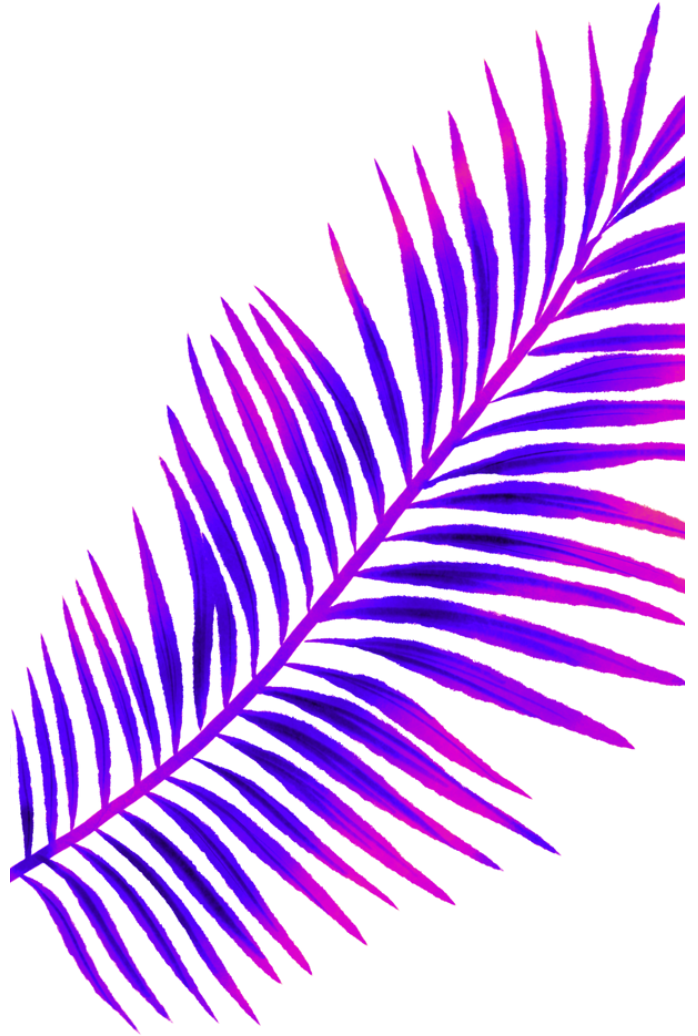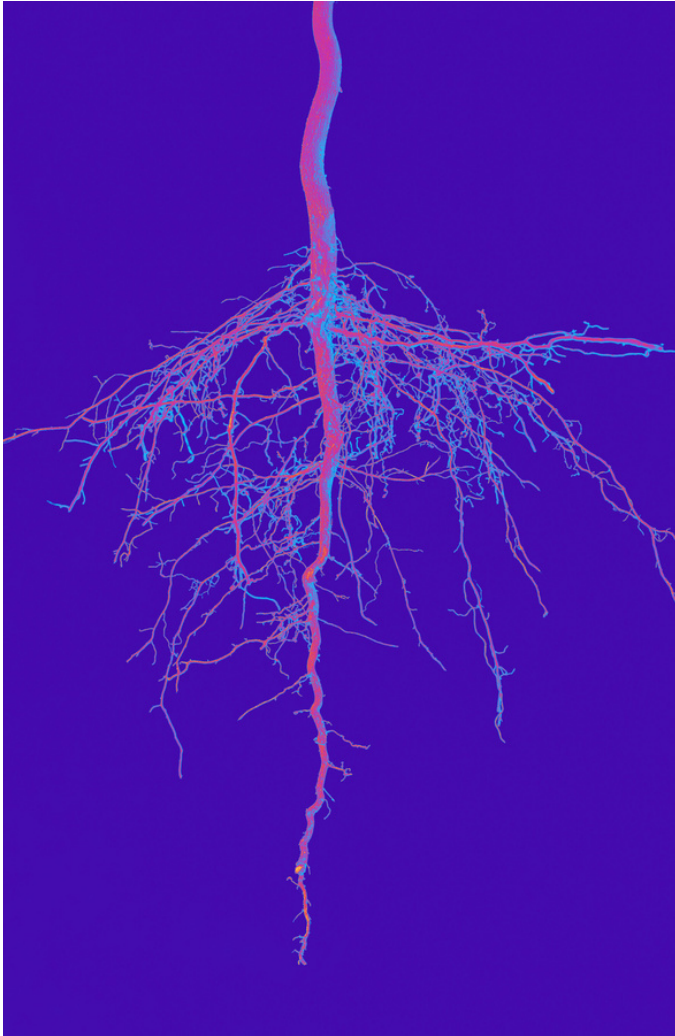HUMAN MYCELIUM OF NONLINEAR THINKERS

What is our problem with Education?

The Nonlinear Brain

THE OCTOPUS MOVEMENT'S WHITE PAPER ON EDUCATION
SOLVING THE UNSOLVABLE

Think Tank's Note

At the heart of the Octopus Movement lies a think tank unlike any other, a confluence of minds from the farthest reaches of the globe, each bringing their unique perspective, culture, and expertise to the table. This is where the power of nonlinear thinking shines brightest, as we, a diverse assembly of thinkers, artists, scientists, educators, and visionaries, come together with a common purpose: to tackle the seemingly insurmountable challenges facing education today.

Our approach is fundamentally different. We do not march in a straight line from problem to solution; instead, we embrace the complexity and interconnectedness of the world, allowing it to guide our exploration. In this space, ideas flow freely, unbound by conventional boundaries or disciplines, fostering an environment where innovation is not just encouraged but is the natural outcome of our collective thought process.

