School curriculum can open extraordinary doors for sustainable agriculture progress. A World Divinity School is overdue, partly because the human spirit that figures in the Pope's more educated perspective is linked, for much of humankind, with tribal, authoritarian, and conformist psychologies that should be part of spiritual education. The historical record is that God issued the Ten Commandments, not a Universal Declaration of Human Rights, and the evolution of spiritual truth from authoritarian and punishing deities to the Pope's new Compact enlightenment still needs explaining. Political admixtures with these tribal and authoritarian expressions still fuel wars and terrorism and it may be wise to engage. Institutionalized religions that span these forms have work to do for the Compact's truths to be a fully inclusive vehicle. Environmental education needs improvement: the data systems that show most students the forces shaping their future are not yet available in most public schools. Creative and performing arts diminish in education after Kindergarten—possibly they should not. Civil engineering architecture, materials scientists, and construction skills are urgently needed to create affordable and attractive housing in urban areas without the spiritual death designed for public housing in earlier decades. The design of the ideal curriculum for human flourishing remains on the To-Do List.

*"The design
of the ideal
curriculum for
human flourishing
remains on the
To-Do List."*

4. Belief-Independent Spiritual Growth

The greatest challenge of the Compact is the transformational vision for a second educational track, belief-independent spiritual growth. The new trans-denomination curriculum is not about God but common humanity, the human spirit, and relationships with nature and God's creations. Older, more divisive doctrines and beliefs are part of the historical education process. They were mistaken justifications for human divisiveness and harm to one another.

A distinction between the existing, institutionalized Catholic education and the new, Compact-inspired and Compact-organized global education system is fundamental. Catholic education has been belief-linked, and the Pope is already under fire for his more enlightened views that the Christian message might put God, the crucified Christ, and the Virgin Mary to the side and substitute the "human spirit" for the "Holy Spirit." Catholic schools remain open, available, and can thrive.

The Pope does not deny God's existence, the crucified Christ, or the Virgin Mary. However, they are not the compelling message for an upgraded education at a new level

that awakens and brings their spirit to a needful and injured world. The engaged human spirit (without requiring the label Holy Spirit) can change everything, including the level of maturity of governments.

Specifically, however, Catholic education and theologians want to teach about the Old Testament God who unleashed Joshua, and the genocides described in the Book of Joshua's conquest narrative will be institutionally separate from a Compact-inspired curriculum. Likewise, teaching about the Crusades. Or about burning heretics at the stake.

The Pope's second-tier spirit guidance is: "If in the past our differences set us at odds, nowadays we see in them the richness of different ways of coming to God and of educating young people for peaceful coexistence in mutual respect. For this reason, education commits us never to use God's name to justify violence and hatred toward other religious traditions, to condemn all forms of fanaticism and fundamentalism, and to defend the right of each individual to choose and act in accordance with his or her conscience. . . . If in the past, also in the name of religion, discrimination was practiced against ethnic, cultural, political, and other minorities today we want to be defenders of the identity and dignity of every individual and to teach young people to accept everybody without discrimination." *

The Pope's criticism, expressed with spiritual pain and urgency, is that two millennia of conventional religious education across all denominations have not yet produced governments with the mature leadership to keep the planet from environmental catastrophe. The same is true of the world's secular education. The Pope, at least, is willing to talk about the problem, and he has a solution that could work well and quickly.

The Vatican's publications still do not explain how to create a second-tier curriculum. Good people with good values teaching conventional courses on behalf of good outcomes are just the beginning. However, these can reflect a conceptual vagueness in the Universal Declaration of Human Rights.[†] It, too, sometimes crossed the line to confuse education with indoctrination and marching orders for the good intentions of the framers. However, the Church also has adherents who recognize what the human spirit can do and know they can do much better.

The Pope's new education methods must eschew indoctrination and be belief-independent, a term that needs explaining.[‡] In this section, I use touchstone observations that suggest confirming evidence for the Pope's hypothesis and clues to the new universe of educational methods. I use touchstones because, otherwise, a discussion starts to sound like mysticism (perhaps appropriately so, as spiritual Enlightenment probably is a post-linguistic way of Being).

* Pope Francis, "Address of His Holiness Pope Francis to the Participants in the Meeting: "Religions and Education: Towards a Global Compact on Education" (Descartero per la Comunicazione, October 5, 2021). <https://www.vatican.va/content/francesco/en/speeches/2021/october/documents/20211005pattroeducativo-globale.html#:~:text=Today%20we%20want%20to%20state,we%20are%20feeling%20and%20doing>

† "Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace." United Nations, "Universal Declaration of Human Rights" (United Nations, 1948), art. 26:2, <https://www.un.org/en/about-us/universal-declaration-of-human-rights>."

‡ To some Christian theologians, this pre-Christian touchstone also captured a more universal religious truth. It can be seen simply by substituting God and God's love for the light of the Sun. 26 Martin Heidegger, *The Essence of Truth: On Plato's Cave Allegory and Theaetetus*, trans. Ted Sadler (New York: Athlone Pr, 2002); Martin Heidegger, *What Is Called Thinking?*, Reprint edition (New York: Harper Perennial, 1976).

4.1. Four Touchstones

4.1.1. Ancient philosophy contributes several observations of spiritual growth and similar educational methods across different traditions. Plato's allegory of human beings who have lived in a cave and their ascent to the light of the Sun is a widely honored touchstone. (The allegory develops in Plato's *Republic*, book VII, 514a – 521d, in a dialogue between Socrates and Plato's older brother, Glaucon.) The physical story is a model of the awakening of the soul in the process of Enlightenment. Plato's Academy taught the standard school subjects by traditional methods in the early years of schooling, then invented and used a specialized teaching method as midwifery of the soul. The teaching method, beginning with the rigorous analytic process of Socratic dialogues, seems to imply an analytical theory of truth. Yet, the process also has a logic that moves in a different realm toward a powerful unconcealment theory of truth (i.e., Enlightenment).²⁶ (This spiritual Enlightenment, once attained, was widely assessed as irreversible. As signers of the Compact have in mind, it is the much-needed educational result to realize the potential for humankind's wise (Guardian) leaders and governments.)^{*} † A range of later Christian thinkers came to honor Plato, Socrates, and Aristotle as kindred spirits: A simple substitution of God and for the Sun showed, in their view, a pre-Christian language for the same discovery.

