HP FUTURES

Closing the Global Education Gap

HP Futures is a global multi-stakeholder and interdisciplinary knowledge network dedicated to promoting innovative thinking to shape a more resilient, inclusive, and sustainable future.

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> “THE TIME FOR CHANGE IS NOW. THE DECISIONS POLICYMAKERS AND BUSINESS LEADERS TAKE IN THE COMING YEARS WILL SHAPE THE EDUCATION, LIVES AND ECONOMIES OF TOMORROW.”

David McQuarrie

Chief Commercial Officer of HP and Chair of HP Futures

01 PREFACE

Education is the key to shaping the future and unlocking human potential

Yet, the UN has consistently warned that the world is on course to miss UN Sustainable Development Goal 4 of achieving universal quality education by 2030. Recent fallout from the Covid-19 pandemic and its resulting lockdowns has only escalated the global learning crisis. **Today, 260 million students are being left out of education every year.**

This is a situation the world can ill afford in the face of an artificial intelligence (AI) revolution and an increasingly competitive and polarised international landscape. Our children are our future, and right now the world is letting so many of them down. At HP, we believe we can help to support educators in addressing the challenges of Learning Poverty and forging a path towards more equitable and inclusive education.

This firmly held belief is the reason we established our HP Futures initiative.

Over the course of a six-month period, we convened five HP Futures Councils comprising more than 100 leading figures from around the world, hosting multiple panel discussions with a view to generating new and impactful thought leadership that will actively contribute to ensuring every child has access to a good education.

Our Council Members hail from academia and government, enterprise and civil society. This White Paper features the voices of former heads of state, education ministers, policy leaders, academics, NGO leads, Education Technology (EdTech) investors and entrepreneurs, and - crucially - the teachers making a difference on the ground in schools everywhere around the globe.

There are few spaces where such diverse expert voices can come together, with no underlying agenda, and share their opinions and expertise with a view to helping shape global solutions. We are proud to be creating that space, and to amplify our Council Members' conclusions in this White Paper.

Thanks to our inimitable contributors, we have produced a report that offers clear, actionable recommendations for global policymakers and leaders, and adds genuinely novel perspectives to discussions on the future of education. The report is wide-ranging, exploring everything from the role of technology in educating for the Knowledge Economy, to highlighting and extracting learnings from successful Education Reform case studies.

The time for change is now. The decisions policymakers and business leaders take in the coming years will shape the education, lives and economies of tomorrow.

> **"Let's work together to make Tomorrow's Schools - and tomorrow's world - a better place to be.**

02

EXECUTIVE SUMMARY

The HP Futures Initiative, developed by HP in partnership with the Global Learning Council and T4 Education, convened more than 100 global education and policymaking experts to foster a unique gathering of perspectives on how to deliver a more equitable and inclusive education for all.

Despite the vital importance of education to the next generation and our planet, the world is set to miss its commitment to UN Sustainable Development Goal 4 of quality education for all. The COVID pandemic has only made this mountain steeper to climb.

Today,

260 million students are being left out of education every year

Hundreds of millions of young people are being failed in education settings

70% of children worldwide cannot read and understand a simple text by the age of 10 as the World Bank revealed in 2022.

The current situation is compounded by persistent funding gaps and inequities, and by repeated cycles of failed Education Reform efforts around the globe. Latest UNESCO data shows that low-income countries face a $39 billion annual funding shortfall, and this comes at a time when the need to improve learning outcomes has never been more urgent.

The rapid rise of Generative AI and automation is a development that will soon render many existing jobs obsolete and require students to graduate with honed Knowledge Economy Skills. Yet today, the majority of global curricula continue to educate for a 20th Century economy, with far too little focus on equipping students with the technological fluency that will be essential in tomorrow's hybrid digital-physical world, or with the high levels of cognitive capacity and flexibility essential for thriving in the age of AI.

We believe it is our collective responsibility to address the challenges contributing to Learning Poverty and to help shape a better educational future for all. This firmly held belief is the reason we established our HP Futures initiative.

The initiative brought together five HP Futures Councils over the course of a six-month period in late 2023 and early 2024. Each Council held wide-ranging, in-depth, cross-cultural panel discussions and explored the global education challenges faced today through a specific lens. All had a shared aim of generating a report containing insights and actionable recommendations for global governments, education policymakers and sector leaders.

Our Council Members include former heads of state, education ministers, policy leaders, academics, NGO leads, Education Technology (EdTech) investors and entrepreneurs, and teachers.

The five HP Futures Councils are:

1

The HP Futures Council on Tomorrow's Schools
co-led by Asheesh Advani, CEO, Junior Achievement (JA) Worldwide and Co-Author, Modern Achievement, and Tunde Agboke, Director of Government Affairs Advocacy Strategy, HP.

2

The HP Futures Council on EdReform
co-led by Jane Mann, Managing Director, Partnership for Education, at Cambridge University Press & Assessment, and Markus Schwertel, HP Global Policy and Strategy Director, International Organisations, HP.

3

The HP Futures Council on Knowledge Economy Skills
co-led by CEO of NGO Teach A Man To Fish, Nik Kafka, and Michele Malejki, Global Head, Social Impact, HP Inc. & Director, HP Foundation

4

The HP Futures Council on Ending Learning Poverty
co-led by David Barth, Vice President, International Programs at Save the Children US, and Ify Afe, Director Strategy & Planning, HP.

5

The HP Futures Council on EdTech for Teachers
co-led by Soulaymane Kachani, Senior Vice Provost, Columbia University, and Giulia Buttini, Director Government Affairs & Public Policy, HP.

There are few spaces where such diverse voices can come together, with no set agenda, and share their expertise with a view to helping shape global solutions. In this collaborative context, our Council Members were able to make connections and identify patterns, both on issues educators are facing, and on initiatives and approaches already making a positive impact in addressing Learning Poverty and wider challenges in education delivery today. This report and its calls to action reflect those explorations and diversity of input.

The challenges faced in global education are immense, but we are confident that this report will leave readers reassured that a better future is possible. Our Councils have shared powerful case studies already proving that initiatives can have an impact on building Knowledge Economy Skills in schools and education settings around the world, and which could have greater impact at scale. They have outlined recommendations of EdTech tools that deliver for ministers on a budget, shared expert-based outlines on new approaches to data-gathering in reform efforts, and suggested frameworks for what curricula could look like in Tomorrow's Schools.

We are proud to share the HP Futures White Paper and our experts' calls to action, and would like to thank every one of our partners and Council Members for their time and contributions.

KEY FINDINGS

Our HP Futures report generated urgent calls to action for world governments, policymakers, and key stakeholders including the media and EdTech innovators.

HP Futures Councils call on governments worldwide to:

Increase investment in education despite challenging economic times.

This approach is rooted in extensive research. Examples include a 2020 study from the Washington Center for Equitable Growth which found that every $1 spent on education leads to a $1.66 return in economic activity later on, with greater effect during a recession. In short, investing in education today will deliver a significant return on investment for governments and economies long-term, while helping to deliver sustainable Education Reform efforts.

Deliver Early Years interventions to help young people in less advantaged communities build Knowledge Economy / AI-proof skills from an early age.

These include Social Emotional Learning (SEL) skills and metacognition development.

Deliver on their existing commitment to a baseline in education, including offering universal Pre-K and ensuring girls' transition to secondary education.

Governments delivering on this goal is essential to provide a baseline for productive conversations around Ending Learning Poverty globally.

Overhaul and redesign education systems to create schools and curricula fit for tomorrow.

Key recommendations include: having a genuinely effective approach to AI; implementing a hybrid schooling system with a mix of asynchronous and synchronous learning formats; centring SEL skills in curricula; no longer mirroring an outdated industrial system by separating subjects; reforming assessment to ensure greater equality of outcomes; reforming curricula to focus on instilling a sense of agency in young people when it comes to tackling the climate crisis.

Sign up to a cross-party agreement for 2030 or 2040 goals on education in their specific country, in order to help deliver long-term policies and outcomes.

Our Councils explored the importance of depoliticising Education Reform as much as possible, in part through convening rival politicians around shared, expert-led goals for education.

Work to build a 'Knowledge Economy Skills labour market' for young people – or risk a brain-drain and the hindering of wider economic progress.

These labour markets will include jobs less vulnerable to automation or replacement by Generative AI, and with plenty of employment opportunities for both high and lower-skilled young people.

Our Councils call on education policymakers to:

Ensure that countries develop well-planned data and evaluation systems, because this is the most cost-effective investment any country can make in education today.

Effective data collection and systems will become even more vital as the AI-driven world relies more on data, and as migration increases in future, with the resulting need for children to be supported in integrating into new systems.

Subsidise tools that help pupils attain foundational literacy and numeracy, including ensuring access to language-learning apps for all pupils.

Our experts concluded that overcoming language barriers will be vital in young people developing the Knowledge Economy Skills needed for tomorrow's world. Providing this access would be an 'easy fix' that provides a baseline of resources to deliver agency and fluency.

Invest in wide-ranging teacher upskilling initiatives, including those combatting low digital fluency among teachers.

Our experts stated the vital importance of supporting educators to adapt to an EdTech and AI-empowered teaching era, and stressed that both programmes and technology procurement strategies should be developed in consultation with educators.

Urgently focus on gathering more data on the efficiency and economic impact of projects working towards Ending Learning Poverty.

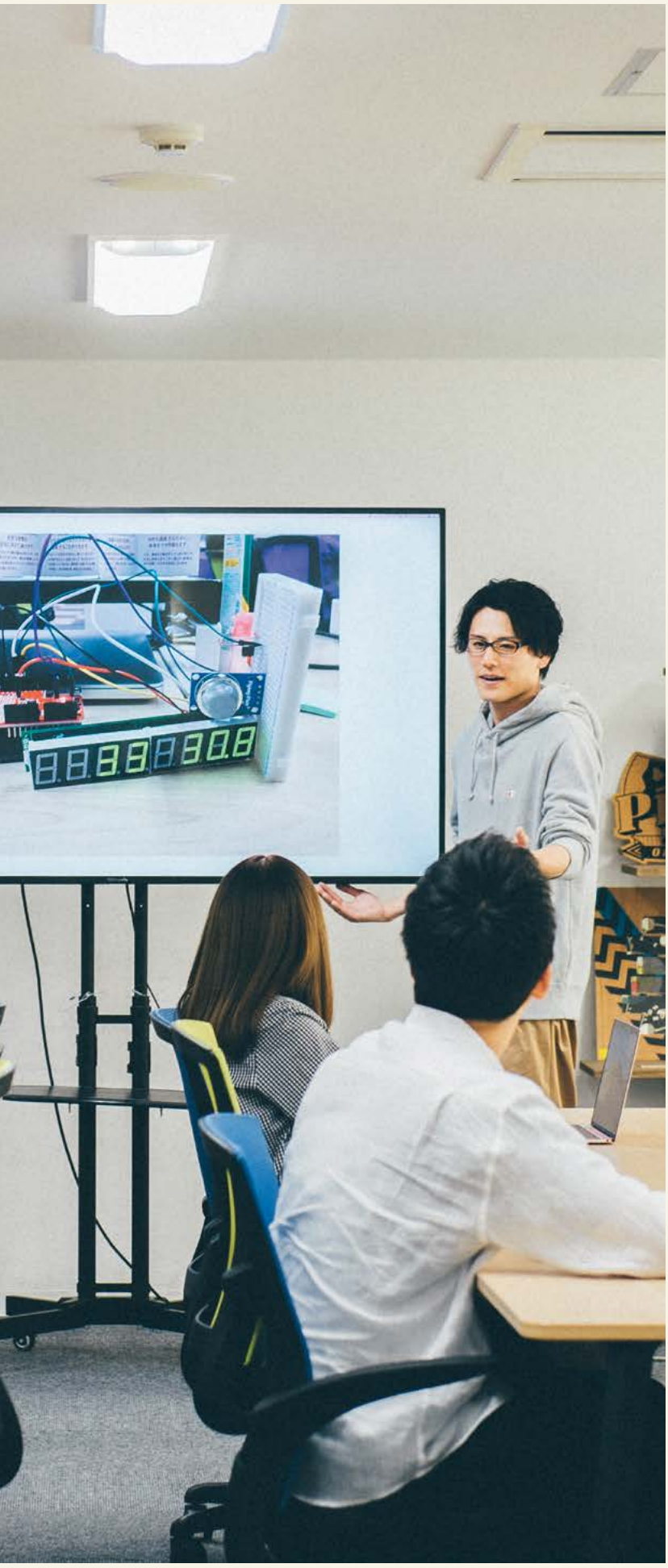
Our experts concluded that this is crucial because in order to survive and grow, the sector needs to rapidly and demonstrably prove that programmes are delivering return on investment for economies and national growth prospects.