The think tank operates as a global nonlinear brain, pulsing with the energy of different cultures, philosophies, and experiences. This rich tapestry of thought allows us to see beyond the horizon of traditional education systems, envisioning a future where learning is not confined to the classroom but is a lifelong journey that adapts to the needs and potential of each individual.

In our discussions, every voice is valued, every perspective considered, as we weave together our diverse insights into a coherent vision for the future of education. It's a process that mirrors the very essence of learning: dynamic, ever-evolving, and boundless..

In the Octopus Movement's think tank, diverse minds converge in nonlinear harmony, envisioning an education that grows as wildly and wonderfully as nature itself.

written by Anshar Seraphim & Perry Knoppert

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Through this unique blend of global diversity and nonlinear thinking, the Octopus Movement's think tank endeavors to redefine what education can and should be. It's a quest not just for solutions but for transformation, driven by the belief that when we bring together the most creative minds from across the globe, there's no limit to what we can achieve.

Perry Knoppert

PERRY KNOPPERT
FOUNDER THE OCTOPUS MOVEMENT

In 1995, Clifford Stoll, a mental giant, fellow nonlinear thinker, and exceedingly humble humanitarian asked a question that made him very unpopular at the time.

To paraphrase, "Is putting technology in our classrooms and teaching everyone to be ready for the digital age really where our focus should be?"

Stoll himself was no luddite asking that question. He was a systems administrator at Lawrence Berkeley National Laboratory and was chiefly responsible for tracking down a well-known hacker who sold secrets to the KGB. He knew more about computers than almost everyone in an age that existed well before the information superhighway that soon became part of all of our lives.

So why would he be against computers in the classroom?

The answer might surprise you, but Stoll recognized something that many of the nonlinear thinkers in our collective have come to understand about education.

Something is wrong with the way we're educating our young people, and it's not a problem we can solve by putting a computer in every classroom.

We think everyone should take the time to listen to what he has to say.

The signs have long been visible, though many of us are too horrified by the statistics to spend real time thinking about them.

For instance, did you know that according to data from the US Department of Education, 54% of Americans between the ages of 16 and 74 read at only a 6th grade level?

To think that amongst the richest nations in the world, even the United States is struggling with basic literacy is a somber reminder that failing to allow education to evolve in a changing world will ultimately keep us from evolving as human beings.

Human innovation exists at every level, but a majority of the great achievements in the modern world were only made possible by creative minds who flourished with the opportunities granted by a formal education.

With that education came an opportunity for us to meet with other people of passion and intellect; it meant being exposed to new ideas, learning from failure, and one another. In those spaces of learning, we developed many of the complex systems of human knowledge we still use to this day.

This isn't to say that mankind did not evolve outside of academia, but in those spaces we collaborated and prospered. Education allowed our understanding of the world around us to evolve and also taught us how we might evolve with it.

The question lingers, then, what was so different about education even fifty or a hundred years ago that creates such a wide divide in such a short period of time when it comes to our intellectual development?

Any educator can tell you, an integral part of what drives education is a fostering of a culture that values it. In order for education to thrive and evolve, it must be part of our culture and valued by those who live in it. If not, those who try to walk the path of personal development will also become devalued and marginalized by our society.

Has that happened? It absolutely has.

An article published by the Harvard Business Review calls attention to the fact that we no longer rely on academia to serve its function. Many employers and careers are far more likely to attract successful people when they have proven experience, since college degrees may not carry the same weight they once did in the past.

It's no surprise in a quickly evolving age, though. During the Dot-Com boom, we got too collectively excited as a society at the prospect of exploring a new digital world. The market quickly became saturated with too many computer science majors and the very real problems of an educational focus on technology became all too apparent.

For one, computer science simply doesn't belong in the traditional classroom, not because high tech careers aren't a possibility in our future, but because technology evolves so much faster than education ever could, or should.

Consider that a person who graduated in 1998 with a Master's in Computer Science probably studied computer languages we no longer use, on Pentium architecture that hasn't been sold in a decade, connecting to a then-new internet on 56k dial-up modems. They used operating systems we no longer even see in the business world and mastered applications that are now only nodded to in reverse-compatibility.

Seeing a Master's in Computer Science on a curriculum vitae or resume immediately makes a prospective employer's eyes check the date and check for certifications to see what this person might actually know about the world at large.

Educating the next generation with the technical skills they need to survive seems good on its face, but it's so much less practical than a trade school or a certification program to actually allow someone to demonstrate mastery that can be considered relevant. The job market became virtually flooded with degrees that carried little meaning.

In the meantime, education became more expensive. Today it's grown more than 50% in relative cost, and the social value of a degree has fallen.

This isn't, of course, implying that an education doesn't have value. Being well-educated has the ability to change a life.

Compared with individuals whose highest degree is a high school diploma, bachelor's degree holders are 24 percent more likely to be employed, three and a half times less likely to be impoverished, and nearly five times less likely to be imprisoned.

It might surprise you that it costs your government far far more the less educated you are.

Lifetime government expenditures are $82,000 (€75,000) lower for college graduates than for those with high school degrees. Thanks to higher earnings, college graduates on average are paid $273,000 (€250,000) more than high school graduates over a lifetime.

Uneducated people cost their governments more money, and educated people generate more world productivity, even with the chaos of falling standards in education and systemic problems; problems that reach as far south as Cape Agulhas at the southern tip of Africa and span throughout human civilization to Murmansk in Northern Russia.

However, the gap between primary and secondary education has almost transformed into an uncrossable chasm.