4.1.2. Groundhog Day (a movie) is a second touchstone that allows viewers to observe a process of spiritual growth from a Buddhist perspective that, unaided, might require (although the words might be said with a twinkle in the eye) 10,000 cycles or lifetimes of death and rebirth. Since many spiritual teachers seem to agree that the process is valid, their agreement about stages can be a form of measurement and, then, the possibility of scientific research to distill active ingredients, test hypotheses, and accelerate the world's spiritual growth.[‡] As an unaided human being, Buddha may have achieved his breakthrough in 49 days of concentrated meditation (although his background included six earlier years of seeking that might or might not have contributed). In his tradition, he is honored for showing the path is open to everyone (i.e. and may not require the 10,000 lifetimes claimed by twinkle-in-the-eye gurus.) An advanced possibility is that awakening may be instantaneous and may or may not need time—i.e., this remains an open-ended research question.

By the movie's end, Phil, the main character, illustrates a saying about awakening: "Nothing has changed, but everything is different."

[As part of this new curriculum R&D, it should be possible to determine whether methods distilled from the California human potential movement shorten the "10,000 lifetimes" process. For example, a curriculum evolved across several decades and working in many cultures (www.landmarkworldwide.org) suggests that skilled coaches achieve similar results

^{*} However Aristotle and others did not see a practical way to implement this method, a challenge renewed in the Compact's To Do List for the second level of curriculum.

[†] Plato's teaching notes about the upward journey to post-conventional truth include testable hypotheses about auditory and visual effects and aroused painful emotions. Neuroscience methods may be able to test these hypotheses and refine the specialized teaching methods that might be improved.

[‡] Alex Kuczynski, "Groundhog Almighty," *The New York Times*, December 7, 2003, sec. Style, <https://www.nytimes.com/2003/12/07/style/groundhog-almighty.html>; *Groundhog Day* (Columbia Pictures, 1993); Ryan Gilbey, *Groundhog Day*, 2004th edition (London: British Film Institute, 2005); James Parker, "Reliving Groundhog Day," *The Atlantic*, March 2013, <https://www.theatlantic.com/magazine/archive/2013/03/reliving-groundhog-day/309223/>.

with different linguistic packaging ranging from Zen-Buddhism to Heidegger and modern neuroscience in a few days.]

4.1.3. Pattern Interrupts A third example of touchstones for curriculum development derives from comparative studies of religions that show, across centuries, similar belief-independent spiritual exercises. For example, “pattern interrupts” distinguish an emerging spiritual Being from attachments to conventional identity. If you are attached to making money, you get the vow of poverty. If you are attached to using your analytic mind, you get “What is the sound of one hand clapping?” If you are drawn to hedonism, you take the vow of chastity and refrain from alcohol. If you are social, verbal, and quickly bored, you get to sit quietly and follow your breathing. If you are preoccupied and engaged in secular life, you must disconnect and prioritize the Sabbath. Or, during the day, interrupt secular activities for higher-priority spiritual activities such as prayer.

Gifted teachers deploy these practices as “skillful means,” rafts to cross the river.

Hadot’s scholarship gives further historical examples of spiritual exercises in ancient philosophy (that also are mental health and therapeutic exercises.) These exercises were adapted in Christianity by monastic orders and other traditions—for example, by Saint Ignatius.*

Wilber’s integrated theory of comparative religion adds to the evidence that almost all religious denominations have identical psychological stages (e.g., tribal identity or authoritarian structure), and similar evolution sequences occur across denominations. Thus, he also hypothesizes that belief-dependent spiritual growth happens in steps that, perhaps, can be accelerated without invalidating earlier stages.†

4.1.4. Meditation (and related methods like breathing exercises)‡ is a pattern-interrupt method. However, I give it a separate entry because it includes refined and advanced practices that can spark further ideas for second-tier curricula. A universe of Apps (e.g., Headspace and Calm) is available to support these spiritual exercises and open paths beyond the stress reduction supported strongly by medical evidence.§

Beyond these four touchstones, I turn to evidence of new methods for belief-independent spiritual growth that can inform a cornucopia of second-tier methods.

4.2. Evidence for Belief-Independent Spiritual Growth: New Methods

4.2.1. Kindergarten and Infant Development

The Kindergarten movement may have proven Pope Francis is brilliantly correct about

* Pierre Hadot, *Philosophy as a Way of Life: Spiritual Exercises from Socrates to Foucault*, trans. Michael Chase (London: Blackwell, 1995); Pierre Hadot and Michael Chase, *What Is Ancient Philosophy?*, New Ed edition (Cambridge, Mass; London: Belknap Press, 2004); Matthew Sharpe, “Pierre Hadot (19222010),” in *Internet Encyclopedia of Philosophy*, ed. James Fieser and Bradley Dowden, March 13, 2022, <https://iep.utm.edu/hadot/>; Pierre Hadot, *The Present Alone Is Our Happiness*, Second Edition: Conversations with Jeannie Carlier and Arnold I. Davidson, trans. Marc Djaballah and Michael Chase, 2nd edition (Stanford, Calif: Stanford University Press, 2011).

† Ken Wilber, *The Fourth Turning: Imagining the Evolution of an Integral Buddhism* (Shambhala, 2014).

‡ Andrew Weil MD, *Breathing: The Master Key to Self Healing*, Unabridged edition (Sounds True, 1999).