Reduce the typical education data cycle length, and reform the way data is gathered and fed back in education settings.

Our experts concluded that the best and most cost-effective way to do this is to develop a national assessment system, which would also help ensure that education data gathering finally escapes silos. They also warned that governments that ignore this call risk wasting resources in Education Reform efforts.

Create resources and in-person access projects aimed at helping EdTech entrepreneurs and other business leaders actually understand how schools work.

Our experts concluded that a disjointed relationship between these two stakeholders currently often leads to the wrong EdTech products in schools, under-utilisation of products, and wasted budgets. Policymakers investing in this project would help both pupils and locally-based EdTech companies succeed.



Our Councils called on key stakeholders, including the media and EdTech innovators, to:

Help amplify systemic Learning Poverty issues and potential workable solutions.

These include funding education journalism exploring successful initiatives, and working "outside in" to place education stories in the media alongside those on other vitally important issues such as emissions reduction.

Work more closely with academics to ensure that, going forward, EdTech startup products are more often created around proven research and data.

Our experts concluded that there is currently too much 'tail wagging the dog' in the sector, with too many products based on little proven data on what really works in education settings.

End the practice of offering free trials of products in less advantaged education systems, only for these products to be unaffordable for those systems and schools at full price.

Our experts outlined how ending this practice could help improve learning outcomes and the utilisation of EdTech globally.

03

HP Futures Council on Tomorrow's Schools

Pushing boundaries to ensure that education systems are prepared for a tech-driven future

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FOREWORD

Schools and classrooms have changed dramatically over the last decade, both in terms of tech-based equipment available and educational approaches.

In high-performing schools in higher-income countries today, students have computers and laptops to use in lessons – giving a real boost to those with further educational needs – and access to the latest EdTech products. Classes are held interactively, and lesson plans are geared towards students' wellbeing as much as their attainment. In less advantaged contexts, innovative tools and techniques are now helping schools leapfrog and close learning gaps.

However, we are still far from the global goal of Ending Learning Poverty, and education systems across the world are failing pupils at an alarming rate. Today, in the vast majority of countries, education policies are not evolving fast enough. Too many curricula are still stuck in the 20th Century, and very few are taking full advantage of the groundbreaking technologies and educational practices that have the capacity to create revolutionary schools of the future. This does not have to be the case. Many of these tools are cheap or free, including AI-powered assistants, and there are ever-more transformative models and initiatives emerging that can serve as inspiration.

As a Council, we approached the question of Tomorrow's Schools with an open mind. We set as few boundaries as possible, embracing everything from the idea of hybrid school setups to the use of virtual reality (VR) and augmented reality (AR) software in lessons, and addressed both the potential and dangers of AI in tomorrow's classrooms. We explored the science of learning and challenged norms, asking questions such as: *Why do we still start school days at a time that has been scientifically proven not to work for teenagers? Why are we still splitting lessons into categories that were made for an industrial age, not an interdisciplinary knowledge economy that will require multi-skilled talent?*

Together, we looked to find examples of schools already innovating with future-facing curricula, and to extract key takeaways from their practices. Through our discussions, we tried to draw up novel recommendations based on our Council's diverse and expert experience, which spanned teachers educating on the ground, academics and policymakers in charge of setting education agendas.

We hope that this report can act as a spark for boundary-pushing conversations in policymaking and education settings, and provides a blueprint for feasible adaptations as schools embark on transformation pathways. As Co-leads, we ended our time on this HP Futures Council more hopeful that the transformation of schools across contexts is possible in the near future.

With many thanks,

Asheesh Advani
CEO, Junior Achievement (JA) Worldwide and Co-Author, Modern Achievement

Tunde Agboke
Director of Government Affairs Advocacy Strategy, HP
Co-leads, HP Futures Council on Tomorrow's Schools

Chapter 1

Reimagining Tomorrow's Schools: Establishing core principles and a vision

As this is an open-ended topic, we dedicated time to establishing a shared baseline for our Council's conversations. We then outlined a broad vision for Tomorrow's Schools.

These principles included:

- Basing discussions on the assumption that **connectivity** will be omnipresent in the near future (4G/5G).

- Basing our visions on the principle that the current model of education scales for the haves, but not the have-nots, so it needs to change. We discussed how much the current model of education and school set-up favours advantaged young people, particularly when it comes to physical school building quality and resources. We agreed, therefore, to reimagine Tomorrow's Schools as Learning Spaces, and look at how to build **equity** from the outset.

- Assuming that schools of tomorrow will need **a hybrid system** - a mixture of virtual and in-school learning - and that school systems generally need to be redesigned to suit a mixture of asynchronous and synchronous learning formats.

- The expectation that schools will need to evolve curricula of the future, with social and emotional learning (SEL) centred, particularly in hybrid settings, and greater focus on extracurricular activities. We discussed how SEL skills will be essential in next-generation economies, and are currently under-delivered and under-prioritised in most education settings. Members discussed how SEL learning should be integrated into overall learning in Tomorrow's Schools, rather than being seen as a **"marginal"** topic.

- In the context of rapidly evolving technological advances, including with Generative AI, it is vital to address the question: *What are the critical skills students will need to develop in Tomorrow's Schools?*

- Agreeing to use the OECD Learning Compass 2030 as a reference point for our report. This is an evolving learning framework that sets out an aspirational vision for the future of education, and outlines key competencies and core foundations that students will need in 2030 and beyond, and which need to start being developed now.

- The baseline that Tomorrow's Schools must deliver a social fabric for students. Members discussed how the Covid-19 pandemic proved that the social fabric of education is key, and that in their experience it has been easier to make up for learning loss due to lockdowns/ remote schooling than for the consequent decline in social skills and uptick in social health issues. We discussed how this provided a helpful insight for suggesting parameters for synchronous and asynchronous learning in Tomorrow's Schools, and the need for a physical school to remain in some form.

- We agreed that, in creating a report envisioning Tomorrow's Schools, we did not have an approach or attitude of "because we haven't seen it, we don't believe it to be true".

Council Co-lead, Asheesh Advani, said: *"We don't believe that kids can learn social and emotional learning as easily via an online experience. We don't believe that the benefits of the protection of the child over the course of a school day, which requires a school building in our mind, could possibly happen online. I would challenge us to sort of see if we can think beyond some of these mental barriers."*

Chapter 2

Starting to deliver on a boundary-pushing vision

Our Council was in agreement that governments around the world need to rapidly transform and redesign the education system to create schools and curricula fit for tomorrow. This includes: having a genuinely effective approach to AI and a hybrid system with a mix of asynchronous and synchronous learning formats, centring social and emotional learning (SEL), no longer mirroring an outdated industrial system by separating subjects, and reforming assessment.

We were conscious that this is a huge undertaking, and may seem overwhelming for policymakers facing tightened budgets and demanding electorates. Therefore, in addition to outlining our objectives, we looked to share examples of initiatives already innovating with future-facing curricula, and to extract key takeaways from their practices to share in this report. We also shared our own experiences, cited research, and dived deeper into how to begin delivering specific areas of reform essential to delivering Tomorrow's Schools. These areas included: AI, hybrid learning environments and SEL skills, improving mental health among teachers and students, and reforming assessment.

AI / Generative AI in Tomorrow's Schools

As Generative AI is perhaps the fastest-evolving area of technological development in human history, it is currently unclear exactly how it will shape Tomorrow's Schools, and this can make it difficult for policymakers and school leaders to know how to approach planning Education Reform. However, it is clear that Generative AI will be a feature in education and students' lives more widely from now on, and Tomorrow's Schools will need an effective strategy. So, we explored ways in which teachers and curricula in Tomorrow's Schools could approach and navigate AI. These included to:

See AI as a helpful tool to ease teachers' administrative burdens, and create upskilling programmes to increase fluency

We explored how teacher groups are already seeing an explosion in asking how to use AI to make better lesson plans and visualise stories. In future, creating spaces for teachers to upskill, both in-school and virtually, will be key. Improving teachers' fluency with AI will also ensure it is not seen as a threat, and can be used most effectively.

Create an AI-proof online code of conduct in every Tomorrow's School - and enforce it

We discussed the potential harms of Generative AI in Tomorrow's Schools, including potential deepfakes and exacerbating bullying, and what could be done to avoid increasing inequalities and misuse of the technology. Our Council Member Arzu Atasoy, Director of ÖRAV in Turkey, pointed out that Tomorrow's Schools having clear policies with signatories will be vital. She is already seeing high schoolers using AI-based technologies to bully students, including through creating "unrealistic expressions" of students online, and to propel fake discourse.

We discussed the need for Tomorrow's Schools to establish and enforce these codes of conduct to ensure student safety.

Create curricula that develop students' minds in ways meant to ensure they can thrive in an AI-driven world, including through:

1 Teaching media literacy and critical thinking/metacognition

We talked at length about the lack of focus on critical thinking in education today, and how this needs to change: Tomorrow's Schools need to teach young people how to question, and to develop wider metacognition skills. We agreed that in future schools should also actively teach students media literacy, as pupils will need to be able to distinguish opinion from fact, and be aware of potential disinformation, in the AI era.

2 Ensuring that students develop resilient attention spans and evaluation skills through keeping novels on the curriculum

Our Council agreed that education ministers worldwide need to ensure that reading long novels remains on the curriculum in Tomorrow's Schools.

We explored how teachers have seen on the ground how critical this will be in tackling the "destroyed capacity to think in a deep and sustained way" brought about by social media use from a young age. Reading novels and other similar pursuits will also be crucial when it comes to developing the language and critical-thinking skills that will be essential in the AI era (as above). For example, students will need to develop more evidence-based reasoning - a skill Large Language Models do not currently have.

3 Asking students to answer three questions at an early stage

Our Council Member, Jiang Xequin, is a researcher at the Global Education Innovation Initiative at the Harvard Graduate School of Education, China, and teaches regularly in classrooms. He shared a useful method he is already using in the classroom for helping students prepare for the age of AI. Jiang asks his students to answer the questions: **"Why am I learning? What am I learning? How do I learn?"**

These sound simple, but Jiang explains that being able to answer the questions successfully "means a student will thrive". For example, if a student can answer why they are learning and where they want education to take them, it means they are self-motivated - a key attribute for success in the Knowledge Economy. If they can outline what they are learning in school, they are more likely to have a distinct learning path mapped out in their brain. And if they can answer: How do I learn? Effectively, it demonstrates they have established learning strategies - another key attribute.

Jiang Xequin said: ***"I would recommend that teachers ask these questions, particularly in less advantaged environments, because well-educated parents will ask their children these questions. Having an education goal and agency will only become more important in future."***

Creating "curricula of the future" and better school days in Tomorrow's Schools

We agreed that curricula of the future need to look drastically different to today. These are our key takeaway recommendations:

Curricula of the future should stop mirroring an outdated industrial system by separating subjects

We explored how asking students to choose subjects at a young age closes doors - say to a STEM career - that are already detrimental and may be catastrophic for job prospects in future economies.

The science of learning should be taken into account more broadly in the way Tomorrow's Schools are set up and run

We used school timings as a way into this conversation. We discussed how teenage students work best when they start school later due to finally having enough sleep at the right chronotype for their brain development, and when they don't cram too much into a single day without a chance to rest and reflect.

