

## Nomads to Nurturers: Humanity with a Conscience The Next Evolutionary Step Wrought by Global Higher Education

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*Every new human comes with a carbon footprint.*  
<https://www.nytimes.com/2021/11/20/style/breed-children-climate-change.html>

Humans, as nomads, lived within nature and enjoyed its bounty; as nurturers, humans can live within nature's *systems* and help sustain them. Future historians could then see the 10,000 year agricultural-industrial human epoch as an anomaly -- the epoch when we stopped being nomadic but had not yet become nurturing. This Report describes how this essential shift to nurturer in society's consciousness can take place.

The idea that humanity, as a whole, can have a "conscience" is radical. But, these times, with humanity facing the threat of extinction, are radical. Radical ideas are necessary. Here are three that should be obvious to researchers in human evolution and those seeking to save the earth and us, but which have not been recognized:

- first, the machines (human technology) have *always* "taken over" because we have always allowed our technology free rein and that permissiveness led to the climate disaster. Artificial intelligence is not the first technology to have the potential to "take over." Every technology, including human language, has "taken over" and determined our evolution. We have reached the end, however -- nature tells us we can't let technology lead us unthinkingly any longer.
- second, despite the common belief to the contrary, humans have had language for 2.5 million years in the form of sign language and this fact should alter our interpretation of why humans have succeeded from a belief in us as a weapon-bearing predator to a belief in us as a language-using social creature. Since humans learn through language, education should be structured accordingly. Language is far more central to our being than is recognized in education.
- finally, global higher education, not just governments, must create a sustainable civilization. Governments represent stakeholders and nature is not a stakeholder. Higher education creates the nature of our society; the problem is we have allowed this creation process to be unexamined. A blinders-off examination of the actual, unspoken, mission of higher education reveals the role higher education has unwittingly played in the climate disaster.

This Report addresses what these three radical ideas mean for human civilization, and how these three ideas can lead to creating a human universal conscience. Not "consciousness," but

“conscience,” as in knowing right from wrong at a species level. Education can save humanity; governments alone will not.

## **Foreword**

In 2009, I founded The Association for Authentic, Experiential and Evidence-Based Learning (AAEEBL.org), a non-profit global association in higher education dedicated to advancing learning and assessment using electronic portfolios. AAEEBL grew to have institutional members in four countries and individual members in dozens of countries. We had as many as fifteen corporate sponsors, ran four regional conferences a year, partnered with Campus Technology for our Annual Conference and, we believe, advanced the use of electronic portfolios in higher education on behalf of reflective learning for students and institutional research and reporting for institutions.

The Association of American Colleges and Universities (AAC&U), perhaps the most influential academic organization in the United States, now includes an eportfolio element and a separate eportfolio registration day at its annual meeting.

I served as President of AAEEBL until the end of 2016, my 53<sup>rd</sup> year as either professor or administrator -- or non-profit leader -- in higher education.

My work in higher education from 1985 on, when I first taught a course fully online, was about integrating technology-enabled learning into higher education. My last appointment was at MIT, where I consulted with faculty about using technology in their undergraduate courses of study. I have published about technology and higher education for many years.

Regarding my claims about sign language and human evolution: I was present at the time American Sign Language was first proven to be a full-featured human language with a grammar as complex as any spoken language. I was a professor of English at Gallaudet University in Washington DC and worked for Bill Stokoe, sometimes called “the father of ASL.” He is not really, because he did not invent ASL, but only forced linguists to acknowledge sign languages as full-featured human languages. My being at Gallaudet for 30 years, being there when ASL and Deaf Culture were being recognized, my taking post-doc graduate linguistics courses in ASL and discourse analysis, gives me the life-experience and academic expertise to confidently claim that researchers have failed to recognize a crucial force in human evolution: we were born in language, not weapons. The story of human evolution needs to be altered to recognize the role of language in who we are.

This Report is the result of intense research in human evolution studies and climate change over the past 5 years inspired by my having the distance from higher education to look at the enterprise disinterestedly. My motivation for this work is the climate crisis. From my privileged position as a retired professor, I believe I can see how higher education can re-invent human civilization so it is sustainable.