§ References to the medical literature are available through the National Center for Complementary and Integrative Health: Meditation and Mindfulness: What You Need To Know | NCCIH (nih.gov).

the possibility of world-reforming educational reforms for the human spirit. Although the public-school bureaucracies of the world were partly successful with a wall of containment at the existing first-grade line, Kindergarten has become a global phenomenon. Its creator, Froebel, explicitly drew from Christian insight to recognize each child's spark as a spiritual being and the creative power of this spirit for education that, often with joy, realizes the child's potential. In the 19th century, Froebel created this enlightened framework in a culture dominated by Prussian thinking about human nature. Children were uncivilized and undisciplined. Educational institutions expected them to be uninterested in what they were required to learn. They properly sat at fixed desks, facing forward, and were drilled in tasks with grades certifying them for lifetime employment and reasonable reliability for performing work for which they had no inherent interest in institutions that did not inherently care about them.*

Froebel's Christianity gave parents a different message: "Your children upon whom you early impress form and vocation against their nature and who therefore wander around you in languor and unnaturalness might also become beautiful, self-unfolding, and all-sided self-developing beings.† He created a welcoming and warm program built in the spirit of a garden for raising children and emphasizing play.‡ His schools were coeducational because both men and women were God's creations. His spirit of freedom and play (and discovery through play) used specific methods and applied rigorous logic and observations. Although he never could quite explain how he saw the connections, he produced a series of gifts for engaging the spirit and introducing children to the world as God's creation: for example, a carefully selected set of diverse blocks for building and motor skills and play as an engagement with nature's forms, or clay for molding objects or activities in nature.‡ It may not yet be clear why color and fingerpainting engage the human spirit in a child. However, the response of children observed by parents worldwide has quickly produced universal Kindergarten in many countries. Large muscle equipment in outdoor playgrounds, simple musical instruments, read-aloud and story-telling time with gifted selections of material, nature walks, and activities (including, sometimes, caring for a class hamster and talking about what hamsters need) are an early expression of a Christian enlightened belief-independent growth process in the background of the new To Do list for the world's second tier of education and extension to a natural spirit that upgrades governments.

Froebel saw Kindergarten as a child's first experience outside the home, working and playing with peers who were God's creation. In these years, teachers would introduce a core set of values that could be readily understood and accepted: working together, taking turns, fairness, "please" and "thank you," enthusiastically helping a teacher clean a blackboard and clean up the classroom after an activity. The Golden Rule might be an advanced level of human moral development (e.g., via Kant's categorical imperative). Still, rather than centuries of sermonizing at adults to limited political benefit, the insight could awaken earlier if introduced at the kindergarten level in an environment where everyone came quickly

* Norman Brosterman, *Inventing Kindergarten*, 1st edition (New York, N.Y.: Harry N. Abrams, 1997).

† Friedrich Froebel and Josephine Jarvis, *The Education of Man* (Legare Street Press, 2022), 8.

‡ Kate Douglas Wiggin, *Froebel's Gifts* (Legare Street Press, 2022).

to grasp and experience the benefits of living in systems fulfilling this principle from the beginning.

The kindergarten movement remains one of the extraordinary Christianity assisted breakthroughs for a new education that naturally nourishes the human spirit and potential. It is a firm counterweight to Prussian mindset planners who want the world's students taught employable skills. By contrast, American public schools have so-called "extra-curricular" activities that allow almost every student to become engaged in activities for which a student has a talent and can make a contribution, are fun and have a strong work ethic (often, practice in competitive sports that exceeds the motivation that classroom teachers could instill by discipline). Typically, they are social activities involving cooperation skills, organized complexity, and pride in standards of excellence (e.g., a high school musical). Yes, standardized tests are worthwhile measures of education. However, the Pope is right: the bureaucratic and Prussian mindsets should never win.

Evidence for spiritual growth and multi-sensory joyful engagement with God's creations extends backward from Froebel. It points to universal preschool benefits and infant development from birth to age four, with new brain connections creating inner-world and out-world capacities for engagement and learning. Halvorson reports evidence that, unless adults read to a child frequently before age 4, later school-age and lifetime achievements diminish. A baseline of caring for infants and letting children play independently can be improved upon by a world of being read to or reading-readiness beginnings, singing, dancing, talking to young children, and playing with genuine educational games. Every family in underdeveloped countries should have a Kindle for global education equipped with basic graphics and audio and pre-stocked by Catholic kindergarten teachers and parents with a cornucopia of the world's 1,000 best books (translated by Google Translate into local languages) for reading to young children. With the Pope's leadership and creative thinking by 212,000 Center Directors, every child in the world, beginning now, should have a similar legacy cornucopia (including Dr. Seuss!) available to them through their parents. The new senior adviser to the Pope and working groups at 212,000 leading-edge sites for global track one and track two innovations should be George Halvorson and the neuroscience insights for humankind's future for the age 0-4 curriculum.*

The potential of AI research for second-tier methods may be extraordinary. What can ChatGPT discover if trained by a treasure trove of billions of kindergarten finger paintings? We do not know how superb coaches work—is it partly the sound of Sal Khan's voice on Khan Academy? How do kindergarten teachers serve as the best coaches, see emergent properties in fingerpainting, and know what to say?†

4.2.2. Biophilia Environmental Designs

Evidence for E. O. Wilson's biophilia hypothesis suggests another set of spiritual growth

* George C. Halvorson, *Three Key Years: Talk - Read - Play - Sing to Support & Help Every Child in America* (Sausalito, California: Institute for Intergroup Understanding, 2015).

† See also: Viktor Lowenfeld and W. Lambert Brittain, *Creative and Mental Growth*, 8th edition (New York : London: Prentice Hall, 1987); Rhoda Kellogg, *Analyzing Children's Art*, Reprint ed. edition (Echo Point Books & Media, 2015); Elliot W. Eisner, Nel Noddings, and P. Bruce Uhrmacher, *The Enlightened Eye: Qualitative Inquiry and the Enhancement of Educational Practice*, Reissued with a New Prologue and Foreword, 1st edition (Teachers College Press, 2017).

insights and potential second-tier educational applications of biophilic changes in reality. Wilson hypothesized that human beings are drawn to elements of nature as a natural home: more natural light, greenery, flowing water, open vistas, secluded and protected areas, variety and mystery, the variabilities of the breeze, birds, an end to right-angle architecture, etc. A growing body of suggestive research identifies stress reduction, better subjective quality of life, and human gathering spots for sociability and interactions.^{*} Also, there are rich traditions of Zen gardens, Islamic gardens (including Paradise gardens), Christian maze gardens, and other sources for research, experimentation, and discovery.

By contrast, as the Pope might agree, capitalism manipulated most of humanity to crowded concrete jungles with poor ventilation, “modern” architecture of right angles, steel, and concrete, no greenery and open spaces, no protected places for calm and recovery, etc. It is time to reverse the trend towards huge urban megacities that are the current fate of the human spirit and a politics that no longer serves the human spirit.