It would seem to be an overwhelming priority to fix such a stifled development in our ability to continue leaping forward as human beings, but so many working parts of education systems in today's world are fraught with failings, economic disparity, lack of resources, and worse, lack of social investment in confronting the problem.

Even more frustrating still, education has largely stopped serving its primary purpose, preparing young people to thrive and giving them the skills and the hunger to continue a lifelong journey of learning.

Education, it seems, has become about testing well, getting the piece of paper, and getting out.

It's a far cry from where we were only a couple of centuries ago.

Institutions of higher learning used to be so crucial to the evolving needs of mankind that reverence was made to the dedication required to become educated. The 'Penny Universities' of the 17th and 18th century, coffee and tea houses where people would gather to listen to intellectuals debate and learn, are no longer socially valued shared spaces. Instead, we sit in silence and allow ourselves to be entertained by technology, technology many of us take for granted and don't even truly understand.

Social values matter.

So, before we can truly face, as a society, what has happened to education, we must understand why we care so little, even when we acknowledge the size of the problem. It feels too big to solve. We tell ourselves it's because of bureaucracy. It's because of politics. It's because of economic disparity. It's because of our newest generation. We're drowning in our own excuses.

If we were to ask a different question, "What can we personally do to help the world become more passionate about education?", many of us would fall silent. It's a hard question. We all have so many challenges. Why has it become so socially easy for us to rely on the faceless entity of 'the educational system' to take on such a huge social responsibility?

As classroom sizes have grown larger and larger alongside our surging population, different approaches have abounded like fractals in winter, none of them one-size-fits-all. Larger classrooms mean that individual students receive far less individual attention from teachers, but it also means that something even more important and crucial has become lost in the organizational nightmare that is corralling sometimes upward of fifty students.

We've given teachers the job of raising our children and not just educating them.

The only way they could possibly hope to even fail at that role would be by treating every developing person equally, and that's just not the way that education really works, especially if you want students to develop their own unique hunger for self-development and learning.

We don't provide students the passion and the social value that carries them into higher education. That duty is cultural, and in many ways parents, too, have lapsed in the duty in the wake of what can only be described as modern chaos.

We cannot foster a culture of personal development through uniformity; when you flood teachers with students, deprive them of resources, and try in futility to regulate education with understandable metrics, you've already taken all the needed steps to make education a thing to be escaped and overcome by teachers and students alike, not something to become passionate about.

This is a harsh reality for those who choose to educate.

We don't reward teachers for the very passion we're trying to instill in students. Through low pay, frustrating class loads, and ridiculous metrics that are more about teaching their students how to take exams than actually learn, we've robbed those willing to step forward and try to take up the passion and social responsibility of educating the next generation. We reward that choice with pay that often is below the living wage and a lack of social respect; respect they don't get because of results caused by trying to make education into a replicable system instead of an opportunity for individual growth.

As more and more uniformity has hit our world education systems, those who cannot work in uniformity have gained an existential struggle, the challenge of being different. Neurodivergent and nonlinear thinkers in today's education system are often not rewarded for their novel approaches, can be excluded from the social hierarchy, and sometimes spend as much as a decade unemployed and disenfranchised after graduating. Up to 85% of autistic adults are unemployed, and that's just one example.

Our nonlinear think tank is full of narratives from its members about the educational experience, being told how to think, being shown only one way to solve problems, and being continually sidelined for trying to innovate in classrooms with an instructor who is already frustrated enough trying to corral 30 to 50 frenetic minds and get them all marching in the same direction. We're treated as disruptors, mislabeled with oppositional defiant disorder by frustrated teachers who haven't been taught about neurodiversity, had our symptoms mistaken as character traits, and chided into adulthood by a businessworld obsessed with best practices and corporate alignment.

Our very existence as nonlinear individuals is because of this very system. In a holistic world that embraces new ideas and approaches, we would not be writing collectively to you as nonlinear thinkers. We would merely be thinkers, and we would all be collaborating together.

We have created a system with so many standards that those with a passion for reaching developing minds have been encouraged to punish the very people who might innovate and change the world of tomorrow. The call to learn has fallen silent.

So, we have a problem. A big one. It's a cultural problem with so many dynamics we find it easy to make it someone else's problem; It's become the world's problem.

But, in a world where politics and budgets and bureaucracy think of academic development as a painful expenditure and not an absolute necessity, where art and social programs are continually cut from schools because they don't immediately affect test scores, where children who are different or economically disadvantaged become so frustrated they become violent, how can we change anything if the ability to listen to different points-of-view itself has become a memory?

When the world moved into the online era, we also moved into a world of egocentrism. Our new generation has become obsessed with the need for social gratification that is a natural part of learning to fit in; a social skill that used to simply be a phase of development has consumed today's culture and made millionaires and billionaires out of our never-ending need to be liked.

As little as fifty or sixty years ago, it was commonplace to hear ideas debated on the radio, men and women from all walks of life would express their opinions and learn from one another, especially when they found reason to disagree.

For many of us, it's been many years since we heard a young person say the words, "I disagree, but I respect your point of view."

Without even realizing it, we started to create a culture that became perfectly fine with silencing those different points of view, allowing us to customize our online experience by blocking out opinions we didn't want to hear with the ignore button. Human discourse, debate, free thinking, and the age of the Penny University have become mostly extinct while we obsess about our online content and who will buy it or 'like' it.

So, we must collectively address the first step to solving a problem, acknowledging that it exists.

It's not, at first impression, acknowledging that education is currently struggling. That's merely an exercise of correlation and causation. It's acknowledging the cultural gap that's turning education into a passionless industrial process where minds are tested instead of cultivated, and acknowledging our approach in delegating the development of our children to a system that, by definition, enforces conformity in both thought and expression.