Singapore was held up as an example of a country experimenting with moving school timetables to take this biological reality more into account. The country's education ministry trialled pushing start times back by one hour and saw absenteeism levels drop. The move was not universally popular, however. It caused issues with traffic and frustrated some parents. The Singapore Ministry of Education has since given schools the flexibility to decide their start times, making it an example of how taking the science of learning into account can have a tangible impact.

We discussed how education systems are seen as complementary to the economic system, rather than placed at the centre, and that this is unlikely to change. However, we discussed smaller changes that can be made in Tomorrow's Schools – such as changing school timetables to widen gaps between classes to allow for reflection, or having shorter holidays in the summer to support learning evolution, especially for disadvantaged pupils.

Similarly, we discussed schools using novel approaches to projects, including mixing age groups and bringing in university students to work with school groups, in order to improve the learning process and widen horizons in Tomorrow's Schools

Council Member Carla Aerts, Futures of Education and AIEd Consultant and former Global Digital Director of Education for Cambridge University Press, and former Director of Futures at UCL Institute of Education, raised MyMachine as an example of the sort of initiative that could be deployed.

The Belgian organisation asks primary school children to invent a dream machine, before higher education / university students design a concept based on the idea, and high school students build a working prototype. The result is presented to both teachers and business leaders with the potential to commission the technology.

In the process, everyone learns from each other, and it creates a unique learning environment that challenges norms of segregating by age. It draws on the innovative nature of young children, and varied expertise. The model has been very successful and has now been franchised in several countries.

> Carla Aerts said: ***"This is a completely different model. Do we need to retain thinking of ages, and can we consider stages and crossing the boundaries between them? Classes should no longer work by ages alone, project-based learning and new approaches to learning should consider how we can cross the ages and stages and bring stages together in new learning models."***

Delivering assessment reform

Our initial discussion revolved around changing the culture of assessment, in light of the pressure this places on students and teachers. We said: ***Over-assessment is currently failing so many students worldwide - can it really stay for the school of tomorrow? And, if not, what will replace it?***

Many Council Members advocated for scrapping "high stakes" assessment in favour of a better way of measuring learning and aptitude and skillsets needed for the future.

Yi-Xian Ng, CEO of EtonHouse schools group, based in Singapore, testified to the fact that existing assessment systems are holding back innovation in developing countries. He said: "The objective is to ace exams, not to develop skills that are a passport for the future. This needs to change in Tomorrow's Schools."

> **We concluded that Tomorrow's Schools should prioritise alternative methods of assessment, including collaborative projects, ongoing coursework, human-in-the-loop feedback sessions, and multi-disciplinary assessment of Knowledge Economy Skills.**

Creating hybrid schools of the future

Firstly we decided to stress in our report that hybrid does not just have to mean at-home and in-school building learning – it could involve learning at a farm, or in workplaces, or in other diverse settings.

We then looked to find case studies of schools already experimenting with hybrid formats. These included One School Global, an interesting example of an Australian schools group with outposts around the world that is already successfully operating a hybrid approach. The group aims to develop learners who **"learn how to learn"**, and serves as an example of a group pushing boundaries.

Read more

Improving mental health in Tomorrow's Schools

We concluded that schools of tomorrow need to be centred around ensuring that children are genuinely happy at school – and that we finally banish the idea that it's normal for children to be unhappy / sad to go to school. We discussed the fact that happiness at school is often not valued by parents as much as other attainment factors, and talked about setting pupil happiness levels as an indicator or benchmark measure for schools – particularly during teenage years.

Our Council Member, Anna Pons Vilaseca, is Project Lead, Schools+ Network for the OECD, and she convened a conversation around the latest PISA results. **Pons Vilaseca raised the latest report's finding that just 15% of pupils thought their teachers believed it was important to ask how they were doing mentally and emotionally.**

> Anna Pons Vilaseca said: ***"For Tomorrow's Schools, it's not just about building nice and respectful relationships, but also about building an open, respectful environment where we really talk about how students are feeling and their wellbeing. In this context, we are also seeing the importance of parents and parental involvement with the school."***

Delivering for teachers in Tomorrow's Schools

As a Council, we collectively emphasised the importance of putting enough focus on Tomorrow's Teachers - they are vital to delivering anything like what we want to see in Tomorrow's Schools.

We discussed many aspects of how to improve teachers' experiences, offer support and help retention levels.

We discussed how improving teacher mental health will be crucial in creating effective schools of tomorrow

Yi-Xian highlighted the success of The Contentment Foundation, an initiative offering schools around the world advocacy and mindfulness programmes. The foundation also offers programmes helping schools keep track of their teachers' mental wellbeing and help with continuous monitoring of this as a factor. We argue that these types of initiatives should be commonplace in all Tomorrow's Schools.

Read more

Council Members also suggested that education ministers should implement initiatives to help teachers get beyond the school gates into workplaces their students hope to enter, in addition to greater numbers of conferences

Our group discussed offering teachers mini **"work placements"** in other sectors, and other initiatives. The idea being that this would in turn help expand students' horizons and improve social mobility and access to opportunity. These initiatives could be run virtually, hybrid, or purely in-person, and would not be an expensive undertaking. They would, however, potentially improve teachers' careers guidance and help Tomorrow's Schools educate for workplaces of the future.

Changing learning systems to ease the burden on overworked teachers, including initiatives such as pupil-pupil learning

We discussed how research has shown that specially in mixed groups or mixed abilities - both learner and the "learner who is coaching the co-learner"- learn better and have better learning transfer and better agency, which is the key for future learners to navigate the challenges of the world.

Allowing teachers room to innovate more in Tomorrow's Schools

Martin Caceres, Director of the Centre of Innovation at the Ministry of Education, Chile, is actively involved in policy making, and stressed that governments need to implement policies that lower barriers to innovation in schools, promote school leader agency, and raise **"smart accountability"** for teachers.

Delivering next-generation Social Emotional Learning (SEL) skills education in Tomorrow's Schools

We explored how SEL skills can be integrated into core curricula, and initiatives that are succeeding in this area. **We decided to highlight a few of these in our report, including:**

The 6 Cs

Council Members brought up the framework/ work of Temple University's Kathy Hirsh-Pasek and the "6 Cs". To summarise: In 2016, Kathy Hirsh-Pasek (Temple University) and Roberta Golinkoff (University of Delaware) published Becoming Brilliant: What Science Tells Us About Raising Successful Children. Their book introduced these vital skills for the information age as the "6 C's": Collaboration, communication, content, critical thinking, creative innovation, and confidence.

We decided to highlight the 6Cs as an ideal place for policymakers to start exploring SEL skills implementation in schools.

SEL-based curricula in Camino School, Brazil

Council Member Leticia Lyle is Principal of Camino School in São Paulo, Brazil. We featured the school as a case study, because it is a clear example of a setup moving towards that of a Tomorrow's School we envision.

The school operates on the theory of open boundaries, diverse, and non-linear systems. Its teaching system values delivering life skills and concepts for students as much as curriculum delivery, and focuses on building Knowledge Economy Skills including SEL capabilities. Lyle shared an example of this approach in action, where the school found that exploring emotional and socioeconomic topics in drama settings helped students develop their metacognition and confidence post-Covid lockdowns.

She said: "Our 9th graders went through the pandemic. They developed anxieties and are still dealing with anxiety, and the only way we saw them break out of their shells was through an intense drama programme. They are now putting back into the school system, writing and putting on plays themselves."

Chapter 3

A checklist for Tomorrow's Schools

Based on our conversations, we looked to create a helpful summary of key points to consider for school leaders looking to evolve learning spaces and curricula of the future.

Tomorrow's Schools will broadly need to:

1

Consider, confront and transcend the constraints of traditional:

- Teacher training programmes
- School environments
- Curriculum structures, principles and practices
- Assessment modalities, principles and practices
- Tertiary / career expectations and pre-requisites
- Teacher / parent / student dispositions
- University expectations
- Students' prior learning
- Socio-economic barriers

2

Exponentially empower education access for stakeholders (students, teachers, parents) who represent the full spectrum of instructional environments and dispositions.

3

Take a "modular" approach to education services and structures. Schools need to be flexible enough to be repurposed in ways that can suit any instructional curriculum and any learning context. For example, they need to be able to rely on technology or ban mobile phones, depending on the context.

4

Leverage technology to create space and valorise:

- The social contract of teaching and learning
- Higher-order teaching and learning factors that have the greatest impact on learning outcomes
- Individualised learning and agency
- Non-subject specific learning domains: inquiry, critical thinking, problem solving, collaboration, conflict resolution
- Physical, social, and emotional wellbeing
- Resilience, self-regulation, and adaptability in the face of constant change
- Career readiness and employability

Conclusion

Our Council's key findings and actionable recommendations for policymakers and education ministers looking to create effective schools of tomorrow include:

Governments around the world need to completely transform and redesign the education system to create schools / curricula fit for tomorrow. This includes: having a genuinely effective approach to AI and a hybrid system with a mix of asynchronous and synchronous learning formats, centring social and emotional learning (SEL), no longer mirroring an outdated industrial system by separating subjects, and reforming assessment.

Governments need to create and deliver education policies faster to attempt to keep pace with technological advancements, and implement policies that lower barriers to innovation in schools, promote school leader agency, and raise "smart accountability" for teachers.

Education ministers worldwide need to ensure that reading long novels remains on the curriculum. Our experts have seen on the ground how critical this will be in tackling the "destroyed capacity to think in a deep and sustained way" brought about by social media use from a young age. It will also be crucial when it comes to developing language and critical-thinking skills that will be essential in the age of AI.

Appendices

These are just some of the resources out of many shared during Council discussions.

Further reading on how Generative AI can be an engine of engagement:
https://seasaltlearning.com/engines-of-engagement-generative-ai-book/

A helpful resource for readers looking to learn more about reimagining assessment in Tomorrow's Schools is Rethinking Learning Models by John Kleeman at Question Mark/Learnosity:
https://www.questionmark.com/resources/podcasts/edtech-revolution-rethinking-learning-models-with-carla-aerts/

A useful report for reference on this topic from the OECD, which shares country findings from interviews with 15-year-olds, English-language teachers and school principals and wider background research, as well as a comparative chapter on key international insights:
https://www.oecd-ilibrary.org/education/how-15-year-olds-learn-english_a3fcacd5-en

HP Futures Council on Tomorrow's Schools Council Member List

Name	Title	Organisation	Region
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Aashti Zaidi	CEO	Global Schools Forum	UK

04

HP Futures Council on EdReform

Revolutionising data approaches, financing, and storytelling to reform education worldwide

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FOREWORD

Sustained Education Reform often ends up on the back burner during economic downturns as governments focus on immediate returns. This is a false economy, especially in an era where ensuring the next generation is equipped with first-rate, multidisciplinary skills both on and offline will be key to any country's fiscal success in the decades to come.

As a Council, we dissected the issues facing Education Reform efforts today and explored what governments and education leaders must now do to improve education delivery and close learning gaps globally. We started with one key question: *Why does the cycle of planned failure keep happening in Education Reform?*

Together we concluded that a continued lack of data in education settings, including data measuring the efficacy of Education Reform efforts, sits at the heart of many long-term issues in the sector. As Peter Drucker, the famed educator and management consultant, said: ***"You can't manage what you can't measure".***

We decided to explore the data question in Education Reform, collectively examining ways of improving data-gathering and dissemination processes. We then dedicated discussion space to the ongoing underfunding issue in global Education Reform , exploring the clear economic case for increasing education funding despite economic turbulence, and workshopped solutions to financing gaps and inefficiencies. As a Council, we were keen to emphasise that closing the global learning gap will require not just more efficient and equitable financing, but governments spending smarter. There is a clear role for data here, too.

Another key theme that emerged in our sessions was the imperative for improving storytelling about Education Reform. The education sector needs to "sell" the economic case for reform better to ministers, and organisations need to convey their programmatic impact in stronger, more accessible ways. To date, Education Reform advocates have often struggled to convey their stories - especially when it comes to driving home narratives that validate systemic change over isolated pilot programmes. In this report, we outline a more multifaceted approach to advocacy.