History suggests that biophilic designs might also upgrade governments. The Progressive Era in America grew as a political movement that was part of a package of urban parks for families and healthy recreation, building codes enforcing requirements for windows and natural light, the early environment movement (and Kindergarten), etc. Suppose the biophilia hypothesis diagnoses the modern world. In this case, the spiritual health of much of humankind has been moving in the wrong direction with crowded megacities, slums and concrete jungles, buildings crafted as rectangles with unnatural concrete and steel (etc.). An engaged human spirit probably cannot eliminate unhealthy slums overnight. Still, it could shift human habitats—and then politics—at the margin toward small green areas in slums, delivering a truckload of enriched soil and seedlings or garden plots with raised beds.

4.2.3. Brief Observation & Thinking Exercises

A third type of evidence for new methods of spiritual education comes from brief thinking exercises and observations.

4.2.3.1. What worked well yesterday?

Rather than remain at the level of bold generalities like “An unexamined life is not worth living,” a new method for spiritual growth and daily life uses simple exercises. For example, in the field of positive psychology, students keep a private journal. At the beginning of each day, the assignment is to write three answers to the question: “What went well yesterday?” and then, for each, a brief explanation: “Why do you say this?” The results were remarkable: After keeping such a journal for a week, students felt better about their lives and were less depressed six months later.[†] People became happier and more centered and recorded that what they spent their time on gave them greater satisfaction in their lives and relationships.⁴²

^{*} William Browning, Catherine Ryan, and Joseph Clancy, “14 Patterns of Biophilic Design: Improving Health and Well-Being in the Built Environment” (New York: Terrapin Bright Green, 2014), <https://www.terrapinbrightgreen.com/report/14-patterns/>.

[†] Martin E. P. Seligman et al., “Positive Psychology Progress: Empirical Validation of Interventions,” *American Psychologist* 60, no. 5 (2005): 410–21, <https://doi.org/10.1037/0003-066X.60.5.410>. 42 For Nietzsche’s recommendation of a similar spiritual exercise see the discussion of his “Schopenhauer as Educator” in Babette Babich, “‘Who Do You Think You Are?’ On Nietzsche’s Schopenhauer, Illich’s *Hugh of St. Victor*, and Kleist’s *Kant*,” *Journal for the Philosophical Study of Education*, no. 2 (2014): 2.

4.2.3.2. Focused Awareness: New Types of Prayer

A second example of new discoveries about brief exercises for spiritual growth concerns the experience and effects of different methods of prayer. Likely, many religious traditions do not have refined prayer and spiritual growth education. However, the 1970s creation of Centering Prayer by three Trappist monks (Thomas Keating, William Meninger, and Basil Pennington) builds on earlier traditions by creating silence and a (mostly) language-independent inner experience.* A critic might object that Centering Prayer crosses the line, as the invoked presence of God as an invisible (yet real) spiritual Being adds a traditional marker of suggestion, socialization, and indoctrination rather than a completely independent education.† Still, the essence of the new method may be to foster spiritual growth: an active influence is Buddhist meditation informed by the friendship of Thomas Merton and Thich Nhat Hanh. Critics of Centering Prayer also cite the caution of Pope Benedict: he maintained that the gifts of this form of contemplative prayer are Christian and from the Holy Spirit.

[However, it is unclear whether the Holy Spirit only grants gifts if one believes in the Holy Spirit.]‡ Another line of investigation for the brief encounter and self-reflection universe of new methods might adapt a YouTube video by a priest (e.g., “Most Common Problems I See in Confession (and How to Fix!)”). This Francis can perspective responds to the baseline observation that many Catholics confess sins they do not need to discuss explicitly. This perspective is, in effect, the Franciscan monk’s whistleblowing assessment of Catholic spiritual education. He suggests that priests have discovered under-used methods to conduct tutorials for spiritual growth—i.e., in confessionals and perhaps in the wider educational world of the Pope’s invitation/marching orders for a powerful and effective second-tier education.

4.2.3.3. Focused Awareness – Unjustified Suffering

A third example of a focused awareness exercise for belief-independent spiritual growth comes from the sociologist Max Weber, who sought insight for professional politicians who had to make compacts with the devil and evil at the risk of their souls and the welfare of human beings who needed to trust them. Weber distinguished between the ethics of means and the ethics of ends. The ethics of means was a choice to be a saint—and, in the emerging politics of the 20th century, to be crucified. Observing European wars that required violence against predators, Weber sought an enlightened alternative to the opposite, the so-called ethic of ends, which typically meant a Realpolitik brutality mindset. He recommended the construction of a new professional identity for politicians that would allow violent or evil methods when necessary for an ethical objective while preserving their soul and human spirit more broadly. However, a professional politician could achieve such grace only by observing the world and recognizing the ubiquity of unjustified human suffering—i.e., perhaps in brief daily journal exercises (?). Only when such recognition of human tragedy touches his spirit can a leader achieve the Enlightenment to be politically wise.§

* See the “Centering Prayer” entry in Wikipedia.

† See Luhmann’s respectful inventory: T. M. Luhmann, *How God Becomes Real: Kindling the Presence of Invisible Others* (Princeton, New Jersey: Princeton University Press, 2020).

‡ See also Jung’s view, inscribed above the entrance to his house in Kusnacht: “Vocatus atque non vocatus, Deus aderit.” – i.e., “Bidden or not bidden God is present.”

§ Max Weber, “The Profession and Vocation of Politics [Politics as a Profession],” in Weber: *Political Writings*, ed. Peter Lassman and Ronald Speirs (New York: Cambridge University Press, 1994), 309–69; William F. Muir, *Police: Streetcorner Politicians* (Chicago, IL: University of Chicago Press, 1979).

5. Looking Ahead

The potential of the Compact initiative and the world's educational system can evolve in different dimensions at different speeds in different areas. And perhaps more quickly than any earlier world leader could imagine. This section highlights three issues for discussion: 1.) Increasing Power and Impact; 2.) Research-Informed Strategy and Rapid Learning; 3.) The Home Page and Director's Visions.