It means admitting our approach to the problem needs to include more than platitudes like simply paying teachers more or coming up with better standardized tests.

Right now there is a global gap in cultivating the intellectual passion that's necessary to take us into the new age. It's in truly embracing that truth that we'll be ready to disassemble the current system and put real thought and passion into making something better. Change can be intimidating.

In 2020, the world proved to itself that it could reimagine education. We worked around the very real problem of the pandemic and invented thousands of virtual classrooms overnight, forced teachers to learn an entirely different way of reaching their students, and challenged students to reinvent the process of learning by having to do it from home. We're capable of more change than we admit.

We've collectively proved we're able to accomplish this goal when the need is dire. It's obvious that when necessity calls for it, when there is no choice, we are willing to do whatever is necessary within the bounds of what must be done, we may have just had the wrong ideas about what must change.

Changing the face of education and creating passion for a new generation requires this understanding of need. The knowledge that it must be done is a wonderful way to start.

No one solution is going to provide the magic ingredient, the point is to truly spark the conversation we all need to have with our governments and ourselves. If we're all in the right mindset and ready to acknowledge that change is an inevitability, if we truly want to move forward, we might just succeed where we haven't before. It starts with a willingness to listen, but also with a willingness to fail.

Fear of failure has become a crippling part of global culture; it's rather ironic, then, to realize that all success is borne of it. No person or system ever became capable of success without first being built on failure.

Making this change requires being willing to learn from failure and compare ideas, linear and nonlinear, so the excitement for our future doesn't remain the cynicism of our present. It means being willing to listen to ideas we hate so we can learn from one another. It means being willing to debate and not just stop at a solution that seems good enough to try. It means categorically learning from our mistakes and pulling inspiration from what works.

Tearing down an established system can be a daunting task, it raises concerns about how to replace it, but the worldwide realignment in education that came about by necessity during 2020 is proof-in-action. If we can unilaterally acknowledge that our education system isn't able to meet our needs, our teachers and students are ready to pivot; it's our governments that aren't. We can't claim the system is unchangeable, we've already changed it when the need has arisen, and the need now is clearer than ever.

It's a truth that there just aren't any excuses anymore.

Now, you might argue that it's easy to poke holes in an ineffective system without proven models to replace it, but the truth is there have been effective models out there for quite some time. Our observer bias from the confines of our own systems and our unwillingness to start over have kept us from really exploring them. If we've finally come to the precipice of change, it's time for all of us to look for inspiration in what works.

Thankfully, we needn't look far.

Finland and Estonia have bragging rights for some of the underlined finest educational systems in the world. In the landscape of global education, the Finnish and Estonian education systems have emerged as exemplars of effectiveness, garnering international attention for their exceptional outcomes.

In much of the modern world, a typical day for students at school starts with sitting at a desk and it ends sitting at a desk, after many hours of being told what to learn and how they should solve problems. They're told what the curriculum deems important. They're tested on it, often to justify struggling budgets and educational initiatives.

They're assigned homework to practice, answers to rehearse, and told to memorize facts so they can perform well on the tests that decide "academic success". They're tested to validate budgets and ensure teachers are covering their requirements. They're taught test-taking strategies to inflate their performance. They're assigned papers and essays, regurgitating information to help them remember long enough to get the right answers so they can pass.

Many students forget that same information by the end of the school year.

In these same systems, classroom discussion happens primarily on the part of the instructor; students are called upon, at random at first, and then questions are focused on students who may not be paying close enough attention. At times, students are called to form groups and present their particular segment of learning to the rest of the class. Memorization and reading take up a large part of a system that hinges on standardized assessments.

Even at the entry college level, some classes can literally be primarily focused on reading the textbook aloud.

Creative arts programs are closed due to lack of funding. For some students, succeeding at athletics may be their only way of affording a college education.

This isn't to say that teachers don't try to inject their passion into learning in systems like these, but they're taught to revolve value around the curriculum and sometimes even punished for breaking the mold.

Students remember the teachers willing to bend the rules so they can find passion in what they're learning.

For teachers in the current paradigm, education is a balancing act. Their classes are examined for core curriculum so their students pass tests. Their lessons are kept to a schedule. A syllabus is sometimes provided so they can stay on task.

What students have difficulty remembering long enough to test on effectively, they are assigned more of at home. Parents are told to help this process where they can, and are sometimes called into school when a student can't perform. For too many of us, this has become the reality of education.

Lower income school districts in countries like the United States suffer severe overcrowding and often deal with problems like gangs, crime, and drugs. Students who can't take the social pressures of being different in such a system can resort to violence, up to and including mass shootings.

In Finland, students are taught a different way to learn. They examine ideas in groups. They learn creative play with music and the visual arts. They're encouraged to self-express. A Finnish student learning another language can expect much of their class to happen in groups and pairs, with ample opportunity to practice and hone their skills. It's very much the same in other disciplines as well.

Parents, students, and teachers are taught to collaborate, to decide subject matter and focus together. School isn't just a place of learning, it's a community.

Students are taught about how to embrace what it means to be human and to take an onus of personal responsibility for their development of the human experience.

At the core of the Finnish education system lies a deeply entrenched commitment to equity, inclusivity, and holistic development. Rooted in the principles of social investment, Finland's educational philosophy seeks to mitigate disparities and foster a sense of collective responsibility for the well-being and the advancement of every individual within society.

In Finland, educators collaborate and compare ideas. They creatively decide curriculum and aggressively learn about student's needs. They allow their lesson plans to pivot to the needs of those in their charge. Educators are passionate that students leave their class with skills they'll find useful for the rest of their lives.