I am now an outsider after a half-century of being an insider; it is lonely out here, to be honest, but as an outsider I see higher education for its magnificence and its inanity; I see its incredible impact but also know that that impact has brought disaster to our earth (by reinforcing the vectors of industrialism); I see hopeful trends and awakenings in higher education but lament how scattered those trends and awakenings are; I have led technology initiatives but now see that technology is itself a threat to human civilization; I have colleagues in higher education who are aware of the same issues I am but who are mired in responsibility and limited in what they can say. However, I am a free agent with no such constraints but still with the best intentions for academia and for humanity.

I offer this Report in hopes it can bring about good thought (and action) among leaders in higher education. I am serving, in this Report, as a consultant to humanity and, as we know, consultants don't actually do anything except consult; I leave it to others to carry out the global social shift described in this Report.

## **Part One: Extinction**

### **Preface**

What would you say if, instead of hand-wringing and delays about climate change, we could already see the light at the end of the tunnel, that because of the wakeup call of climate change, human society is becoming more enlightened, that, instead of the worst instincts in humans determining history, our good inherent traits are rising to the surface and we can live in harmony with the earth and with each other? What if, instead of being on the precipice of disaster, we humans are just waking up and realizing we've been acting badly for a couple of centuries but that we must now return to be the good citizens of the earth we were for our previous millions of years? What if this time now, seemingly so dark, is instead an awakening?

This Report tells this story -- a true story, I believe -- because in this darkness there truly are brilliant centers of light. We will see not only that we can turn the corner and create a sustainable human civilization but that it is already happening.

### **Introduction**

The covid pandemic and wildfires, along with drought and floods, are in fact the climate disaster; it is not ten years away or twenty or fifty. People are already dying from the climate disaster; we see indications of young people deciding not to have children because of the climate disaster; we humans have already lost the "war" on climate because there are already ample greenhouse gases in the atmosphere to continue fueling climate change.

The "war" metaphor for "fighting" climate change is the worst metaphor possible -- war is a political failure, always, and "war" is associated with the industrial era and its terrible weapons. War shows the failure of politics; it shows we cannot depend just on governments to prevent human extinction. Government brought us the climate disaster; it can't create a sustainable

society, it can only move us to renewable energy sources but even in doing that government is far too slow and far too compromised in its commitments. Our current obsession with governments agreeing on climate change initiatives has blinded us to the reality that governments will never really solve the underlying problems of our civilization.

The current challenge, therefore, is to enlist the largest economic and cultural sector in the world, education, to birth a new human civilization: education cannot mindlessly reinforce the status quo because the status quo leads to human extinction; instead, it must mindfully set a new human course.

## **Part Two: From Nomad to Master**

### **Owning, exploiting, destroying**

How did we get into this mess?

Humans, meaning various species in the genus *Homo*, lived off the land as nomads, moving to where the food was most plentiful as the yearly climate cycle progressed. Nomads do not “own” land. That idea would have been incomprehensible to nomadic humans who would be more likely to view the earth as “mother,” as is true in current understanding of indigenous thinking.

Let’s say that our distinctive evolutionary development, when we set a new course, occurred when we humans first started making stone tools two and a half million years ago. Perhaps those tool makers were *Homo erectus*, an ancestor species in Africa who lived long before *H. sapiens*, our current species. Material evidence of stone tools from that date has been analyzed and dated.

Our significant advantage was the opposable thumb providing the dexterity to manipulate stones to make them into food preparation tools and eventually into weapons.

At that time, 2.5 mya (million years ago), humans also developed hand gestures and other signifiers to pass on the art of toolmaking to novices. Those signifiers were then ordered, through use, into rule-bound behavior that we call “grammar” and therefore constituted a sign language, the language humans used for a couple of million years before our larynx evolved sufficiently to make the full range of subtle sound distinctions necessary for spoken language. The move to spoken language, very recently in evolutionary terms, was not an off/on switch but a gradual move of grammatical structure to sound/speech as it became the primary meaning-maker.

It’s important to us now, as we humans, in crisis mode, are wondering what kind of species we are who would damage our own habitat -- our earth -- to know that language, not weapons, is what formed human civilization (weapons may be necessary but were not formative, did not create the social structures we have that are dependent on language). We are not the weapon

but the word: “in the beginning was the word” (the “word” in this case was “sign”) is literally true.