As a Council, we were also determined we would not make the mistake made by so many policy-focused Education Reform initiatives and discussions: forgetting teachers. In this report, we clearly outline that we believe sustainable Education Reform depends on teacher and school leader buy-in. And this requires policymaking that centres and professionalises educators from the start and adequately supports them in delivering programmes.

Finally, we shared case studies of initiatives illustrating these ideas in action, which we also hope prove useful for readers developing policies today. They include a UK initiative proving that effective use of data delivers results in Education Reform programme design, and examples from Ecuador of innovative, resource-light programmes that empower teachers to shape reforms.

We would like to thank every Council Member again for their time. We found these conversations thought-provoking and wish everyone luck as they continue to work towards a better future.

With many thanks,

Jane Mann
Managing Director, Partnership for Education, at Cambridge University Press & Assessment

Dr. Markus Schwertel
HP Global Policy and Strategy Director, International Organisations
Co-leads, HP Futures Council on EdReform

Chapter 1

Identifying the data challenge and potential solutions in Education Reform

Data and its role in Education Reform emerged as a key theme in our discussions. We concluded that a continued lack of data in education settings, including data measuring the efficacy of Education Reform efforts, is consistently helping contribute to a cycle of planned failure across most education systems.

After extensive discussions featuring contributions from Council Members working in very different contexts, we concluded that too many countries are not collecting enough, while others are collecting too much, and that most are failing to act/draw adequately on their measurements - or to create actionable insights. First-hand examples provided included data cycles often being so long that by the time ministers and policymakers receive the data in question, it is old and not hugely useful.

> "We don't even know what we don't know. Understanding of data is so mixed"
>
> Paul Skidmore, CEO of Rising Academies, Africa

Highlighting the scale of the data challenge, Skidmore said: *"In some of our government partnerships we've had instances of management information systems containing schools that don't exist, private schools mislabelled as government schools, schools no one can find because the GPS coordinates are wrong, schools where the recorded enrolment numbers don't match what you see when you visit classrooms and so on. A lot of data is being collected and for school leaders that can be a significant burden. But these quality issues raise questions about how useful any of it is, and make improving data a very high leverage investment."*

Azad Oomen is co-founder of Global School Leaders, a non-profit that develops effective school leadership to improve student learning. He has worked with schools around the world, and said the data situation in private schools is particularly concerning, as today "there is minimal data available on private schools that are now institutions educating a significant number of children in many systems". He emphasised that within countries and systems he has encountered, education data needs reform. **"The data doesn't speak to each other."**

We explored how this situation needs to change, and agreed that best practices being scaled across systems will be vital in delivering data reform.

Potential solutions discussed included:

Governments ensuring that their countries develop a national assessment and data collection system.

Harry Patrinos, Former Senior Adviser in Education at the World Bank, and Head of the Department of Education Reform and 21st Century Endowed Chair in Education Policy, University of Arkansas, said that developing such a system is **"the most cost-effective investment any country can make".** See appendices for report link. We discussed elements these systems would need, including segmentation and verification of data, and ensuring that every national assessment system has enough linking items to allow it to be compared with other countries, as well as useful within the national context. Also critical is the capability to draw swift and actionable insights from the data. We also explored how such systems will become even more vital as migration increases in future, and children need to be supported on integration into new systems.

Focusing on collecting different types of quality data.

We emphasised that many systems are focusing too heavily on the quantity of data over the quality and utility of what is being collected. We explored the types of data that it would be useful for EdReform advocates to offer education leaders and ministers going forward. These included:

Data that shows the creation of X no. of schools creates X jobs in the future to boost the economy.

Data shows that within X years you see an X return in learning outcomes through implementing X reform/ programme.

Data shows that if you change X and X teacher-facing policies, you see X improvement in teacher recruitment and retention levels.

The importance of bringing teachers on board with data-gathering processes, and of making sure their role in delivering data does not detract from their ability to teach.

We discussed how this is not happening today, with many teachers frustrated by being asked to record data that is then never used, and delivers no tangible returns. Data-gathering must be a helpful tool for implementers, as well as policymakers, in Education Reform efforts. As leading South African educator Mary Metcalfe, Executive Director at PILO in South Africa, said: *"The question should be: what action will the data inform? At what level? What will schools find useful, followed by all the users [policymakers etc] up the line?... Data must look at both the conditions of learning and the outcomes if learning it is to inform segmented and focused support."*

Chapter 2

Exploring the role and future of finance in Education Reform efforts globally

We started our discussions on finance in Education Reform by acknowledging a lack of funding, especially in lower-income countries**. Spending sits at around $50 per student in low-income countries compared to $8,000 in high-income countries today, and this gap only underscores the necessity for innovative and sustainable sources of funding to support even the most cost-effective interventions.** The Council agreed that it is now imperative to find new ways of injecting money into Education Reform initiatives, and that the situation is only becoming more urgent due to the global economic downturn, the end of the near-zero interest rate era, and increased competition for funds.

We reached several conclusions in our discussions. These included:

- **The reality that governments around the world must increase investment in education despite challenging economic times, and agreed to make this a centrepiece of our report.**

  This approach is rooted in extensive research. Examples include a 2020 study from the Washington Center for Equitable Growth which found that every $1 spent on education leads to a $1.66 return in economic activity later on, with greater effect during a recession. In short, investing in education today will deliver a significant return on investment for governments and economies long-term, while helping to deliver sustainable Education Reform efforts.

- **The urgent need for Education Reform efforts to "be more creative and inventive" when it comes to financing in future, and to centre data in those efforts. To this end, we also created a "data x financing" framework for Education Reform advocates to deploy.**

  We discussed how, currently, Education Reform advocates "short sell" education, failing to emphasise how when schools are built, for example, it creates jobs and demand for services and boosts the economy. In short, investing in education can deliver returns for finance ministers, as well as education ministers. Harry Patrinos, Former Senior Adviser, Education, World Bank; and Head of the Department of Education Reform and 21st Century Endowed Chair in Education Policy summarised the situation as: ***"There is an idea that Education Reform is expensive. But it's actually a very cost-effective intervention that countries can make. We need to show the data."***

We looked to create and share a new framework outline around data and financing in EdReform in our report in order to help solve this problem. We concluded that an easy, cost-light approach would be to:

- Collect better quality data and analyse it better, including feeding this data back within decent timeframes, and turning it into actionable information
- Use this data to pitch for more finance to fund projects
- Use high-quality data gathered on the effectiveness of these projects to pitch for further finance, and to support teachers and students better
- Repeat this process

Relevant case study:

The London Challenge, UK

The Council highlighted the London Challenge as an example of an Education Reform policy that succeeded in part through a healthy approach to data gathering, monitoring and feedback.

The London Challenge was an Education Reform programme initiated in 2003 aimed at improving schools in London, particularly those facing the most significant challenges. In 1997, just 16% of students in the British capital attained five GCSEs [qualifications taken at age 16 ahead of leaving school or enrolling in college] at grades A to C. The programme focused on enhancing teaching quality, leadership in schools, and collaboration between schools. It provided targeted support through the deployment of expert advisors and established networks for sharing best practices. Over time, The London Challenge contributed to significant improvements in educational outcomes across the city, and has since become a model often cited in discussions of effective educational reform strategies.

Council Co-lead, Jane Mann, shared learnings from the project as below, and highlighted how the challenge underscored the importance of leadership, stakeholder buy-in, and the use of data to monitor progress and adapt strategies. We also looked to highlight that, alongside data gathering, the most effective aspect of **The London Challenge** was that it was an intervention through which head teachers and teachers came to feel more valued, more confident and more effective. This reinforced our Council's key focus as outlined in the Introduction.

We discussed how The London Challenge was so successful because of factors including:

- Bringing in the right people to lead and manage the Challenge
- Understanding the nature of the problem and context for improvement
- Linking the aims to other government policy priorities
- Framing and communicating the purpose
- Having a wider team that reflected the ways of working required and a second group of people with relevant expertise
- Implementing change and developing policy through practice
- Ensuring buy-in from local stakeholders
- Drawing on assets in the system, building on existing good practice
- Managing expectations and creating space for ongoing learning
- Learning from experimentation
- Developing and sustaining a culture and ways of working coherent with the role of the Challenge
- Mobilising and empowering practitioners to develop professional ownership and accountability
- Establishing project management disciplines
- Using data to monitor progress
- Adapting to and celebrating success

Chapter 3

The crucial role of school leadership and teacher buy-in in delivering sustained EdReform efforts

We began discussions outlining the vital importance of centring both students and teachers in any and all Education Reform initiatives, and shared experiences showcasing how today teachers are still not being centred adequately in reform projects. We decided that our report should stress the vital importance of any Education Reform policies being deliberative, and formed in conjunction with frontline teachers and education practitioners in order to deliver sustained change.

Mary Metcalfe said: **"There has to be a belief that things have to change, and that the changes that are proposed are going to help educators with the problems that they face. If the proposed reforms don't help educators with the problems they're grappling with every day, what often results is polite agreement, but then people carry on doing what they believe works. Change is either not delivered or not sustained."**

We then discussed how the people and leaders who implement change and those who sustain it are often different. We discussed how Education Reform has to be sustained, and given the time and space to adapt, in order to deliver long-term.

As we said: ***"No reform is going to completely reach the bottom of an education system in two years."***

Examples of sustained Education Reform efforts shared by Council Members included Singapore, Finland, and Estonia – all countries that have delivered impactful, successful Education Reform over long periods. For example, Finland went from being a low-average performer in Europe to having the best education system in the world by 2000, according to OECD data. These countries often had less information and/or less funding to start delivering their reforms, but they stuck with them and were successful.

After extensive discussions, our Council Members concluded that significant shifts need to be made in the way teachers are brought into Education Reform globally. Our recommendations for change included ensuring reforms are built around evidence-based teaching practices, and ensuring that school leaders are well supported. Oomen said***: "School leaders are the most important factor. They can change the life of teachers, so we need to focus on giving them adequate support when reforms are implemented."***

Relevant case study:

Ecuador

Our Council Member, the Former President of the Republic of Ecuador, Rosalía Arteaga, had a long tenure as minister for education in Ecuador, and has worked on many Education Reform and policymaking efforts since leaving office. Arteaga shared examples of how, in her experience, strategic investment in teacher buy-in is a pivotal component for transformative Education Reform.

She shared a case study from her work with school leaders in Ecuador. The project saw school leaders create an organisation of teachers of excellence, all brought together through participating in a contest called Excellence in Education. The organisation brought together over 100 teachers to have proactive, collaborative discussions with fellow teachers about how to improve the quality of education and deliver reforms.

The former head of state began her own career as a teacher aged 17, and added that building teacher self-esteem needs to be a core part of any Education Reform efforts going forward. We discussed how this can be achieved through elevating the profession in societies with better pay, or through creating prizes and recognition, or other means.

Chapter 4

Storytelling and its role in delivering systemic change

Finally, we explored how storytelling is essential in delivering systemic change in education systems. To promote and deliver lasting change, we concluded that a core element of any successful Education Reform initiative has to be onboarding / convincing leadership at different levels, and building strong coalitions for change.

Our Council Members found that, in our collective experience, policymakers responsible for funding Education Reform efforts are moved by stories, more than statistics. We concluded that it is important that advocates take a more multifaceted approach to advocacy, targeting policymakers and wider civil society more effectively.

Council Members discussed how, in their experience, policymakers are often turned off by the idea of pilots, and want instead to know what large-scale reforms have proven successful in other, similar countries. The 'similar' is important here – our Council discussed the growing complaint from low-income countries that they are weary of being told to try initiatives implemented by high-income counties, which are clearly out of reach and contextually irrelevant when it comes to resources and infrastructure.

The takeaway from this, we believe, is that the sector needs to tell stories that convincingly validate systemic change. We concluded that telling these convincing stories on Education Reform will come down to sharing data demonstrating impact, alongside more convincing "hard sell" narratives.