Finnish educators undergo rigorous training and professional development, often holding master's degrees in education. The autonomy afforded to teachers enables them to tailor instruction to meet the diverse needs of students effectively. They're allowed to focus on the goal of learning itself without constant oversight.

Central to their approach is the cultivation of critical thinking, creativity, and problem-solving skills through student-centered learning experiences. This approach prioritizes experiential learning and collaborative inquiry over rote memorization. In essence, they do the very opposite of what most nations are doing by minimizing their emphasis on standardized testing and teaching students to interact with one another in their pursuit of ideas.

There are no days of class dedicated to memorization for the purpose of short term performance. There is no one test or metric for success. Students are taught to be human and to take that responsibility seriously.

Finland diverges from the prevalent emphasis in today's academic sphere with regards to testing, opting instead for a comprehensive, multidimensional assessment framework that includes teacher evaluations, peer assessments, and even self-review. This fosters a holistic understanding of student progress and minimizes the detrimental effects of high-stakes scoring. It also creates an educational stake in the individual, giving them opportunities to contemplate their own direction and rely on the availability of resources to pursue their passions.

The Finnish curriculum is characterized by its flexibility and adaptability, allowing for interdisciplinary learning experiences that integrate academic disciplines with real-world applications. This fosters the development of well-rounded individuals equipped with both subject-specific knowledge and transferable skills. They don't let their students focus on dry subject matter and instead empower them with hands-on experience and life skills they'll use every day.

This instills the need for the education students are participating in, and gets them excited to participate in a society where those very skills are valued.

As we said before, culture *defines* value.

You may find yourself wondering how students can perform to a standard in this kind of system, but PISA data consistently ranks Finland among the top-performing countries in reading, mathematics, and science. The proof is in their results. 66% of Finnish students go on to college with a continued passion to learn.

The rallying cry of bureaucracy is often to cite budgetary constraints and point to models like the Finnish system and flatly state that their model can't perform economically to scale. You might be surprised to learn, according to the World Bank, Finland achieves these remarkable outcomes with relatively moderate levels of education expenditure compared to other OECD countries. They've learned that creating situationally-based outcomes by regional budgets and incorporating politics into education only hurts the very system that allows them to prosper.

Longitudinal studies demonstrate the enduring benefits of the Finnish education system, with Finnish students exhibiting higher levels of educational attainment, socioeconomic mobility, and overall well-being compared to their counterparts in many other nations.

Finland, however, isn't the only global denizen who has learned to step past these imaginary constraints and create an educational system that has evolved past local governmental concerns that keep them from doing what matters.

Much like the NHS in the United Kingdom reimagined healthcare in 1948, while recovering from the wake of a World War, Estonia's educational trajectory since regaining independence in 1991 has been grounded in its inception with a vision of knowledge-based economic development. Estonia's education system prioritizes adaptability, inclusivity, and includes in its foundations the ability to change itself as the world changes.

They had the opportunity to build something from the ground up, and used that opportunity to learn from the mistakes around them. In a very clear way, they represent what kinds of incredible opportunities await us in tearing down our existing systems and starting anew.

Part of that opportunity became making education more inclusive, diverse, and addressing the disparities that exist between class, wealth, and more. Estonia's commitment to inclusive education is evinced by their specialized support services, inclusive curricular frameworks, and differentiated instruction. They ensure equitable access to quality education for all students, irrespective of socio-economic background or ability. Students are given a reason to find their passion and are supported in exploring that passion.

Estonian schools also prioritize the cultivation of holistic education, including topics like critical thinking, communication, collaboration, and creativity in their core curriculum. This emphasis on competency-based learning transcends traditional subject boundaries, empowering students to navigate complex, interdisciplinary challenges with confidence. The world is a dynamic place, and their educational system prepares them for it.

As part of their cultural value system, Estonia recognizes the pivotal role of educators as catalysts for innovation and transformation. Consequently, substantial investments are made in teacher professional development programs, collaborative learning communities, and mentoring initiatives, which foster a culture of continuous improvement and excellence.

They've learned that keeping their teachers passionate helps keep their students passionate.

Due to this progressive educational culture, Estonia doesn't find itself limiting its reach by incorporating high-technology into their educational system. The missing cornerstones that passionate educators like Clifford Stoll know need to be present as basic priorities before a simple focus on the digital age doesn't create the budgetary and other political constraints they do in a bureaucratic system.

They've addressed the incredibly important goal of instilling passion and creating value in education, and their reward is that going high-tech is anything but the distraction from the goal it would be in failing classrooms that paint over problems with computer labs.

Estonia's pioneering use of technology in education is epitomized by the e-Estonia initiative, which has facilitated the seamless integration of digital tools and platforms into every facet of their educational ecosystem. This digital infrastructure enhances access to educational resources, facilitates personalized learning experiences, and cultivates digital literacy skills essential for the 21st century. They've learned to use technology to customize the educational process, not confine it.

Estonia's proficiency in digital literacy and technology integration is underscored by its top rankings in international assessments such as the European Digital Competence Framework (DigComp) and the International Computer and Information Literacy Study (ICILS). Empirical studies have corroborated the positive correlation between digital integration and academic achievement in Estonia, with digitally enriched learning environments contributing to enhanced student engagement, motivation, and academic performance.

You may find yourself reading this apologetically looking at these smaller models, wondering how they can possibly scale, and that's because all we've done so far is keep trying, in vain, to correct systems that not only don't provide the incredibly important outcomes we universally need from educating our youth, but are mired in politics, pedagogy, and bureaucracy.

We can buy missiles, but not textbooks. It's a pervasive problem of focus.