5.1. Power and Impact

The Pope and Directors can increase the power and impact of the movement by having advisory councils, including other denominations signing the Compact. Nominally, the families of 85% of the adults and children in the world identify themselves as affiliated with one of these denominations. [There are 1.4 billion Catholics (and 2.2 billion Christians), 30% of the world's population, 1.6 billion Muslims, 1 billion Hindus, about 500 million Buddhists, and 14 million Jews]. Compact signers can be part of Advisory Councils organized at the Pope's level and by Center Directors in each country. Once all Catholic educational institutions offer their communities free Internet connections in the evenings, the human spirit might move each synagogue, temple, mosque, or other site to implement the Compact. And add benefits to their constituencies and communities of steeply discounted connection technology for lifetime learning and a free first year of college. Another benefit can be the steeply discounted prices for new technology available to billions of denominational members worldwide, including for lifelong learning. (I will return to this discussion.)

5.2. Rapid Learning: Research for Strategic Priorities

New research can refine strategic priorities for maximum impact. For example, there may be two critical developmental stages that a global educational system needs to get right. The 0-4, preschool, and Kindergarten years (discussed earlier) are one target where investments for success pay dividends for later school years and life. A second developmental period with lifetime impact occurs when educational institutions must focus on the opportunity, triggered by hormonal changes at puberty, to build new brain circuits for abstraction, integrated complexity, and foresight. Usually, institutional failures are formally recognized much later when they invoke so-called "remedial math" requirements. A comparison of cognitive requirements for employment and navigating the modern world illustrates the problem. Elementary school arithmetic—tied to physical objects like three apples plus two apples—contrasts with the potential for abstract reasoning in algebra and thinking about x and y without caring about what x or y represents.

For example, a private in the army needs only the cognitive development to deal directly with physical objects and models—to disassemble, clean, and reassemble a gun after a step-by-step demonstration. However, a successful store manager must live a substantial part of the day referring mentally to ideal abstractions with an integrated complexity—hiring good employees, fully-staffed work shifts, restocking shelves, plans for seasonal sales, worrying about making a profit, etc.

5.3. Home Pages and Vistas for the Future

Although there will be a shared Home Page architecture (hopefully, it will be enrolling, like Amazon.com rather than an institutional Vatican bureaucracy presentation), each Center's Home Page can include a Director's Corner in its upper-right space. I suggest six click-boxes to engage users in the new Renaissance's exciting, unfolding world: 1.) News, Conferences, Plans, and Reports; 2.) LearnStorm Challenge; 3.) Inventions Wanted; 4.) Peace and Security; 5.) World Public Library; and 6.) Staff Recommendations

5.3.1. News, Conferences, Plans, and Reports [Clickbox 1]

Clickbox 1 will open a stream of news stories and announcements of relevant conferences, plans, and reports. A link to Google News can allow users to create customized searches across almost all of the world's public communications media with near-instant translation.

5.3.2. LearnStorm Challenge [Clickbox 2]

Each Center might wish to organize, beginning in the fall of 2024, partnerships with Khan Academy for its LearnStorm Challenge designs.* These engage outside sponsors and entire communities in high-visibility, high-impact, limited-time projects for investments, competition, and spirited commitments to raise performance levels in fundamental areas. Also, they can extend the unique strength of Catholic institutions to create social capital and community cohesion for good values.† The beneficiaries include all students who have slipped behind due to the COVID pandemic and students who have slowly fallen behind grade levels over several years. LearnStorm Challenge awards Badges and Raffle Awards for the highest scoring classes in several areas, including "Grit," which sends the Khan Academy's message to students that anyone can learn anything if they put in the hours for their futures. Community involvement adds a statement of societal support and freshness beyond business-as-usual schools. In Fall 2024, a Learnstorm Challenge—Mathematics can go first. Given the World Bank's performance data, the LearnStorm Challenges—Reading might be next for Fall 2025. As experience evolves, local Directors might shift to other non-academic community-level engagements in the Spring.

It would be unusual, but in the Pope's spirit, to have a LearnStorm Challenge—Singing and Dancing in the Spring of 2025, perhaps followed by the LearnStorm Challenge—Soccer [or other national sport or, simply—Athletic Skills] for the human potential boost in the Spring of 2026.

5.3.3. Inventions Wanted [Clickbox 3]

Inventions Wanted will be the global education system's portal to a new realm of graduate and professional research seminars for large-scale collaboration, learning, and rapid innovation for the world's future. By invitation, leading scientists (perhaps with support from groups of corporate sponsors) will organize a series of Tuesday lunches for interested

* <https://www.khanacademy.org/khan-for-educators/k4e-us-demo/xb78db74671c953a7:implementing-khan-with-students/xb78db74671c953a7:encouraging-student-motivation/a/national-learnstorm-challenge>

† Margaret F. Brinig and Nicole Stelle Garnett, *Lost Classroom, Lost Community: Catholic Schools' Importance in Urban America*, Illustrated edition (University of Chicago Press, 2014).

worldwide audiences for each of a priority list of wanted inventions or breakthrough experiments. A first lunch discussion might describe the inventions. Next, leading researchers can explain what they are doing, where they are stuck, and what might be promising. Then, viewers can contribute ideas to a fast, cross-fertilizing creative process. The research seminars will be for leading-edge sciences rather than for public education, although there might be tie-ins for college and high school students.

Visionary groups of scientists and for-profit representatives have already done preliminary work with an inventory of possible inventions to reduce costs by up to 40% and accelerate SDG goals.* The conventional ideas about scientific progress focus on scientific geniuses making individual breakthroughs in labs. The new possibilities of the Compact era add a new dimension of focus on fast, cross-breeding information systems and a theory of combinatorial innovations that bring together ideas or discoveries in wider networks.

Here are four examples:

1. Khan Academy Khanmigo
2. How Can I Make Money?
3. Sustainable Agriculture
4. Affordable Housing in UDCs

5.3.3.1. Khan Academy Khanmigo. Khan Academy has announced an extraordinary, open-ended project to build AI applications for personal assistants and tutors. An Inventions-Wanted oriented investment can stimulate ideas and identify basic toolkits for worldwide audiences. For example, a Benjamin Franklin tutor can be programmed with everything that Franklin thought, said, observed, and wrote—and students could learn by asking questions about whether he believed that the King of England was evil or whether it made sense to go to war about a tax on tea. It might be interesting to have a St. Augustine or St. Thomas Aquinas Khanmigo informed by research observing what students want to discuss.