> Veronica Cabezas, Director of Elige Educar in Chile, said: ***"The story we are 'selling' currently is not moving the needle. We need to talk about science, innovation, gender equity and the environment, about the transformation of the economy that Education Reform can create. We need to move forward in that direction."***

Conclusion

Our Council's key findings and actionable recommendations for policymakers and education ministers include:

Governments around the world need to increase investment in education despite challenging economic times. This call is rooted in data showing that every $1 spent on education leads to $1.66 in economic output later on, with greater effect during a recession. In short, investing in education today will deliver a significant return on investment for governments and economies long-term, while helping to deliver sustainable Education Reform efforts.

Governments need to ensure their countries develop a well-planned data and evaluation system, because this is the most cost-effective investment any country can make. It will also become even more vital as migration increases in future, and children need to be supported on integration into new systems.

Education Reform must be more deliberative and finally centre students, teachers and school leaders at its core to deliver sustained change. Efforts should also be made to empower teachers to contribute to shaping Education Reform policies, and to offer school leaders greater support in delivering programmes.

Our Council urged education leaders and ministers to finally conduct wholescale reform of data gathering and analysis in education to facilitate EdReform efforts. As explored above, this will require multi-stakeholder buy-in, and rely on data being analysed, used and fed back effectively into schools as well as into education ministries.

Appendices

These are just some of the resources out of many shared during Council discussions.

Further reading on moving towards Mature Digital Education Ecosystems:
https://www.adb.org/sites/default/files/publication/915781/toward-mature-digital-education-ecosystems.pdf

Further reading on finance in Education Reform from The Education Finance Watch , a collaborative effort between the World Bank, the Global Education Monitoring Report, and the UNESCO Institute for Statistics:
https://thedocs.worldbank.org/en/doc/83e58d3341493b223668bb9d6cb7e9c2-0140022023/related/EFW-2023-Report-oct9v2.pdf

A deep dive into education finance and how it plays out in The Education Finance Playbook from Their World:
https://theirworld.org/wp-content/uploads/2021/04/The-Education-Finance-Playbook.pdf

More information on The London Challenge and how it was implemented, for reference for anyone looking to learn more on the case study shared:
https://www.instituteforgovernment.org.uk/sites/default/files/publications/Implementing%20the%20London%20Challenge%20-%20final_0.pdf

HP Futures Council on EdReform Council Members

Name	Title	Organisation	Region
Rosalía Arteaga	Former President of Ecuador		Ecuador
Veronica Cabezas	Director	Elige Educar	Chile
Priscilla Cruz	CEO	Todos Pela Educacao	Brazil
Jane Mann	Managing Director	Cambridge Partnership for Education	UK
Mary Metcalfe	Executive Director	PILO	South Africa
Neo Mothobi	Chief Education Specialist	Ministry of Education	South Africa
Christine Nasserghodsi	CEO	FuturED	UAE
Vongai Nyahunzvi	Founder & CEO	Alliance for Women and Girls	UK
Azad Oommen	CEO	Global School Leaders	USA
Norbert Pachler	Vice-Dean Enterprise	UCL Institute of Education	UK
Harry Patrinos	Former Senior Adviser, Education, World Bank; and Head of the Department of Education Reform and 21st Century Endowed Chair in Education Policy	University of Arkansas	USA
Natalie Perera	CEO	Education Policy Institute	UK
Sungsup Ra	Former Chief Sector Officer	Asian Development Bank	South Korea
Sarah Ruto	Director	Echidna Giving	Kenya
Chito Salazar	President	Phinma Education	Philippines
Markus Schwertel	Global Policy and Strategy Director	International Organisations, HP	Germany
Martha Shongwe	Chief Inspector for Secondary Education	Ministry of Education	Eswatini
Paul Skidmore	Executive Chair	Rising Academies	Ghana

05

HP Futures Council on Knowledge Economy Skills

Overcoming barriers to ensuring pupils are prepared for next-generation economies

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Probability Toss
L23
FOREST CONSERVATION: A GLOBAL VIEW
PROTECTING FORESTS
Europe Prior to 1900
L23

FOREWORD

The rapid rise of AI and automation will soon render many existing jobs obsolete. At the same time, the AI shift-change will open up new industries and career paths. The rollout of machine learning and Generative AI tools has already highlighted how recently undervalued human-facing 'soft skills', such as collaboration and communication, will be some of those most protected from the AI revolution. Other new Knowledge Economy Skills will include high levels of cognitive capacity and flexibility - our human creativity and capacity for critical thinking and analysis - and high levels of technology fluency and adaptability.

So, the question now is:

How do we skill today's students for the phygital [blended digital and physical] workplaces of tomorrow? And how do we overcome major global barriers to building these Knowledge Economy Skills?

As a Council, we explored what needs to change in education settings to ensure that young people are prepared to enter a Knowledge Economy era.
Most global curricula are still preparing students for a 20th Century labour market, and this is a race against time.

We were aware that it would be hard to find a global common denominator on key Knowledge Economy Skills, due to the difference in access and opportunities in different regions around the world. We therefore wanted our report to offer nuanced, case study-based findings with geographical context, and to bring in under-heard voices, particularly from the Global South.

In our discussions, we explored how to overcome barriers to building Knowledge Economy Skills in schools today, and looked to develop frameworks built on scalable principles extracted from successful initiatives. Here, our conversations benefited hugely from having teachers and heads of NGOs delivering Knowledge Economy Skills projects sitting alongside policymakers and academics. Contributions quickly became dialogue, and members shared genuinely powerful case studies from initiatives being implemented around the world from India to Honduras, Colombia and Austria. By the end of our sessions, we left feeling more optimistic about the future.

Together, our Council Members have created a suggested framework for how to deliver a Knowledge Economy Skills curriculum, identified scalable Knowledge Economy Skills solutions, and created a set of recommendations for global governments to implement.

We thank everyone on the panel again for their time, and HP for convening us together.

With many thanks,

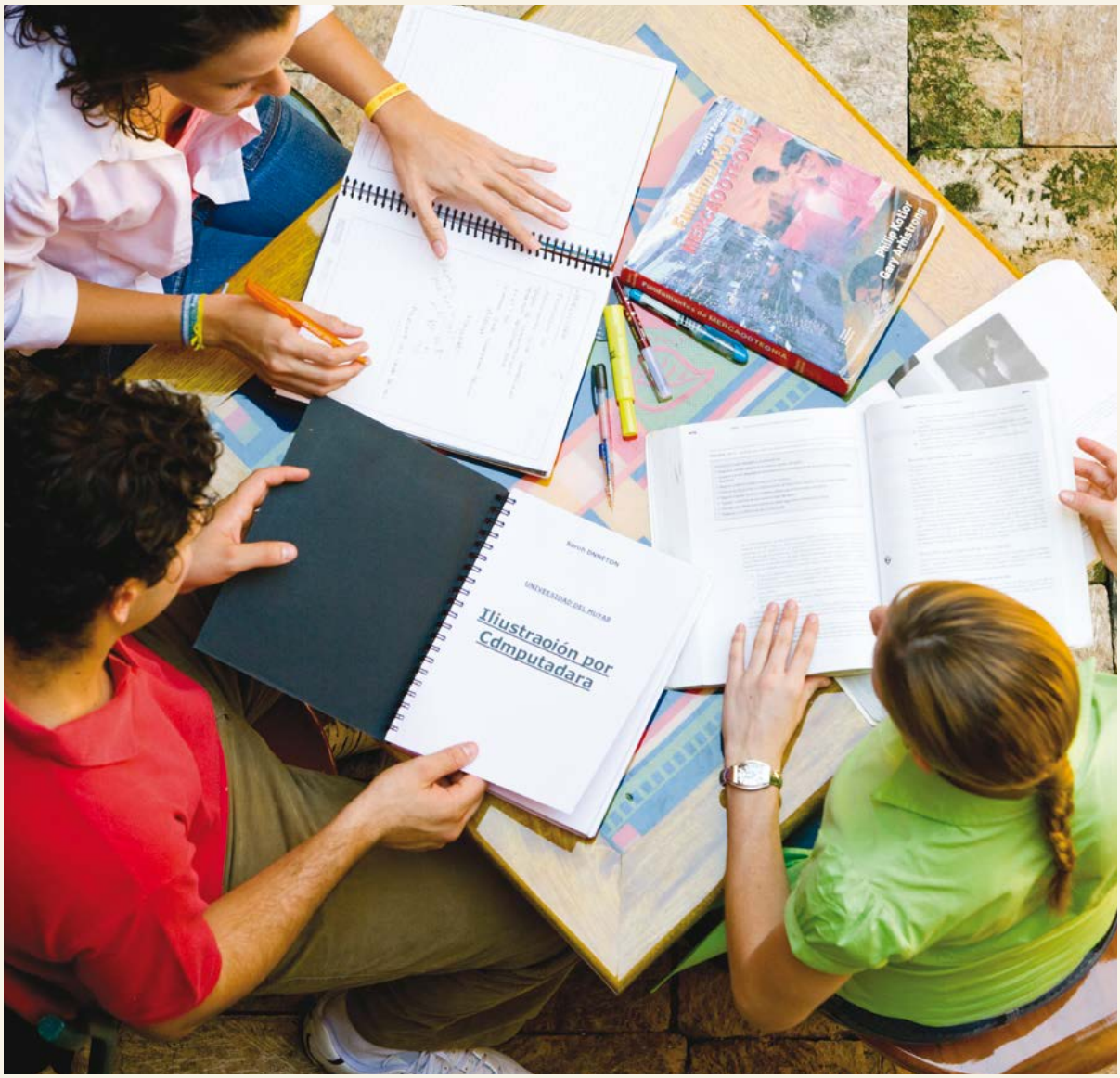
Nik Kafka
CEO of NGO Teach A Man To Fish

Michele Malejki
Global Head, Social Impact, HP Inc. & Director, HP Foundation
Co-leads, HP Futures Council on Knowledge Economy Skills

Introduction

Building Knowledge Economy Skills:

Scope and core principles



Defining Knowledge Economy Skills

There are many existing glossaries of what constitutes a Knowledge Economy Skill and we referred to several of these during our discussions.

Lists generally include these skills: Social and Emotional Learning (SEL) skills; STEM proficiency and critical thinking; digital literacy and information analysis; effective communication and global awareness; problem-solving abilities and adaptability; knowledge of current global issues and cultural competence; digital and data literacy; adaptability and resilience in a rapidly changing tech landscape; proficiency in emerging technologies like AI and IoT; entrepreneurship and innovation.

We noted that the majority of Knowledge Economy Skills listed in most glossaries are primarily relevant for the top 15-20% of students who join the job market. They don't apply to the majority of the students who either dropout of school or university or are unable to find jobs post-graduation, and this is an issue we looked to work around while deep-diving into the barriers to delivering Knowledge Economy Skills, and pedagogical approaches that have worked to date.

Environmental awareness as a core Knowledge Economy Skill

Our experts agreed that it is vital to instil a sense of agency in K12 students today, as they need to believe that they can design and change their world in order to combat the climate crisis. Apathy among the next generations is not an option. In this context, we highlighted the potential barrier emerging of a growing tension in education between employability (teaching to competencies and skills) and teaching for societal outcomes (ethics and global citizenship). We agreed to state in our report that governments and school leaders must work to avoid this tension, and instead see these different approaches as both necessary and complimentary.

Ensuring we never confuse training and education when it comes to Knowledge Economy Skills

Our Council advocated for the idea that education institutions must never lose sight of the fact that their main objective is developing people, and that this includes developing skills. Leo Schlesinger, Former CEO of Aliat Universities in Mexico, said: ***"The issue comes in when you focus only on know how and not know why... In today's world we are obsessed with solutions, tech and content. We must not lose sight of needing to instil young people with a sense of purpose and to know why."***

Recognising the potential benefits of private sector involvement in developing Knowledge Economy Skills

We explored how the private sector can help in equipping pupils with Knowledge Economy Skills, through partnerships, work experience opportunities and more - especially in the digitalisation arena. We also decided to focus discussions on several entrepreneurship and wider **"real world"** skills-building programmes in education and their success in different regions.