### **Language Formed Humanity and Must Be at the Center of Education**

In human evolution studies, a void exists and this report addresses that void: researchers seem to agree that “humans had no language until 50 or 100 thousand years ago.” Yet, starting at 2.5 mya, humans made tools and over the millennia, improved the tools and, indeed, tool-making skills spread around the globe.

How could humans master a system of making tools that involved collaboration and how could they teach novices how to make tools without language? The obvious answer is, of course, that researchers do not know enough about sign language to make any claims about ancient people using sign as a language; or they believe sign languages are not languages. Or, perhaps even more obviously, human evolution researchers depend on material evidence and no such evidence is available for language use by early humans, so it’s safer to agree there was no language, an obvious absurdity, than to make a claim about something they don’t understand.

When material evidence is not available, researchers make speculations and often the burden of proof then shifts to those who deny the speculation assuming the speculation makes sense. Sometimes, current indigenous tribes provide reinforcement for those speculations. Interestingly, no indigenous tribe has ever been found to have no language.

My own speculation (reinforced by those who admit to humans having “gestures” before spoken language) is that humans invented sign languages at the same time as they first made tools, 2.5 mya. This is important for educators because humans as language-enabled provides a more realistic portrait of humanity than humans as weapon-wielding. It also encourages learning designs with language at the center, a positive direction since conversation is how children are developed cognitively. Finally, anyone claiming that humans had “no language” for most of our evolutionary history since first making tools, must understand how absurd that claim is.

Sign languages, still used world-wide by deaf people, are not just produced on the hands. Sign languages, like all languages, are a full-body phenomenon: they are made up of many semiotic signifiers following rule-bound behaviors to produce meaning. Those who sign use facial expressions, body movements and positions, and may use sounds also. Those who speak use facial expressions, body movements and sound. Those who grow up using sign develop the language center in their brains just as those who speak do. (Deaf children from deaf families have unusually good language skills in the spoken language of their country because they have language input, via signs, from the time they are born).

In evolutionary terms, sign was possible and most likely hand signs were the grammatical center of language for humans for most of our history -- and the spoken languages that emerged more recently would have been controlled by the same language center in the brain

as signed languages. Sign language, in this sense, gave birth to spoken language. Give thanks, all ye who speak.

In other words, human language has an unbroken developmental arc over 2.5 million years. Natural language has always been a full body production.

Language is the technology that formed humanity. Of this there is no doubt -- language is the external representation of thought; and by externalizing thought, thought itself became richer. To externalize thought, we humans had to abstract things and actions into symbols and that very process expanded our cognition. It still does -- and will always do so -- meaning that all education must be centered in language -- language about STEM, for example because language interaction -- discourse -- about content is the best way to understand content and how to apply it in the world.

Higher education must be reconstructed massively but at the core we must have language assuming its natural role as the mother of humanity. We need lots of smart people in our world now and people get smart through language use and interaction with others.

For more about humans using gestures before speech, see David Armstrong:

<https://www.npr.org/templates/story/story.php?storyId=129155123>

And, to see an example of the absurd claim that humans did not have language before speech, see how the Linguistic Society does not even acknowledge sign language:

<https://www.linguisticsociety.org/resource/faq-how-did-language-begin>

### **“Owning” the Earth Was A Delusion**

Imagine humans wandering the earth in nomadic patterns going to where the berries were ripening or the fish running, or the root crops fully formed, or seeds, or leaves . . . Because mother earth was providing this food freely, humans worshipped mother earth and saw themselves as children of the earth. This is not to idealize earlier human species as saint-like, for conflict did occur, it seems, but as living in necessary harmony with the earth: the available food sources could support only so large a human population as nomads.

In a nomadic territory, humans, with tools and language (language required abstracting real objects into a symbol so added an important layer of intelligence to humans), started tending to their food sources in pre-agricultural ways to protect those sources. And, at some point, the nomad decided to stay put -- only about 10,000 years ago -- and nurture food sources that could be used year-around. Once nomadic humans decided to stay in one place and farm crops, they developed the idea that they “owned” that place. It may have seemed only that a family owned a piece of land in the sense that other humans in their tribe could not enjoy the benefits of the family’s work, but the idea of “owning” land evolved over time into a dangerous concept: humans owned *the earth*, an idea that led eventually to the climate crisis.