5.3.3.2. How Can I Make Money? A second high-priority Inventions Wanted Challenge might be a much-needed How Can I Make Money? AI program for UDCs. The World Bank, leading business schools, and the UN Development Program can invite designs for GPT programs trained on the published knowledge of economists and the World Bank, Business Schools, venture capitalists, and the history of economic development in UDCs. Can it reconfigure this knowledge so that today's youth generations graduating in Latin America, Africa, Afghanistan, or Palestinian Refugee camps can get practical answers? Can they input GPS coordinates and see, for example, ten good money-making ideas they and their friends might organize? Especially ideas that might not occur to them. A universe of franchise models with bank financing available: does the Third World need more Starbucks, Subways, and McDonalds or new local franchises of the best foods of street vendors in its cities? Are the microenterprise finance ideas used up or available in abundance, almost anywhere?†

* <https://forcegood.org>. See also Garry Jacobs, Oppenheimer: The Untold Story on YouTube. the work of the United Nations Trust Fund for Human Security and the Human Security for All (HS4A) movement, <https://humansecurity.world>.

† To develop a Compact-inspired suggestion discussed elsewhere: In this same spirit, an Inventions Wanted discussion could pursue the Pope's agenda for a transformed capitalism aligned with human flourishing and environmental health. Once the Catholic Church organizes the market power of it-

A further challenge for an AI program might be working backward from a goal to business solutions. For example, Coca-Cola International may have created a bold solution to achieve several SDG goals that need to organize financing. Their invention adapts a standard storage container for users and for-profit, non-profit, and community investors. The side of the storage container folds down to reveal a counter for retail sales. The Center has Dean Kamen's water purification technology to deliver clean and affordable drinking water anywhere globally (resupplied with Coca-Cola's formidable delivery system for UDC rural areas). It has electric power from included photovoltaics. It is, anywhere in the world, a communication hub for mobile devices and the Internet with its own VSAT dish. Refrigeration supports vaccine supplies for public health projects. It sells Coca-Cola products and a selected number of other consumer products. During the day and evenings, it can be an education center with Internet connections for K-12 students and lifelong learning. Adding photovoltaic devices gives enough electric lighting for a community center and after-dark community sports on a new, adjacent playing field.*

Another high priority Invention Wanted might be:

5.3.3.3. Sustainable Agriculture – with numerous challenges that could enroll researchers and investors. (The Gates Foundation's vision to improve the productivity of photosynthesis might change large sections of the economy).†

5.3.3.4. An Affordable Housing series could also accelerate a universe of inventions that, in combination, could impact lives worldwide.

- Adjusting bamboo species to different climates gives fast-growing, substantial building material: some species achieve a total height of 20-30 meters in 60 days; next, it requires 3-7 years of thickening and toughening before harvest.
- A Catholic Church with a moderate plot of land could supply building materials for starter houses for its congregation.
- A small cadre trained in building trades can support volunteer community-building commitments on evenings and weekends. It can have an enhanced spirit if volunteers also earn credits toward the community by constructing a simple, good-quality starter home for themselves or a family member.
- Innovative financing can divide ownership of urban land with a Catholic land trust (giving home ownership to individuals while assuring that the land remains a resource for community housing.)

Every family should have a home that it owns—and can, as soon as there is a global system that can connect the human spirit to the potential for cooperation and problem-solving.

* The innovation appeared to be brilliant. However, Coca-Cola wanted the EKOCENTERS to make a profit, be independent, and spread to multiple sites with venture capital and local microenterprise investors. It probably remains ahead of its time as a solution to rural clean water, mobile and Internet access, and education in the most rural areas. Part of the challenge for ChatGPT, could be to work backward, perhaps with one strong and assuredly profitable part of the package. Providing refrigeration and a nation-wide resupply system might attract a brewery that suddenly could sell cold beer in the evenings in national systems including the more rural areas. And, serving also as a community Center, have refrigeration to sell ice-cold water? Coca-Cola's original idea – to use a franchise model for efficient training and design – may be a successful formula for UDCs that is not yet in World Bank databases for ChatGPT to know about. See: <https://www.designboom.com/architecture/coca-cola-ekocenter-water-purification-shippingcontainer-10-9-2013/>

† https://www.gatesagone.org/wp-content/uploads/2022/12/Release_GatesAgOne_RIPE-Portfolio-Announcement-121322.pdf

[A parallel discussion of an Experiments Wanted project is outside the scope of this paper. However, I enclose a recent assessment by ChatGPT 4.0 of 10 experiments that could yield profound breakthroughs. Other experiments to tap zero-state energy in the universe could open doors for a transformed future relatively quickly.] *

5.3.4. Peace and Security [Clickbox 4]

The potential pathways opened by Clickbox 4 deserve extended discussion beyond the scope of this paper. Given the importance of peace and security, it is puzzling that humankind does not yet have an established K-12 digital curriculum. Even cross-disciplinary college-level education requires students to take the initiative to find unique professors or discover the many relevant pieces for their path.

These are open-ended and unresolved questions, and the Pope's advocacy for a Compact-inspired global educational system is a joint critique of the inadequacy of millennia of both secular and religious education. Two World Wars of the 20th century began on the mainland of Europe in civilized countries where Mozart played in cafes. Nazi Germany was overwhelmingly Christian, primarily Protestant (especially Lutheran), with a Catholic minority.

Given this demography, the substantial membership of the Nazi Party would have been from these backgrounds or identified themselves with these denominations. Among other door-opening entries, I suggest 1.) Violence, Nuclear Disarmament, and Arms Control, 2.) World Divinity School and Spiritual Growth, 3.) Relationship Building and Changemaking, and 4.) Sustaining Peace.

* Can you design ten experiments in the physical sciences whose results are likely to transform how we think about the physical world and its processes?