Setting our North Star: equipping students with rounded Knowledge Economy Skills for dignified livelihoods

Not all jobs are dignified or fulfilling. Our Council decided to focus on how to equip students with all the Knowledge Economy Skills needed to achieve not just jobs, but fulfilling livelihoods and careers. In this context, we also discussed the importance of ensuring all students, regardless of background or region, receive education that equips them with essential civic education and economic understanding. For example, many students currently do not receive this type of transgenerational, osmotic advice at home or in school, which has negative consequences. These will be Knowledge Economy Skills, and need to be incorporated into the curricula of the future.

Chapter 1

Identifying and exploring global barriers to Knowledge Economy Skills development

As a Council, we identified major barriers to Knowledge Economy Skills development as being:

- Geographical barriers
- Adverse childhood experiences
- Structural and systemic inequities caused due to gender, race, caste, class and other inequities
- Low / no linkage between education and current job/ career/livelihood prospects
- Unreliable connectivity
- Lack of a Knowledge Economy Skills labour market
- Lack of fluency in English

We decided to explore looking at overcoming these barriers through a prism of four factors:

Government

Curricula

Parents' expectations of education systems

Resources

Curricula stuck in the past

We explored how two of the biggest global barriers to building Knowledge Economy Skills today are a) lack of space in the curriculum, and b) what education systems (and society) want to value. We convened around the theme that many curricula remain stuck in the 20th Century and desperately need reforming, ideally in conjunction with UN Global Sustainable Development Goals.

Lack of resources and geographical barriers

We dived into geography as a barrier, and highlighted the need for in-person, synchronous programmes to help develop Knowledge Economy Skills, not just online / virtual sessions. We highlighted the fact that in-person initiatives are far less common in disadvantaged communities - a situation that needs remedying.

Gaps between policy and implementation when it comes to Knowledge Economy Skills delivery in schools – partially as a result of parent attitudes to Knowledge Economy Skills - focused Education Reform

Divya Patel, CEO of Ishk Tolaram Foundation, based in Singapore, shared experiences of observing a "huge gap between policy and implementation" when it comes to Knowledge Economy Skills delivery today in Singapore and Indonesia.

> Divya Patel said: **"These countries have good policies for Knowledge Economy Skills and enquiry-based learning, and for building out 21st Century skills, but there isn't adequate teacher training, and parents are also part of the problem. They are still expecting academic success, and apply pressure on schools, saying: "please show me how well my child is doing on the curriculum front."**

Simran Mulchandani, CEO of India-based platform Rangeet, which supports schools in implementing structured Social Emotional and Ecological Knowledge (SEEK) lessons and resources, brought forward another recent example of parents being a barrier to progress in Knowledge Economy Skills development in schools in Bangladesh. The country decided to end traditional exams taken at the end of primary school, while bringing SEL learning into the mainstream. Instead of celebrating, parents took to the streets, furious that exams had been scrapped and saying: *"How will we know how well our child is doing at school?"*

The Council explored how addressing entrenched attitudes like these are a major barrier to overcome, and acknowledged the difficulties governments and education ministers face when parents have conservative expectations for education systems, and vote accordingly.

Siloed positive developments and lack of collaboration

We explored how there are many solutions already in operation helping students build Knowledge Economy Skills, but that the majority of these effective solutions are siloed and do not make it into mainstream education systems.

> Vishal Talreja, CEO of Dream a Dream, an initiative helping children and young people from vulnerable backgrounds thrive in education, said: **"A lot of solutions are trying to get into systems and many are making those efforts. But even here in India, conversations are largely happening with people who have worked on these solutions already. The people who are actually taking the decisions – policymakers and private sector leaders – are not involved. How do we build narratives that last over a 20-year frame and make Knowledge Economy Skills education the norm?"**

Governments actively incentivising competition between schools

We explored the harms this approach is causing, as it effectively hampers collaboration on positive Knowledge Economy Skills-building initiatives between schools desperate to stand out in inspections. This is particularly an issue in wealthier countries, including the UK. We discussed collaboration-enhancing policies that are already delivering results.

The "it's not my problem" barrier

Our Council Members posited that, today, many education systems, schools and teachers do not see delivering Knowledge Economy Skills-based education or training as their responsibility. We discovered as a Council that this "mindset barrier" has emerged across varied geographies and contexts, and discussed potential solutions (see below).

Chapter 2

Our framework for delivering Knowledge Economy Skills curricula of the future

Start building Knowledge Economy Skills in Early Years – it will increase equity as well as Knowledge Economy Skills

We explored how the more exposure children receive to a range of opportunities to become adaptable and cultivate agency at a young age, the better. Rapelang Rabana is co-CEO of Imagine Worldwide, a pan-Africa focused initiative delivering tech-enabled literacy and numeracy learning to children in countries including Sierra Leone, Liberia and Burkina Faso.

She highlighted the "huge impact" of establishing Knowledge Economy Skills such as agency and fluency in under-7s.

> Kiran Bir Sethi, Principal of Riverside School in India, said: **"In less advantaged schools, it is particularly vital to ensure children don't see themselves as vulnerable or victims. It is about creating 'design thinking' from a young age - it builds SEL results. We need to democratise agency, to make it clear that any child can make a change."**

Build in English language support from a young age

We discussed how being fluent in English will be a Knowledge Economy Skill needed for tomorrow's economies. We agreed that education systems offering free English tuition/learning on apps such as Duolingo for young students will be important in overcoming language barriers and developing Knowledge Economy Skills needed for tomorrow's world. It is also an easy fix, and provides a baseline of resources, delivering agency and fluency.

"Create agents for change": Build in environmental awareness and planet education through active programmes

We recommend helping students develop competencies and adaptability around climate change, including a growth mindset.

Examples included running "Trash to Cash" projects, which help young people deal with environmental problems in the community while generating income as part of the process, and The Medellin Challenge, which looks at ways in which kinds of challenges that the sustainable development world looks to address at a global level manifest in the local community. The challenge then asks students and teachers to work out what they can do together to address that local manifestation, including using knowledge acquired through their high school curriculum. Other examples include a triangulated project at the Smithsonian Center for Science Education. This looks at the UN's SDGs, what pupils are learning in their high school science curriculum, and the Knowledge Economy Skills that they need to build to try and make a difference.

We discussed the importance of rolling out and mainstreaming these types of projects around the world to improve both Knowledge Economy Skills development and address the climate crisis.

Teach AI literacy in schools

In future, as Generative AI and automation take hold, curricula will need to develop students' critical thinking skills/cognitive capacity, their socio-emotional capabilities - such as their ability to speak, to articulate, to be creative - and their technological competency. Adaptability will also be essential. As we discussed, even career trajectories that made sense a year ago may no longer be wise to pursue due to AI advances. Essentially, curricula of tomorrow need to train young people with the skills to do the jobs computers can't do, and in how to adeptly manipulate and manage Generative AI and rapidly evolving VR and other technologies. Those are Knowledge Economy Skills. We discussed how curricula need to teach young people to use Generative AI in school, and how to navigate it - including spotting manipulation and fake news.

Bring parents onside - show them the value of building Knowledge Economy Skills

Nik Kafka is CEO of NGO Teach A Man To Fish, an organisation helping young people around the world develop skills that are valued by employers and that allow them to adapt to an ever-changing world. The organisation has recently rolled out entrepreneurship education into all school sectors in Honduras after securing a partnership with the Honduran government.

He said: **"The interesting part we have found in our kind of approach is that sometimes these barriers can be both a barrier and a solution."**

Kafka explained how projects have been most successful when parents have been brought onside and changed their attitudes. He said that Teach A Man To Fish has found that bringing parents into schools to see their children learning in different ways can be effective in achieving this goal. He cited an experience at a partner school in Paraguay, where parents arrived with "a lot of suspicion", and left reassured. "When parents can go along and experience 'learning by doing' first-hand, that's potentially transformative," he said.

Mainstream Social Emotional Learning (SEL) through new programmes and approaches

We discussed the importance of ensuring that SEL and key associated skills such as agency, fluency and confidence receive enough focus in education going forward. These "soft" skills will be particularly important in the coming age of AI and automation, especially adaptability and resilience. We discussed **eliminating a hierarchy of skills** and flagged interesting programmes making progress in this area, including the Social Emotional and Ethical Learning programme at Emory University in the US.

Part of the solution here will be curricula moving away from teacher-centred academic, artificial subject barrier curricula, and towards working transversely and having more multidisciplinary project-based learning.

Launching more entrepreneurship and "experiential education" programmes

These types of programmes are becoming increasingly popular, and can help build Knowledge Economy Skills including SEL skills, while opening up career and networking opportunities, and ensuring children stay in school.

For example, Ronit Avni, CEO of US-based EdTech Localized, cited a recent case study of a school where four-year-olds were asked to interview the whole school and design a prototype, and then present it on a podium. This is a clear example of an initiative building essential skills from a young age.

Simi Nwogugu, CEO of non-profit youth organisation JA Africa, based in Nigeria, gave another clear example of this approach scaling effectively. **She shared a case study of this "teaching by doing" working in action.** This year, JA's Company Programme will see students develop companies that battle climate change issues within their communities. The students learn entrepreneurship and design thinking skills and apply it to their businesses. Winning teams of high school students will meet in Mauritius in December to showcase their businesses and compete to win.

Nik Kafka, who also runs entrepreneurship programmes in schools globally, agreed. He said: **"In our work, we often see young people who would have dropped out of school are able to stay in school because they learn something useful [through our programmes] about how they could support their families to make a bit more money - and money is the main reason why pupils drop out."**

Upskill and prioritise teachers: Invite educators into business settings to help overcome the "it's not my problem" barrier

We discussed how teachers will be a key part of any solution to overcoming entrenched barriers. We explored how teachers are too rarely invited into business and other wider settings for their input, and/or for them to gather greater understanding of the workplaces they are preparing pupils to enter. Delivering programmes bringing teachers into a range of workplaces would be a cost-effective way for ministers and school leaders to deliver change in mindset, and this could be run alongside programmes bringing young people into companies earlier in their education – which is also important in helping bridge the digital divide to help with upskilling.

Finding workarounds to deliver Knowledge Economy Skills in education systems

These include projects embedding workaround Knowledge Economy Skills into already required elements of a country's education system. Kafka cited an example of using the handicrafts curriculum requirement in India to bring entrepreneurship and teamwork skills to young people and deliver value. **See case study below on Choithram School.**

Utilise "paying it forward"

This is a useful tool for developing Knowledge Economy Skills in less advantaged schools, or schools where curricula are slow to change. Students who do well and go on to higher education and great jobs could be brought back into K12 environments more often - something strangely missing in how much of education is set up. These **"near-peer" mentors / "proximate role models"** can have a big impact.

Incentivise collaboration between advantaged and disadvantaged schools, and work to share best practices more widely through prizes and media outreach

Our council stressed that there is cause for optimism: there are many solutions out there on how to help build Knowledge Economy Skills – it's just that a lot of these solutions are siloed. We concluded that initiatives such as prizes and awards are key to helping to share and globally amplify innovative Knowledge Economy Skills solutions being built in schools around the world.

We looked at approaches to achieving greater collaboration between schools. Angles discussed included implementing holistic non-siloed coursework, and raised case studies where education ministers have lifted measures that pit schools against each other for extracurricular delivery **(see case study below on Scotland)**, leading to increased Knowledge Economy Skills programme delivery.

We dived into the impact that prizes, such as T4 Education's World's Best School Prizes, can have on the spreading/contagion of brilliant Knowledge Economy Skills initiatives. For example, a school in the Philippines grew an entire mangrove ecosystem over 10 years. As a result of winning the prize, the region's education secretary went on to fund a climate action project for 1.2 million learners - a clear example of positive national change emerging as a result of highlighting smaller projects' success. We discussed how it is vital that such impactful school initiatives are highlighted more widely, so that other schools can learn from and copy their success.

Chapter 3

Case studies showcasing scalable Knowledge Economy Skills solutions and projects

UK: Increasing collaboration through systems-level policy changes

Dominic Regester, Director, Education Transformation at Salzburg Global Seminar, highlighted a powerful case study from Scotland, UK.