If you own something, you can do what you want with it. When I was growing up and learning geography, inevitably we learned about a country's natural resources and did not question that the purpose of that country was to provide those natural resources for industry. We did not question the odd pattern of evaluating countries by what they could provide for our industrial economy.

We humans had moved from nomad to "master" in just a few thousand years and our million-year memory of our indigenous past was largely lost.

For 2.5 million years, humans lived as nomads; in less than one-tenth of one percent -- .01% -- of our evolutionary history have we "owned" the earth: it was a collective delusion that we humans could "own" the earth -- hubris multiplied by arrogance multiplied by greed and accelerated by fossil fuels.

The earth has called our bluff about ownership and our "hand" has lost. We are not masters of the earth nor could we be trusted as such in thrall to the industrial delusion. Only with a return to our "roots" as *tangata whenua* (Maori for "people of the land") can we survive the crisis we created and return to natural balance.

We were never really *Homo sapiens* -- wise humans -- because we spoiled our own habitat. But we can reclaim our human essence as *Homo conscientia* (humans with a conscience) by becoming again what we were for our entire evolutionary history, people of the land. We go forward by going back.

Humans -- that is, "we" -- do not own the earth. We buy and sell parts of the earth and believe we can do whatever we want with those parts ("land"). We have had no conscience about the land, about what damage we do. Instead, like any other natural species, we have simply multiplied -- we have "succeeded" in our evolution. But we have had no concern, collectively, about the consequences of our evolutionary success. Why should we? No other species has a collective conscience, either.

We do have a conscience, individually, about how we interact with other humans. But, not about how we interact with nature. This was not always true of humans, in fact we humans worshipped nature until very recently in our evolutionary history.

The result of us forgetting our reverence for the earth and replacing it with reverence for wealth is the 6<sup>th</sup> mass extinction on earth that actually threatens our own existence. We are now forced to have a collective, species-wide conscience if we are to act wisely to preserve our lives and the life of our biosphere -- the earth. We must return to a consciousness of *mana*, *tapu*, *mauri* -- Maori words that explain how to be "people of the land" by having a nomadic consciousness that we humans had until just "yesterday."

*Mana*, *tapu*, and *mauri* are from a time when humans still lived within nature, something we humans must learn to do again for our own survival. It is appropriate that we current humans

who see ourselves as “masters of the earth,” need to look back at the human view of nature that pertained for almost our entire evolutionary history.

## Learning

Education develops young members of society and therefore determines the nature of our society. If education is dedicated to individual wealth, however, then education is corrupt. It is that dedication to individual wealth that has destroyed our global habitat. Education, as a societal enterprise, was created a couple of centuries ago precisely to sustain industry. Therefore, its purpose, right from the start, was embedded in the wrong impulse: not developing *humans* but developing *workers*. To understand how to reform education and therefore society, we need to look at the foundational impulse behind education: it was to reinforce the exploitation of natural resources either directly or indirectly. We find many exceptions, of course, but the corruption is not just of the ultimate goal of education but of the *manner of learning* as well.

The industrial process -- production -- influenced how we saw education: we produce a “product,” a graduate, in the same way that we produce a widget.

One can say, with only slight exaggeration, that education was corrupt right at its inception because it was a tool of industry. Not only do we need to move from using fossil fuels as a civilization, but we need to move away from its handmaiden, the industrial model of learning.

What does this mean? Humans differ from each other. We learn differently. We are best educated if we can discover our best abilities. Young people chafe at an assembly-line model of learning -- the same “treatment” for each and every learner. We don’t need to “socialize” young people so they can fit into a niche in an industrialized society, but instead let young people engage their creativity and problem-solving abilities within a baseline of disciplinary knowledge. We need to develop the whole person, not confine them within a model of citizenship/worker. Ideally, we should not cut down to size but light a fire.

For the whole life of the educational system we know now -- involving a fifth of all humanity -- it has been implicitly aimed -- not in all its parts, but as a whole -- at generating wealth through exploiting the earth. For over two centuries, we humans have accepted the concept of human progress as equated with greater wealth until we now think of GDP as an indicator of good and ignore the hundreds of thousands of people who die of drug overdoses living in a GDP world, the millions of people who do not share in the GDP, the wars we constantly wage, the autocrats who imprison their own people and never question how we have monetized humanity and have created an educational system to perpetuate that monetization.