Designing groundbreaking experiments requires not only deep knowledge of current physical theories but also the ability to imagine novel approaches or anticipate shifts in understanding. That said, here are ten potential experimental ideas, across various domains of the physical sciences, that could have transformative impacts if their outcomes were to challenge existing knowledge:

1. Quantum Gravity Experiments: Develop experiments to directly test theories of quantum gravity. Observing phenomena where general relativity and quantum mechanics intersect, perhaps using ultra-precise measurements of black hole evaporation or examining the behavior of particles in extreme gravitational fields, could shed light on the true nature of gravity.
2. Room Temperature Superconductors: Find and test materials that demonstrate superconductivity at room temperature. Such materials would revolutionize electronics, power transmission, and transportation systems.
3. Dark Matter Direct Detection: Design detectors sensitive enough to capture direct interactions with dark matter particles, perhaps through specialized cryogenic systems or using novel materials. Identifying dark matter's nature would transform cosmology and particle physics.
4. Quantum Entanglement at Macroscopic Scales: Push the limits of quantum entanglement by trying to entangle larger and larger systems, up to macroscopic scales. Observing entanglement at such scales could challenge our understanding of the boundary between the classical and quantum realms.
5. Probing the Planck Scale: Use advanced particle accelerators or other experimental setups to probe distances on the order of the Planck length, potentially revealing new physics or dimensions.
6. Recreating Primordial Conditions: In advanced lab conditions, recreate the environment believed to be present just moments after the Big Bang. Observing and understanding primordial nucleosynthesis or other early-universe processes could refine cosmological theories.
7. Verifying the Existence of Magnetic Monopoles: Design experiments to hunt for these theoretical solitary magnetic charges, which, if found, would validate certain grand unified theories and possibly lead to novel technologies.
8. Examining the Speed of Light: While the speed of light is currently viewed as constant in a vacuum, experiments that can challenge this assumption under various conditions or dimensions might offer insights into fundamental physics.
9. Studying Consciousness in Quantum Mechanics: Explore the controversial idea that consciousness affects quantum outcomes. Set up double-slit experiments or other quantum setups where the observer's conscious awareness (or lack thereof) is the primary variable.
10. Exploring the Nature of Time: Design experiments that attempt to understand time as an emergent property or explore its directionality. For instance, trying to create conditions where entropy decreases could challenge our understanding of the arrow of time.

Please note: These ideas are speculative and based on the frontiers of current knowledge. Whether they can be realized with present or near-future technology, and whether their outcomes would indeed be transformative, remains uncertain. However, pushing the boundaries of our understanding often leads to the most profound discoveries.

5.3.4.1. Violence, Nuclear Disarmament, and Arms Control. Many students will be unaware of peace studies resources, so Website entries for the SIPRI Yearbook and White's historical database will be helpful.* The first chapter of the SIPRI Yearbook on nuclear armaments might be assigned reading in any relevant Compact-inspired curriculum for peace studies: arms control and nuclear disarmament have become challenges for which the highest priorities of humankind co-exist with silence in a public agenda-setting process.†

5.3.4.2. World Divinity School and Spiritual Growth. The world probably needs a good divinity school to engage with the remarkably bold (and perhaps brilliant) claims of the Pope and other Compact signers about education and learning for spiritual growth. An upgrade could be new AI Khanmigo tutors trained with the published work of spiritual guides and teachers. (For example, ChatGPT-4 says that it is familiar with the publications and work of Sri Aurobindo.) Schools of philosophy and psychotherapy designed to support the growth of individuals and their potential (e.g., person-centered therapy and classics of Chinese philosophy in some modern interpretations) can broaden traditional curricula in the spirit of Compact-inspired second-tier education.‡

5.3.4.3. Relationship Building and Changemaking. An emerging focus for the peace and security curriculum: Perhaps 50% or more of the decisions to go to war or escalate a conflict have involved major misperceptions since the beginning of the 20th century. Thus, an essential quiet dimension of work for peace lives in growing networks of institutions like the US Institute of Peace and the development of relationship-building groups and networks.§ A vital lesson of the Cold War experience is that specialized but somewhat independent organizations and networks with similar organizations in other countries are essential to long-term relationships with good outcomes. (Typically, policy planning staffs in mainline agencies default to short-term priorities and large in-baskets of papers marked Urgent.) Rather than rely upon formal diplomacy based on the court protocols of monarchs at the time of the Congress of Vienna, contact groups of influential individuals on both sides have sustained dialogues to prevent misperceptions and lay the groundwork for preventive diplomacy. The

* Stockholm International Peace Research Institute, *SIPRI Yearbook 2023: Armaments, Disarmament and International Security* (Oxford University Press, 2023); Matthew White, *Atrocities: The 100 Deadliest Episodes in Human History*, Paperback (New York: W. W. Norton, 2013).

† An obvious comparison of the trillions of dollars of annual world expenditures for military capabilities and armaments against other SDG goals for human benefit is the beginning of a thoughtful discussion about better long-term balance in investment portfolios with educated analysis of different causal pathways to achieve sustainable peace and security. Military expenditures

‡ See Michael Puett's interpretations in his interview by Nigel Warburton, "The Best Chinese Philosophy Books" on fivebooks.com. Note that the distinction between Eastern traditions and Western intellectual history is, in the light of scholarship, less clear than presented in traditional textbooks. The observations and appreciations of Chinese philosophy (notably Confucius) conveyed by Jesuit priests (Matteo Ricci and Nicols Trigault) in China engaged Voltaire's thinking as he stimulated the Western Enlightenment. Schoepenaur channeled Buddhist sensibilities to other Western philosophers. Even within Western philosophy, Nietzsche was engaged, as a young man, by Emerson. Voltaire was engaged by the possibility of Confucian ethics and achievements of Chinese civilization, apparently without knowledge of an authoritarian Christian God. Also by a Confucian view of human potential and public service entrusted to educated individuals selected by merit.