Scotland offers a strong case for systems-level policy change having a huge positive impact on Knowledge Economy Skills development in a country. The country's education minister altered its National Assessment Framework to state that a school could not be rated outstanding without demonstrating how it is actively collaborating with another school.

> Dominic Regester said: **"They built that aspect of a curriculum around an idea of system leadership, which says that if one child is failing in any school, then the system isn't working. This kind of approach to incentivising collaboration across the system has been really effective – and it's something which is replicable and scalable, and not massively expensive."**

India: Knowledge Economy Skills curricula inspiring enormous agency and changing lives on the ground

Simran Mulchandani, CEO of India-based platform Rangeet, which supports schools in implementing structured Social Emotional and Ecological Knowledge (SEEK) lessons and resources. He shared a powerful case study that demonstrates the real-world impact of young people in less advantaged contexts learning Knowledge Economy Skills such as agency and fluency.

In 2020, a 10-year-old boy noticed that a girl in his class was about to be married off to an older man, and had the agency and confidence to go to his teacher and parents about the issue and get them involved. A similarly inspiring example emerged in Rajasthan, where pupils petitioned village elders to build a tube well to avoid wasting water, after being educated both on the environment and on campaigning / the power of their voices. All these pupils had been taught with **"active pedagogy"**, with sessions focused on learning about the self, society, ecology, and what pupils can positively do to impact the world.

Link to further information Read more and Read more

India: Building agency on the environment into the curriculum

As explored above, environment education is not just about teaching about climate change. It is about helping children to cultivate agency in the face of climate change. This is especially important when many children around the world will go home to adults repeating negative, planet-destroying habits.

Mulchandani shared a simple framework for how Rangeet has approached this problem in India, which involves anthropomorphising nature, and getting children to write stories about why trees are magical based on research by Canadian foresters into the social life of trees. **"When a child in first or fifth grade reads this, he realises the magic of nature. He realises why the Amazon is important. By building this you develop advocates in their own communities who care enough to make a change and protect the planet. It is agency-building."**

Read more

India: Getting Knowledge Economy Skills programmes into curricula is delivering results

The 2019 cohort of students at Choithram School, Madhya Pradesh, took part in the Teach a Man to Fish School Enterprise Challenge programme, which takes students into the real world of business. Students produced and sold handicrafts from recycled materials, customised T-shirts and tea cups, natural compost from dry leaves and plant saplings from flower cuttings in a business they called Good Earth, and managed to generate **$832 in profits** over the year. **They used the profits to pay for educational materials for disadvantaged children in schools in their local area.**

Jyeshtha Mishra was in Grade 12 when she was elected General Manager of Good Earth, and said that the project helped her learn to turn ideas into action and build confidence.

She told the NGO: **"Good Earth has helped me develop my entrepreneurial skills which include creativity, innovation and the ability to plan and manage. It has honed my communication and networking skills which has made me very comfortable while interacting with customers. It has also equipped me with the skills of problem-solving and critical thinking... All these skills will be of great aid to me to achieve my goal of becoming a successful lawyer".**

Uganda: Knowledge Economy Skills entrepreneurship initiatives transforming lives

Kafka shared a powerful case study on a project delivered in Northern Uganda, which helped young people develop their sense of agency and believe there was no limit to what they could accomplish if they tried. **The programme helped young people build up computer science skills and business skills, and one teenager, Joshua Okot, went on to launch a delivery company and employ 20 young people.**

The student joined the NGO's School Enterprise Challenge in his last year at Lira Town College, a government secondary school in northern Uganda. Using skills learned on the programme, during the Covid-19 pandemic shutdown he built his own business, KakebeShop - an online marketplace where customers in northern Uganda can view and purchase from a range of items that can be delivered directly to their door. The young entrepreneur advertised his new service on social media, and had his first order - a toothbrush - within four months.

He made a loss on the sale, but gradually grew his customer base and was able to employ contacts locally. The site is now even available via an App, and Okot has gone on to also establish Kakebe Technologies, a company offering IT services to businesses and organisations, as well as robotics courses in schools, IT training programmes and a number of events and workshops in the town for young people to learn about tech. With all their businesses, the three friends are now employing 20 full-time staff, all under 30. Joshua says he absolutely loves business and wants to create a legacy. He told the NGO: **"The School Enterprise Challenge arrived at the right time for me. I thought I would get a good job as a computer programme manager when I left school, but it's much cooler to be running your own business."**

Design for Change, India and worldwide: Proof that Knowledge Economy Skills initiatives can scale

Bir Sethi shared the Design for Change Challenge, initiated in India in 2009 and now global, as an example of a Knowledge Economy Skills-building initiative that can scale. Many other initiatives have already been inspired by its framework, and it has been widely reported on.

Today, Design for Change involves **approximately 286,000 K-8 students** annually. It integrates a one-week challenge and a yearlong curriculum into public schools, focusing on design thinking and civics education. Students use a free toolkit to navigate the **four-step process of Feel, Imagine, Do, Share (FIDS),** developing change-making projects with their teachers.

> The initiative emphasises building intrapersonal and interpersonal competencies, problem-solving, critical thinking, creativity, and fostering an "I can" mindset towards active citizenship and community engagement.

Read more

Honduras: NGOs working with Education Ministers to build Knowledge Economy Skills into reformed curricula

Honduras is one of the poorest and most unequal countries in the Central and Latin America region: 52.4% of the population lives in poverty. Today, the majority of students still leave public schools without the skills to forge productive and fulfilling lives.

Over the past seven years, Kafka explained how Teach A Man To Fish has worked with over 30,000 pupils in Honduras and helped them establish 550 educational school businesses through its School Enterprise Challenge.

The programme uses the challenges of planning and running a real business as a practical learning experience in which young people build essential life skills, an enquiring mind and self-confidence. Teach A Man To Fish trains and supports teachers and students to run the programme in their school. As a result of the programme's success, the Honduran Ministry of Education has now partnered with the NGO to introduce the programme for students in public schools and alternative modalities everywhere in Honduras. This is part of the Ministry's bid to help transform the national education system into one that nurtures entrepreneurial thinking and enterprise and keeps children in school. The tie-up demonstrates the impact of ministers' exposure to successful Knowledge Economy Skills initiatives and the potential of minister-NGO partnerships.

Conclusion

Our Council's key findings and actionable recommendations for policymakers and education ministers looking to create education systems that equip pupils with Knowledge Economy Skills include:

Urgently start to deliver Early Years interventions to help young people - especially those in less advantaged communities - build Knowledge Economy / AI-proof skills from an early age. These include Social Emotional Learning (SEL) skills and metacognition development.

Start working today to build a Knowledge Economy Skills labour market for young people – or risk a brain-drain and your country falling behind long term.

Offer all pupils free English tuition/learning on apps. Our council believes that overcoming language barriers will be vital in young people developing Knowledge Economy Skills needed for tomorrow's world. It is also an easy fix, and provides a baseline of resources, delivering agency and fluency.

Invest in upskilling teachers and working around their needs, as this will be vital to long-term Knowledge Economy Skills development of pupils.

Incentivise and nurture better alignment between industry and curriculum developers to help design schools that will equip students for the economies of the future. Ministers must make sure that what is being taught, including digital skills pathways, are aligning to the needs of industry going forward.

Ensure that access to the tech world - the sphere currently shaping the economies of tomorrow - is widened beyond certain countries and regions. It is essential that more young people have the opportunity to learn on a faster trajectory from mentors and others working in the space.

Overcome siloing of solutions through launching initiatives such as prizes and awards. These are key to helping to share and globally amplifying innovative Knowledge Economy Skills solutions being built in schools around the world.

Appendices

These are just some of the resources out of many shared during Council discussions.

Further reading on the philosophy of how to remain active in the face of an inevitable crisis, which can be adapted for programmes for young people. "I Want a Better Catastrophe" https://bettercatastrophe.com/

Further reading on nature based education from the ICUN
https://www.iucn.org/resources/information-brief/nature-based-education-planetary-health

Further information and reading on the Rangeet case studies and approaches:
https://rangeet.com/blog/the-importance-of-social-emotional-and-ecological-knowledge-seek-2/
https://rangeet.com/blog/creating-equitable-classrooms/
https://bold.expert/building-empathy-for-oneself-society-and-the-planet/

Further reading and insights from the WEF and Intel report on the future of jobs, which organisations are using to guide engagements in education / Knowledge Economy Skills:
https://www.weforum.org/publications/the-future-of-jobs-report-2023/
https://skillsforinnovation.intel.com/landing/assets/Images/edu-sfi-future-education-white-paper-for-distribution.pdf

Further reading from Salzburg Global Seminar on the power of hope and active listening when it comes to implementing Knowledge Economy Skills - focused programmes:
https://www.salzburgglobal.org/news/latest-news/article/holding-space-for-hope

HP Futures Council on Knowledge Economy Skills Council Members

Name	Title	Organisation	Region
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Ronit Avni	CEO	Localized	USA
Angela Camparone	Principal	ISIS Europa School	Italy
Nawsheen Elaheebocus	Senior Human Development Officer	African Development Bank	South Africa
Nik Kafka	CEO	Teach A Man To Fish	UK
Michele Malejki	Director	HP Foundation	USA
Kate Maloney	Executive Director	Infosys Foundation USA	USA
Anne Laure Mauzulet	Partner - Social Impact	Bain Consulting	UAE
Taniya Mishra	CEO	SureStart	USA
Simran Mulchandani	CEO	Rangeet	India
Simi Nwogugu	CEO	JA Worldwide	Africa
Yuhyun Park	CEO	DQ Institute	Singapore
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Luigi Pessina	Director, Education	Intel	Germany
Rapelang Rabana	Co-CEO	Imagine Worldwide	Africa
Dominic Regester	Director	Education Transformation, Salzburg Global Seminar	Austria
Leo Schlesinger	CEO	Aliat Universities	Mexico
Noura Selim	CEO	Sawiris Foundation	Egypt
Snehar Shah	Chairman	Moringa School	Kenya
Kiran Bir Sethi	Founder	Riverside School	India
Vishal Talreja	CEO	Dream A Dream	India

06

HP Futures Council on Ending Learning Poverty

Overcoming obstacles to progress:
Making Ending Learning Poverty a vote-winner

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Ajo bergotong Royong
1. Peran Anggota keluarga
- Ayah : Cuci motor, mencuri Uang
- Ibu : Sapu, memasak
- Kakak : Sapu, belajar
- Adik : sapu, belajar.
2. Nilai positif dalam Gotong Royong
1. Nilai tolong menolong
2. Nilai kekeluargaan
3. Nilai persatuan
4. Nilai tidak berkorban

FOREWORD

Even before the Covid-19 pandemic shuttered schools and universities for more than 1.5 billion learners, the UN was warning of missed UN Sustainable Development Goal targets, including the goal of achieving universal quality education by 2030.

The Covid-19 pandemic and its extended lockdowns exacerbated existing problems and left a painful legacy, seeing the rate of Learning Poverty soar by a third in low and middle-income countries. To put this into sharp review: In early 2020, around 57% of 10-year-olds in developing countries were unable to understand a simple written text. Today that figure stands at a shocking 70%. The Covid-19 pandemic also sharply increased Learning Poverty in developed countries. A 2022 joint publication from the World Bank, UNICEF, FCDO, USAID and others found that Covid-driven school disruptions are now exacerbating an existing pre-pandemic learning crisis globally. Unless strategies actively addressing this situation are implemented, entire generations of young people will lose the opportunity to advance.

Learning Poverty is fundamentally a political choice. The world could educate every child, but it doesn't - and that needs to change. Therefore, we said that a key question for our Council will be: *how can we make Ending Learning Poverty a vote-winner?*

In 2024, 50% of the world's population are living in countries holding national elections, so tackling Learning Poverty should be part of strategies to gain votes and make administrations successful.

Council Members shared case studies of initiatives that have successfully secured political buy-in across countries including Brazil, India, Kenya and South Africa. We looked to extract key learnings from these to share in our report that could be translated across contexts, and improve outcomes going forward. We also explored current financing models for Ending Learning Poverty initiatives, and the level of data, including value for money data, available in our sector. We discussed how these could be improved to secure state buy-in to improve future implementation.