Arguing against a budget for the fire extinguisher that will put out the decimating flames endangering our future isn't just folly, every year we delay the *cultural change* that needs to happen to make these models successful makes building a society with the right approach to education harder and harder to imagine.

So, now in the good faith that we've made our case for why the system needs to dissolve and rise from its own ashes, we hope we've clearly demonstrated why a simple reconstruction isn't going to work. Cultural change needs to happen.

When a culture truly places value on education and recognizes it as the dire necessity it is, it's not a matter of budget. We've already seen how necessity and a willingness to change culture can be a reality, but it requires a coalition of willing participants. It means we all have to do our part to change the cultural narrative so ideas can truly take flight with the knowledge that the fact of necessity will take care of the details.

Change must happen.

We have to all agree to start there, or every idea we try to implement will die in a committee. Revolution doesn't come from silent assent, and make no mistake, rebuilding our future through education is going to require revolution, of an intellectual and cultural kind.

The faces filling your screens and newsfeeds, prevaricating about failure, are failing because they refuse to acknowledge it. Recognizing failure is a momentous opportunity for human and cultural growth, but it's bad for poll numbers, and we've decided to put education in the very hands of the people who can't help but lie about what needs to be done or jeopardize their own authority.

When science fails, we learn a new way it doesn't work. When politicians fail, they're removed from power.

It is the nature of hegemony to point to some new initiative or standard so we can all self-comfort with the knowledge that something is being done; but, letting something be done doesn't truly allow us to realize where we will be in as little as fifty years if we create an entire generation that has been punished for individuality and has learned to hate and devalue places of learning as an obstacle to be overcome instead of a place to grow.

If you were handed a diploma and found yourself saying, "I'm so glad *that's* over" you have already been failed by those who set out to educate you, and it's a fate you can spare your children.

Our nonlinear think tank has been passionate about so many subjects, from the evolution and impact of artificial intelligence to the way we think about the human brain, but none evoked the passion and experience of our session on education.

Nonlinear thinkers are often ostracized and marginalized in a traditional education, so it's a subject that's impacted all of us and in meaningfully different ways; The Octopus Movement has grown into a human mycelium of over ninety countries with over six thousand members at the time of writing this paper, and no subject so far has given us the opportunity to create such a lasting impact on the world and the future.

Common objections exist to change, whether it's the installation of education as a sociopolitical construct where decision-makers don't have the agency or the resources, growing classroom sizes, limited budgets, or even the idea that reinvention of the system might be impossible. Those objections are only based on lack of information, misinformation about the real cost of education, and even proven false by our temporary reinvention of the educational model during the pandemic.

Change isn't only possible, it's been done before, is cost-effective, and most of the reasons that change isn't already happening are actually cultural, rather than systemic.

The challenges education is facing are conquerable.

Holistic approaches in learning are a basic change in alignment that can make a world of difference, and they can help bridge the gap between traditional education and the demands of the real world.

Educators can bridge that gap by incorporating real life situations into learning and not just for the purpose of problem solving! By giving students a project where they interact with a solvable real world problem, they can collaborate with other students or even students at other schools to come up with a solution and then come up with the specifics of that solution; this can give them the incredibly needed opportunities to see the real value of what they are learning.

This part of learning is crucial, because it also demonstrates to students that what they're learning is important. An example of a great way to bring this to a classroom is a company or representative coming to schools to use them as a creative think tank where their solutions will be tested and get feedback when their solution is proffered and implemented.

Students will get to recognize the fruit of their work in the real world and get exposed to jobs and careers they might never have considered.

This approach also shines because, in the real world, solutions can fail! Not understanding failure is a part of success is a cultural problem; it's one that we can teach our young people to embrace by helping them apply their solutions and then letting them learn from challenges or failures by showing them failure is an integral part of learning how to create success in the real world.

There is a critical importance to students being actively involved in their own education.

Homogenizing education for scalability has a lot of social costs, but none larger than teaching students by way of demonstration that their individual learning styles and their diversity in cognitive approaches don't have merit. When education becomes a conversation and not a one-directional narrative of rote memorization and testing, students are invited to compare their processes, find out which of them can still create valid answers, but it also invites them to see inconsistencies in their own approaches and refine them.

Technology has an opportunity to play a part in this process, and the Estonian model shows that it can be a part of success, but it cannot replace our own investment in learning.

Platforms like TaleTree, an online space for young people to interact, create, and socially learn, along with mobile platforms like Funzi, which allow learners to relate to new information and invest in their own educational journey, are part of the effort to fight back against what is missing in our culture of human learning and education. Passionate programs and initiatives like these prove that technology has an opportunity to bring us closer together in the process of human learning.

It's about learning how to use technology to enhance the way we learn, share, and grow as human beings, not as a replacement for what truly inspires us to invest in ourselves.

In the coming age of artificial intelligence, the most crucial skill a child can learn is how to *ask the right questions* and use those answers to ask even more.

The process of educational investigation also invites educators and students to have meaningful conversations about the importance of critical thinking as well as the awareness of bias, both in approach and information, that can cause artificial intelligence to misjudge intention and create faulty results.

The power of a resource is limited by the mind taking advantage of it.

In a world where many students simply have to reach into their pockets to access the world's repository of information, the method by which to separate information into knowledge, an epistemological process of growth, is a skill they will use over and over again to get results as adults. It's a real world narrative they'll engage in every day.

Those of us who participated in a classroom where calculators could be frowned upon and the ability to 'do the work' was valued over getting the right answer, can all remember asking the question, "Won't I have a calculator as an adult? Why do I need to learn this?"