To see this “big history” view of the agriculture/industrial period of humanity is to realize that “normal” for humans was *before* we thought we owned the earth. “Normal” for us is our indigenous self, not our “masters of the earth” selves. And we can get back to “normal” again

through changing our educational system so it develops the possibility of a species conscience: not greed but good as our goal.

## **Awakening**

Once we humans believed we owned the earth, we set about exploiting it. The earth was no longer mother but was an object. We had “dominion.”

As our tool use improved, and we learned to control and contain fire, and we pictured ourselves as owners of the earth (because of agriculture), we went on to develop “industry” to a lethal magnitude and nearly destroyed the life systems of the earth. (Fire, contained, as in “internal combustion,” made the industrial revolution possible).

Our entire global society became organized around the accumulation of wealth and our worst instincts took over, referred to, euphemistically, as “business” and “politics” but which were really greed, avarice and envy. Our natural human traits, empathy and cooperation, were subsumed under hatred (political division) and deadly competition (war and threats of war).

How do we humans escape the GDP trap? The perfect storm of industrial technology and fossil fuels? The monetization of human life? Here’s how: we change the mission of all educational systems and institutions to the simple goal of creating a sustainable human civilization, and “sustainable” is not seeking ever more wealth but ever more quality of life for all.

Here is one government that gets it:

Bhutan has enshrined ecological resilience into its constitution. Mandating that at least 60% of the nation remain forested, the country is one of just two in the world to absorb more carbon than it emits. It measures progress not by GDP but against a “gross national happiness” index, which prioritises human and ecological well-being over boundless economic growth. <https://tinyurl.com/yjma342y>

This Report is not an argument against capitalism, for that economic system has proven itself, but an argument for using the resulting wealth to bring about good ends for all of society. The non-profit sector, legally, is dedicated to social good, and the non-profit sector is mammoth. Higher education is the largest element within the non-profit sector. It is time to activate this resource globally.

No government (except Bhutan’s) will lead this change; but education, a much larger segment of society, can.

While now, belatedly, calls for higher education to recognize its responsibility to society in order to preserve democracy have appeared, authored by leaders in positions of influence -- university president and president of an influential higher education professional association -- the calls cannot have the influence they should since the learning model most commonly practiced in higher education does not develop the necessary consciousness for significant

social change, nor is the curricular structure amenable to developing a shared conscience, nor is there much awareness of how deep the changes need to be in how young people are developed within education from K to 16 (primary to post-secondary) in order to create a sustainable human civilization.

No matter who calls for higher education to assume responsibility for the nature of society, higher education in large measure cannot respond. It is so rooted in its industrial self and has been since its beginning, that higher education, collectively, is blind to its failings. It is satisfied if its graduates continue to ravage the earth -- indirectly, of course -- on behalf of "jobs."

There is now an oddly distorted concept of education as an investment with a tangible (and so measurable economic return) and a transition from student to consumer (who requires consumer protection, with the potential for actionable claims in relation to the measurable benefits of the investment as a tangible return). Value for money is now more a matter of metrics (employability) and less about intangible benefits to society derived from well-educated community citizens.

<https://eprints.leedsbeckett.ac.uk/id/eprint/7731/1/FromFinanceToClimateCrisisAnInterviewWithSteveKeenPV-MORGAN.pdf>

Whereas administrators used to support the learning and research process, now they direct the fund-raising process; whereas students used to come for an education, they now come for vocational training. Stuck in the middle, academics are harried by performance targets and measurement metrics from above and "I've paid for my degree, so give it to me" pressures from below. Same URL.

In theory, higher education is dedicated to developing "critical thinking" in its graduates and, of course, that is what it should do. And, yet, its critical thinking about its own role in society and its impact on climate change is oddly not critical at all -- indeed it is absent. It should be obvious, if you take a few steps back, that if our civilization is destroying our own habitat, something is wrong and that we need to look at how we create young people who perpetuate this destructive habit. We cannot separate society from the institution that creates society.

We have seen signs of "awakening" in higher education for decades: recognition that humans learn socially, that those who are learning need to do the work of learning (active learning), that the goal of education must be developing learning abilities and using "content" to *learn* not just memorize, that learning in authentic contexts (the real world) is critical to success, that education must have an ethical underpinning, that curricula needs to be built on learning experiences (design learning) and not just on content segments, and that the high-impact learning experiences need to be the standard in all of education. And more. Especially inculcating the social responsibility of graduates to create a sustainable human civilization.