§ H. Saunders, *Politics Is about Relationship: A Blueprint for the Citizens' Century*, 2005th edition (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2014). <https://sustaineddialogue.org/>⁵⁸ <https://www.ashoka.org/en-us/program/ashoka-changemaker-schools>

USIP is also one source of ideas for a new global conflict and conflict resolution curriculum in secondary schools. (If offered online, these skills can also be a valuable part of a new changemaker curriculum that strengthens domestic and community capabilities with empathy for stakeholder interests.)^{*}

The curriculum for effective peace advocacy has several emerging dimensions that are not yet in digital format.[†] Similarly, the curriculum for relationship building is not yet available in digital format.[‡]

5.3.4.4. Sustaining Peace. An updated focus for the curriculum might be case studies of sustained periods of international peace (although with some residual warfare). How to create and maintain these—and how (all of them) fell apart are informative for today’s challenge. [Possible candidates include the Middle Kingdom in Ancient Egypt (2050BC-1650BC), the Pax Sinica in China (206BC-220AD), especially under Emperor Wu, the Roman Peace (from the reign of Augustus (27BC) to Marcus Aurelius (180AD), the Gupta Empire peace in India (320AD-550AD), the Edo Period in Japan under the Tokugawa Shogunate (1603AD-1868AD), and the Post World War II Major Power Peace in Europe with its new and joint experiments in collective security and shared economic prosperity, democracy, human rights, and other possible lessons.] (One sobering explanation may be that history’s hegemonic regimes brutally crushed potential opponents before creating new stakeholders with trade and shared economic prosperity.) The most relevant immediate case for education and learning is the post-WWII peace that—a miracle in world history—has sustained peace and prosperity without a major war on the mainland of Europe involving (for example) France, Germany, and England for 75 years. But there are notable erosions (e.g., the war in Ukraine, in which the Pope has called for peace without being effective). A continuing high-level research seminar, Ending the Ukraine War: Why We Have Not Yet Succeeded, with the Pope’s representatives and candid participation, may improve global education and scientific theory about these challenges.

5.3.5. World Public Library [Clickbox 5]

The Pope and other Compact signers also can bring to life the overdue World Public Library of the digital era. Delays reflect legal battles under outdated American copyright laws written before the new digital age. A light touch of statesmanship (including requests to President Biden for a fast-track solution to create the Division of Children’s Literature, discussed below) can raise the arguments to a higher level and break the log-jam. The key is to organize the equivalent of ASCAP (ascap.com, organized in 1914), the global copyright payment system for music. It collects worldwide performance data (e.g., when a radio station plays copyrighted music) by sophisticated sampling and other means, receives any copyright fees, and pays artists. Once this clearance system becomes available, most of the services of the World Public Library in the digital era will be free to individuals who have borrowing cards for any participating public library, educational institution library, or government or

^{*} See also leading edge projects for cultural diplomacy, science diplomacy, and sustained relationship building like the Pugwash Conferences.

[†] See <https://youtu.be/C1pEHVEcXzY?si=VM47O7wewPpObw9j>: “The Power and Potential of Youth Advocacy to Build Peace.” This curriculum expands the Pope’s guidance to listen to young people. See also ecdpeace.org.

[‡] David Brooks, *How to Know a Person: The Art of Seeing Others Deeply and Being Deeply Seen* (Random House, 2023).

corporate libraries (etc.). The libraries pay legitimate copyright fees, an overhead charge for the system, and a share of an R&D fund to expand all digital holdings across all languages. (All fees will include ability-to-pay adjustments that make the resources accessible to all users in lower- and middle-income countries who access through Center Websites.)* Some areas of the online digital collection (e.g., current fiction, books on best-seller lists) may add fees.† Copyright fees, payable to authors or publishers, can be negotiated by the Pope with an assurance that all works will be available, in perpetuity, to billions of potential users. Click-thru links to amazon.com or other sellers will permit data collection of online purchases of printed copies, perhaps with boosted sales producing revenue-sharing.‡

The Pope's organizers might address a challenging issue: periodicals, especially student access to high-quality newspapers. There is no turning back once thinking readers discover first-rate newspapers and other print publications. Specialized student editions might be distributed worldwide without charge, perhaps with Google News and Google Translate expanding readership to local languages. Ideally, in the service of the human spirit, the Pope will encourage boldness.

Based on research evidence presented by Holverson and others (discussed earlier), the Center Websites can underscore the Compact's values and the shared values of democracies by **beginning with the Children's Literature Division** and prepopulated (for example) with the top 1,000 books for adults to read to children from birth through age four and that children love to read in elementary school years.§ Ideally, they will be available in color, and every child should have a library card as soon as they are ready. The Board of Directors should prioritize the new Google-assisted professional translations to all local languages.¶ The global Children's Division sends another strong message about the values of the human spirit.

5.3.6. Staff Recommendations [Clickbox 6]

A strategic dimension of an effective Compact-inspired global education system should be enrollment and resources to stimulate human potential. Thus, a final Clickbox can include personal recommendations from a Center's staff. Also, staff members may select lists of recommended books, movies, or music from various organizations. Guest columns and specialized services can help readers to make discoveries—and services like fivebooks.com have discovered recommendations relevant to the Pope's higher purposes and infectious enthusiasm (e.g., Karen Lord, "The Best Books About Gods and Godlike Beings"). Cross-over YouTube discoveries can be as good as any university lecture by a leading scholar (e.g., the Hardcore Literature Book Club).

* An emerging formula is to "waive" copyright for digital uses of the number of physical edition copies that have been purchased and currently are uncirculated on shelves in participating institutions.

† Fees to other public libraries can be adapted to pay overhead costs, for an investment plan to digitize all resources in all languages, and for an R&D partnership with Google translate to meet demands or potential demands for translation to local languages. Another level is to train a new generation on First-Contact Reference Librarians.

‡ Alternatively, the Board of Trustees of the World Public Library might include voluntary participation in online advertising (e.g., 40% off on selected e-books) in return for waiving or reducing copyright charges for the public. The World Public Library Board will also include pre-paid memberships in Kanopy.com, Wondrium.com, Discovery Channel libraries, and other global services.

§ George C. Halvorson, *Three Key Years: Talk - Read - Play - Sing to Support & Help Every Child in America* (Sausalito, California: Institute for Intergroup Understanding, 2015).

¶ Another early entry should be Special Needs users.

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The old disciplinary silos in education, research and teaching will no longer be adequate. We will need to cross disciplines to understand and deal with our multi-dimensional and complex problems.

– *Ismail Serageldin*

Five Times Five: Reinventing Education for the 21st Century

Education reflects society. Our society is focused on maximizing economic growth and shareholder returns.

– *Frank Dixon*

Global System Change: A Whole System, Nature-Based Framework for Sustainability, System Change and Responsible Investing

The human world is not homogeneous, nor are its problems. Neither homogeneity nor linearity should be assumed.

– *Fadwa El Guindi*

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