The newest generations of learners need to learn why understanding the problem, the kinds of common mistakes that happen in organizing the problem, and learning to check answers for consistency are some of the most salient skills to develop in the real world. Those skills are persistently and desperately needed in a world full of problems. Understanding why different methods can produce different answers and why certain solutions will work better or worse than others can help us raise a new generation of critical thinkers.

To accomplish this, students need dialogue. Much of modern education is a one-way transmission of information, study, and memorization for the purpose of performing on standardized tests; none of that process will suit students in the real world; learning to collaborate on problems, invent solutions, and test them themselves will generate the opposite results, and that's proven in effective systems like the Finnish education system.

Testing is destroying our schools and universities.

Prompting students with questions and letting them break into groups to discuss the best ways to tackle those problems allows linear and nonlinear solutions to be compared by learners and teaches them the value of new perspectives and innovative thinking. It also teaches students to value that different person in their collective and shows them how to value and consider one another's ideas in an environment where failure just teaches everyone a new way something doesn't work; it doesn't transform into an attack on character or a social anxiety.

Inclusivity is a value that is created and learned through experience, not simply taught.

Emotional understanding, critical listening, and how to process disagreement are passive gems in this process. By learning how to deal with people who disagree with them and invite dialogue, we can create a new generation of thinkers who handle disagreement or misalignment with broader solutions than the block button.

Digital literacy matters, but what digital literacy actually looks like in a world where new programs and applications are invented every day doesn't look like teaching students an entire class on how to use a particular application. What it does look like is teaching students how to approach the problem of learning something new for themselves.

A student educated in this way isn't afraid to look up tutorials, make their own learning plan, come up with smaller projects that will test their skills, and let them achieve their ultimate goal on a new platform. In an age where we expect to see thousands of new programs, technologies, and systems released during the course of our lives, the ability to comfortably integrate new ideas with personal passion is an absolute necessity.

Their answer to needing a new skill will be, "I know how I'm going to learn that. I've done it before."

Learning a computer programming language is a skill that will eventually depreciate as the world evolves. Learning how to tell AI the correct prompts so that it can write code for you and then learning how to test if that solution works exactly as you want it to and confidently compile a program so it can be shared with others is a skill that will continue to serve students long after they've left the classroom.

Critical thinking and confidence in self-structured learning are types of knowledge and skill that evolve alongside what we choose to do.

Just as the founders of today's world governments made allowances in their constitutions for evolving values and changes, so, too, should students and instructors be able to incorporate feedback into a dynamic system. A classroom is a living organism and needs to respond to what the experience in that place needs to accomplish its goals. Students, parents, and teachers need to be able to collaborate to change curriculum, decide what is most important to learn, and recognize when a class needs to spend another week on a topic that a majority is struggling with. This cannot be done in a system with set deadlines and curriculum requirements.

Educators must have the power to collaborate and use peer-review to evolve as the demands of education change, and this cannot be done in response to standardized testing. We must foster their passion to be a part of a continuously evolving process

When we move into universities and secondary education, especially at the doctorate level, a community of our peers examines our ideas and understanding to welcome that person, academically, into a degree. The Finnish system and other systems that have learned why standardized tests provide a limited insight into real learning have incorporated this standard at lower levels of education, and the results definitely speak for themselves.

The issue, historically, has been that districts and budgets have been the drivers of education. We invite a different perspective. The duty of a society to educate its youth into productive adults is a unilateral concern in a society, not one based on states or territories.

Creating federal level funding for education with teachers who are not state or community-level employees is a change with an alarming need. Otherwise, gerrymandered voting and residential districts, richer neighborhoods, and inequities like socioeconomic status and race become an ever-present part of the education system, and that sets students, and educators, up to fail.

Making teaching into a national endeavor also allows educators to collaborate across invisible borders, allows students at different schools to collaborate on projects, and even allows guest educators to teach a session at any location, spreading around the incredible resource of new ideas and allowing education to evolve at its highest and lowest levels.

We can't teach students that collaboration is an important part of living in the real world without showing them that adults succeed in exactly the same way.

A federal education program also gives nations with tax programs the ability to exempt educators, a very real benefit that often is only extended to religions and other social programs, to allow them a much better chance at a living wage. If we truly believe we can't pay them more, at least we can agree to tax them less.

Providing tax breaks for large corporations and religious organizations but not for those willing to educate our youth is a culturally backwards proposal, and it can help the very real problem of culturally, professionally, and financially recognizing educators for the incredible contributions they lend to society.

Working from home, that dreaded word in today's education system, "homework", is a real problem for many students. Developing work-life balance can be challenging for adults, and expecting students to do it without consistency or balance can create a culture of resentment for today's learners.

Exceptional students who already grasp concepts are forced into what is 'busywork' for them while they wait for other students to practice, when they could be peer-tutors for those having troubles and give both them and their peers real-life exposure to the value of seeking help. It's troubling that having our best students help those who need it isn't more of an accepted cultural practice, and it's something that's easy to change.

Imagine the impact of telling students that they can either 'practice' a skill to get better at it with help, or, if they already understand, record their session helping someone else cement those skills. They can choose either option, and both options create a positive culture where exceptional students are engaged and motivated to be recognized by others. It's a simple change that can happen in every classroom.

Community projects are an incredible opportunity. Seeing fellow students in need, offering tutoring services to nearby schools with students struggling with subjects, and getting involved at the local and even nationwide level with other minds teaches students to respect different cultures, appreciate the problems of humanity, and involve themselves in the solutions.