Despite the signs of awakening in global higher education, the enterprise is far from embracing the encouraging trends in the previous paragraph to any significant degree. The mantra is still "jobs, jobs, jobs."

How to steer global higher education to a new mission? And how to make it capable of that mission? Change in an institution, since institutions are constructed to perpetuate themselves as is, needs a prompt almost beyond imagination. Why would parents pay out tens of

thousands of dollars, or students take on tens of thousands of dollars in student loans, to become a graduated agent for social good? Education functioning as capitalist agencies -- albeit non-profit for tax purposes and therefore supposedly dedicated to social good by law -- but still functioning to sustain mindless capitalism -- may not be able to change.

And is current staffing in higher education capable of moving to an enterprise-wide model of a version of design learning? Probably not. The incentive structures and ideology are all wrong. Only if the survival of humanity were at stake would we consider attempting such a change -- but of course, we *are* facing extinction. Of that, there is no doubt.

### **Part Three: From Master to Nurturer**

Then, how do we bring about such a massive change in higher education?

How do we move human consciousness from “master” -- doing whatever we please as a species without regard to consequences -- to nurturer?

In the U. S., the cost of higher education is a mammoth challenge, so part of the solution is to combine cost-cutting with more governmental financial support. We need to look at certificates awarded for a range of learning experiences -- the standard 4-year degree cannot be so exclusive or standardized. Degrees awarded based on achievement, not time, though complicated to administer, make more sense from all perspectives. Learning designs that do not need to be monitored for the whole duration by senior faculty can save money.

In other words, higher education absolutely must, not only in the U. S. but everywhere, become more productive and efficient: not by ramping up the industrial processing of learning but by shifting the burden of learning to the students themselves where it belongs. Instead of one-size-fits-all, learning in higher education needs to be variable, depending on the need and goal.

A guiding principle for all learning experiences: designing. If a learning experience assigned to a team of students is to solve a problem, then the team working on the problem must use whatever scholarly domain helps to solve the problem. Real-world problems are interdisciplinary.

But, above all, all education must focus on what humans have always done best, specialize and generalize. Design a sequence of problems that must be addressed by lessons learned from the previous problem or problems. All problems are interdisciplinary, and all problems can be addressed by using lessons learned previously.

The goal is not to graduate students who are *learned* but who are *learners*. A small change in words but a seismic change in goal and methods. The learned can recite, the learner can research. The learned can remember, the learner can discover. The learned has content, the

learner has a process. The learned has a certificate, the learner has curiosity. The learned has reached an end, the learner is just starting.

Our mantra must be: the problems of this century are unimaginable, literally, and so graduates do not face a predictable world but a world of chaos. Being “learned” means you are immediately obsolete upon graduation; being a learner means you are ready to go.

But, don’t mistake this argument for a plea to sacrifice -- instead it is a plea to improve learning substantially and, at the same time, make higher education more attractive and pertinent. Sometimes a catastrophe brings opportunity.

### **A Species Conscience**

Liberal education, the appropriate model for today’s challenges, can be organized by one universal mission, creating a sustainable human civilization. The world is a “reality domain,” not a collection of academic domains. Academic domains are supposed to find answers using a special theoretical approach, which was a useful approach for a couple of centuries when -- despite human disruptions -- knowledge changed comparatively slowly (we only know that now when the pace of change has increased exponentially). Now, the siloed time of specialization no longer fits the world so academia must move to generalization -- multi-disciplinary problem-solving.

To grasp the kind of change I am proposing in higher education, one needs a “big history” perspective. That is, to a time before the industrial revolution that led to the formation of higher education as we know it. Since we should be able to admit that the industrial revolution led to our potential extinction, then we have to question what perpetuates that revolution -- that is, higher education.

The industrial era was an anomaly in human evolutionary history because we humans changed our behavior toward the earth and for a brief couple of centuries ignored the damage we were causing to the earth and to our own society. Within this anomaly, we formed a new anomaly, the industrial version of education; higher education, as it is structured now, is an anomaly within an anomaly. In our blindness, we called this anomalous period “progress.” We *did* progress, of course, in important ways -- treating disease, providing shelter, creating art and literature and so on -- but at a cost we preferred not to think about.

It is only now, as we see the earth’s ecosystem dying that we can realize the damage we have caused. But, even in the face of a dying ecosystem, we cling to a desperate hope that we can continue “as normal.” And we put off hard choices. In higher education, the mantra of jobs, jobs, jobs continues unchallenged. The industrial model of education remains in place just as our societal perceptions and expectations do. And governments promise to “fight” climate change. It is convenient that we can blame our governments as the climate disaster gets worse.

We must, then, reconsider every construct within the global education enterprise -- this does not mean gutting institutions; it means re-purposing. Let's acknowledge that higher education in the world is powerful and successful; but let's acknowledge that the society higher education sustains has a destructive purpose -- generating wealth as the only goal. If we see the need for a different society we must start at the root -- education.

It is beyond anyone's imagination to know all the changes over the decades we need to make for human survival. We can't create a "program." But we can unleash a million minds to be creative in constructing a better society. A sustainable human society won't come from the move to renewables alone although that move will give us time to re-create our global society. How do we sustain a human population of seven billion? We are looking for thousands of answers, not just one.

Re-creating society will depend on trust --trust that if the mission of higher education is to create a sustainable human society, then higher education will do just that. Educators often do not seem to trust that students will learn out of their sight and control. This is a core problem especially in higher education where students *must* learn on their own in teams if they are to succeed in life. Design learning depends on trust.

Importantly, if students today are told that their purpose in higher education is not only to make a living but to preserve civilization, they will see themselves as the primary stakeholders in that mission. Many young people are already active in efforts to re-direct society. It's a perfect opportunity for leaders in higher education to embrace the moment.

## **Conclusion**

If we -- any of us in any nation -- had been attacked militarily, by a human enemy, we would be mobilizing all energies and all sectors of society universally to combat the threat. In the United States, 777,000 people have already died of Covid-19 as I write, more have died in wildfires and floods and the "attack" from variants of Covid-19 continues. This novel coronavirus spread into the human population because of species dying off and surviving species coming into contact that did not have contact before -- in other words, Covid is associated with climate change.

But we are not mobilizing as we did in World War Two even though mortality rates are much higher and are likely to continue to climb. We know how to fight against other people but we are at a loss about how to "fight" against a much greater "enemy." We turn to politicians who promise to "fight" but who have no idea what that really means. We blame the fossil fuel companies but know that we still depend on them for our society to function. We are assured that we have ten years or twenty years, so it is easy to assume that someone else -- "they" -- are taking care of the problem.

There is a disjuncture between the reality of the disaster and our collective ho-hum response. As Bill McKibben said 33 years ago (*The End of Nature*, 1989), we are the frog in the pot of water as the water continues to get hotter and we don't know enough to jump out. Granted,

companies rushed to create vaccines in response to the pandemic, but the goal of that effort, commonly understood, was to return to “normal.” The virus has not been popularly linked to climate change as it should be so we could recognize the full range of the climate crisis and its lethality. The climate crisis, in part, is made much worse by being made up of so many parts, so many varieties of threat, so many incomprehensibilities. We will die in confusion and disbelief.

At the same time, the complexity of the problem only reinforces the need for higher education to lead the effort to preserve our civilization: we need all our best minds dedicated to re-imagining how we can function differently. Just because we are not threatened by other humans does not mean we are not threatened; just because we have no ready mental models to understand the threat does not mean it is not there; just because the threat comes in multiple disguises does not mean it is a chimera.

We are challenged at the policy level; we are challenged at the global level; we are challenged to mobilize at the species level which we have never done. We are challenged to behave as a species as we have never behaved before; we are challenged to behave as no other species ever has. We have been able to just be “the fittest” and have not had to be “the smartest.” Or the wisest; we have not had to have a *collective conscience*. Now, we must.

“We got into this hole thanks to the worst of capitalism — letting companies privatize their gains from despoiling the environment and warming the climate — while socializing the losses among all of us.” Thomas Friedman, New York Times.

“We need a calling outside of ourselves, to some sort of higher power, to something higher than ourselves to preserve life on earth.”

<https://www.nytimes.com/2021/12/03/climate/climate-change-biodiversity.html>

“People have to love the Earth before they save it,” Mr. Jacobs said. “So love is the key. We don’t do doomsday stuff.” Same URL