Teaching a child that their contributions matter is an impactful lesson. When a child sees a project they helped make a reality on national news or in their community, their emotions and passions get involved; it makes them even more excited for the next collaboration and drives behaviors that will serve them not just in their future careers, but as human beings.

This requires a cultural value shift, and it's a needed one.

Too much of the online world provides us a comfortable opportunity to live in echo chambers of like-minded people and disregard different points of view. Students at every level need to understand the power of debate, the skills required for listening, and how to collaborate with people they disagree with to accomplish goals. It's a part of student life that's often missing, and that lack of experience can be seen everywhere as the next generation grows into the future.

One of the most powerful ways to show students this concept is a reverse-debate. Two students with opposing positions on an issue can exchange positions and learn how to argue the opposing point, instead of their own. To do this, students must communicate, be willing to entertain ideas they disagree with, and learn about the process that led someone to a different conclusion than themselves. Imagine how different the world would be if more human beings had this skill.

A student who has been taught how to develop themselves and critically question ideas is able to express themselves about how they learn . An intelligently designed system allows for insights like these to matter and for young people to learn how to self-advocate on how they best communicate; it also gives neurodiverse students the opportunity to speak up when a lesson plan excludes them or a challenge makes the current educational opportunity into a frustration.

In the modern age, more and more attention is being called to inclusivity as a value, but the instilled systems in education only provide diversity as a stated value, not an incorporation of approach. Neurodiverse students, depending on the system, are given individualized education plans, but often these plans are as much about making their different needs into less of a distraction for the educational process of uniformity than they are about instilling passion for learning.

At The Octopus Movement, every nonlinear thinker here has felt the experience of being different. Challenging the status quo is a part of adulthood, and learning to work around communication difficulties, differences in approach, and different styles of learning isn't just a challenge for educators. Students can be put into situations where they can socially devalue new approaches alongside their instructors.

This can be crippling for neurodivergent and nonlinear minds and damage not just their passion for learning, but their desire to socially integrate.

Whether you're a synesthete who sees numbers as shapes and colors or a person with sensory issues who can't handle more than one person speaking at a time, different needs create challenges in the learning environment, and these challenges don't change in the professional world. Teaching our children to value differences in the human experience doesn't have to be a frustrating exercise in getting forty students to the finish line, but that's exactly what happens in a world of education that is shackled to standardized testing.

It's why diversity, inclusivity, and neurodiversity in the workplace has to constantly be taught and learned in the business world. It's not a value we've learned to introduce at the right phase of our development of the human experience. Often, human resource departments only focus on what they must change to allow different people into the workplace, without really considering the actual benefits of different ways we all see the world.

Twice exceptional students need their opportunity to shine and be valued, whether it's through offering additional advancement, transfer to advanced classes, or the availability of mentors like themselves when they're used to only being surrounded with reminders of what makes them different.

Learning to accommodate unengaged learners and give them more opportunities to set their own educational destinations is hard to do in a system that's overwhelmed, and as we change the system it's a factor that needs to evolve alongside it.

By eliminating invisible borders in education, it's possible to fill a classroom with students who are sensory-seeking and can be disruptive to other students and give them the stimulation they need without derailing a traditional classroom. It's also possible to have a student return from that experience and share their insights with their peers and teach them the value of out-of-the-box thinking.

In the past, homeschooling has been an elective part of education usually relegated to students with external demands on their time, parents who want to take the onus of education onto themselves, and a way to escape negative perpetuation with the existing systems we have for education, but homeschool presents many hidden opportunities for learners, both in public and private education.

By creating collaborative spaces, federally and nationally, for students learning from home to participate with those in traditional education to work alongside their peers on projects and attend elective lectures and classes, we can create publicly recognized spaces for learners of all types to share in the process of self development and get hands-on experience interacting with people from different cultures and walks of life. Resources that are available at the federal and national level to all students, be they in private, public, or secondary education, gives everyone access to a quality education.

The existing educational paradigm has created a lot of emotional and social backlash in systems where it's not working. Nonlinear students learn to hide themselves in plain sight, neurodivergent students learn to be ashamed of what makes them different, and students educated in spaces that are currently underfunded produce substandard results, finding a good start in secondary education a rarity.

Part of educational reform isn't just fixing what's not working, it's about acknowledging that a generation of thinkers who matriculated from that system have gaps in their learning and social experience because of society's failure to invest. For that cultural value to matter, it must extend upward into our adult lives.

If we improve education, we must create avenues for those who missed the opportunities of that change.

By making public education, lectures, resources, and academic spaces accessible to adults as well as children, as well as culturally recognizing social failures of approach, we can not only prime the generation of the future to succeed, we can undo some of the damage the system that has been done to a generation of thinkers and take steps to heal from it as a civilization.

Our wish is that our ideas give you even more of your own, provoke discussion, or even invite an argument! The silence of consensus must stop before more harm is done, and that starts with each one of us being willing to incite a discussion about what is in store for the future of education.

We at the movement have a sacred charge for you, the reader. Send this paper to someone you know who is passionate about learning! Find out if they agree or disagree on what makes an education worth having and the kind of new system we should invest in. In our view, it's the discussions we're not having as a society that have let education slip so far from our priorities, and changing that is as easy as being willing to have the conversation. It starts with you!

Are you interested in becoming a part of our nonlinear thinktank? Does the idea of connecting with thousands of nonlinear thinkers and celebrating our differences and shared experiences to help change the world sound like a change you want to be involved in?

Join The Octopus Movement.

Our nonlinear thinkers have formed a human mycelium to listen to your ideas and present them to the world. The future is nonlinear.

Revolution doesn't come from silent assent, and make no mistake, rebuilding our future through education is going to require revolution, of an intellectual and cultural kind.