As a Council, we also agreed that raising the "noise" around Learning Poverty as an issue is vital, including increasing coverage of successful projects when they are delivered. Political will is influenced by public - especially parent voter - views, which are framed by multiple narratives. We even shared the questions our members would like education ministers to ask them in a meeting, in the hope of sparking new dialogues and opening a door to policymakers reading the report.

In all of our discussions, we looked to leverage our diverse perspectives to create informed, actionable recommendations for policymakers, NGOs and other sector leaders.

We hope the insights shared in this report prove helpful to educators, policymakers and funders, and we look forward to hearing your feedback.

With many thanks,

David Barth
Vice President, International Programs at Save the Children US

Ify Afe
Director Strategy & Planning, HP
Co-leads, HP Futures Council on Ending Learning Poverty

Introduction

Our Council's scope and core principles

Defining Learning Poverty

We decided that we would not be constrained by the standard World Bank definition of Learning Poverty, but rather use it as a helpful starting point.

Council Members pointed out that Learning Poverty is influenced by many factors, from gender to the rural / urban divide, wider settings (ie: the Global North and Global South), and Special Educational Needs (SEN). We discussed how it is **not as simple as: high-resourced systems = good, lower-resourced systems = bad.** High-resource systems are not always delivering for all students, and there are situations where these systems also need an element of transformation to get out of the status quo and improve learning outcomes. This was particularly evident in our discussions around securing political buy-in for radical reforms and securing media coverage of Ending Learning Poverty (ELP) initiatives.

Setting goalposts

- We agreed on a set of basic prerequisites for governments around the world when it comes to delivering a baseline in education, including working to reach SDG4 goals by offering universal Pre-K and ensuring girls' transition to secondary education.

- We agreed that political manoeuvrability, broadening access, scalability of projects, and overcoming barriers to getting the public aligned are all crucial to delivering successful Ending Learning Poverty initiatives.

Reframing the conversation

- **The phrase "Right to Education" refers to the entitlement of every individual to have access to education. We decided to use the phrase "Right to Learning" instead of "Right to Education" in our report.**

  We made this decision in part because a majority of children in many classrooms find themselves materially excluded. ***For example,*** ***in Kenya,***

93% of children are in classrooms,

but less than 40% are learning.

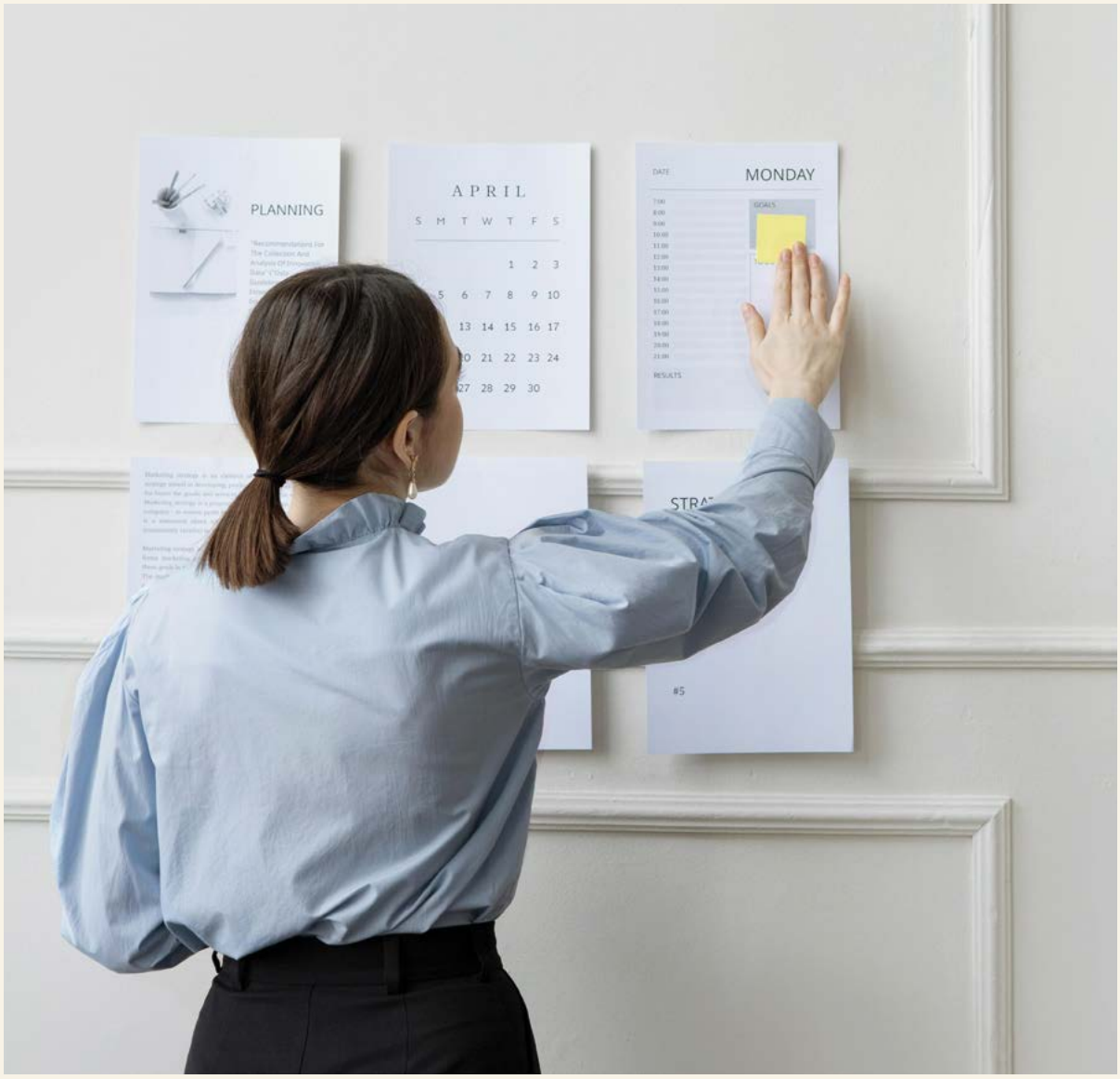
We discussed how access to learning vs access to school plays out most visibly for children with disabilities, visible/invisible, physical/developmental. The excluded/undiagnosed are at best getting daycare in many settings, and this needs to change. We noted that one in five children have a learning difference, yet there is very little awareness - and a lack of standardisation - across the world on how to tailor education to their needs.

- **We also noted that the role and voice of teachers have to be made more central in Ending Learning Poverty initiatives going forward, and acknowledged that the current global shortage of teachers is actively undermining long-term Ending Learning Poverty efforts.**

  Girish Menon, CEO of STiR education, an international NGO that supports education systems in India and Uganda to reignite intrinsic motivation in teachers and officials, pointed out that far too little mention is made of the critical role of teachers and the extent to which they are supported and empowered in realising their agency to address the learning crisis. We agreed to work to address this situation in our report.

Chapter 1

Making Ending Learning Poverty a political priority



Learning Poverty is about more than education practices - it is a systemic question. Our Council concluded that, to be successful, Ending Learning Poverty initiatives have to be scalable, and to be rolled out with civil society support. Securing political backing in order to ELP higher up the political priority agenda is essential.

Working with politicians to take the politics out of education

At the start of our discussions, we acknowledged that in an ideal world, education would be completely depoliticised. Given that this is impossible, we agreed to use our report to urge governments and political parties around the world to minimise political influence in education as much as possible. We recommend that all political parties sign up to a cross-party agreement for 2030 or 2040 with goals on education in their countries, in order to help deliver long-term policies and outcomes.

We also discussed the difficulties of ensuring politicians stick to their commitments when it comes to education/Ending Learning Poverty initiatives. We discussed approaches for tackling this issue, including having accountable manifesto pledges, going straight to the top, and more, based on case studies **(see below).**

Addressing the need for Ending Learning Poverty initiatives to provide more data to politicians and funders

We discussed how, in order to make Ending Learning Poverty a vote winner, the sector needs to deliver more data – especially polling data on education initiatives, and data that proves return on investment for governments and funders.

Council Members explained that there are currently huge challenges with data in the sector.

These include issues with gathering long-term data on the practical return on investment of education investments to show politicians, and issues with ensuring that any data given to education funders is accessible / intelligible to school directors, who in turn have the support and resources to take action. Members reported seeing large-scale misinterpretation of data, and lack of utilisation of data by organisations. Members also reported seeing an issue with a lack of sharing of data between organisations, stifling progress for the sector as a whole, as without collective action it is harder to prove return on investment on Ending Learning Poverty efforts to politicians.

We came to a consensus that the foundation for accountability in government for improving learning outcomes has to lie with the data. The sector needs to be able to prove with data that investing in Ending Learning Poverty is cost-effective and immensely beneficial for any society and there needs to be long-term data gathering and assessment of programme impact.

We discussed how education advocates being able to **speak the language of finance and planning ministers** - largely through data - is key to success.

As David Barth, VP International Programs at Save the Children, said: **"Cost efficiency is what will be persuasive [to national administrations], and we need to learn to use the language of value for money. We now have more data on effectiveness, so we need more on efficiency and economic impact."**

Our council concluded: **"No business sector would run itself in this manner in terms of innovation and outcomes, we need to make sure as a sector that educationalists actually pool intelligence and make that happen."**

Chapter 2

Case studies of projects that have successfully secured political buy-in to deliver impactful change

São Paulo's consensus approach: Lessons from developing a cross-party roadmap for education

Jair Ribero, President of the Parceiros da Educação, shared his experiences of developing a consensus, expert opinion-based roadmap for politicians of all parties in São Paulo, Brazil. The project presented local policymakers and politicians with several priorities for delivery on 11 key issues, agreed upon by leading educators, NGOs and other notable bodies and thought leaders. Because the approach had consensus, politicians representing all local political parties agreed to include most of its proposals in their respective campaign platforms. Ribero said: **“We made it so that the politicians could debate everything except education.”**

Ribeiro emphasised that this type of project can only be successful when developed in partnership with the most relevant, non-partisan organisations and experts specialised in education, and firmly grounding it in evidence.

Anyone looking to pursue a similar project should not expect it to be quick. Ribero said: **"You need to gradually build consensus among all organisations and local experts, and present the document as a unified, cohesive stance from organised civil society, genuinely committed to providing quality education to our public school students."** This is something worth investing in.

Sobral: A key case study for Ending Learning Poverty projects globally

Our Council highlighted how many initiatives can learn valuable lessons on how to successfully fight Learning Poverty and improve foundational learning from studying measures implemented in Sobral, a municipality in Ceará with 200,000 inhabitants. **Both Ceará and Sobral had low levels of literacy 20 years ago and went on to rapidly improve the quality of their education systems. Despite having the 5th lowest GDP per capita among the 26 Brazilian states, Ceará has experienced the largest increase in the national education quality index in both primary and lower secondary education since 2005. Ten of its municipalities are now among the nation’s top 20.**

Sobral has become a beacon in the Ending Learning Poverty sphere, and has led to follow-on/“copycat” initiatives in countries around the world, including Kenya, as explored in our conversations. We have summarised some of the key takeaways from Sobral here, and would refer everyone to the World Economic Forum paper on Sobral referenced in the Appendices.

Key components of the Sobral reforms included:

- A strong political commitment to Education Reform
- The implementation of a comprehensive package of Education Reforms, aimed at achieving universal literacy by the end of Grade 2
- Implementing results-based financing, which played a pivotal role in incentivising educational improvements across municipalities
- Provision of technical assistance to educators and schools to implement reforms effectively
- Emphasis on literacy and foundational learning as cornerstones for educational advancement

The Food4Education initiative in Kenya: The significance of unit cost analysis for education projects

Without proper food, children lack the strength, attention span and interest in learning. **Almost 80% of children in Kenyan public primary schools have no access to a nutritious school meal.** Fragmented, small-scale school feeding programmes exist, but often operate with limited consideration of the local context or are unaffordable for parents.

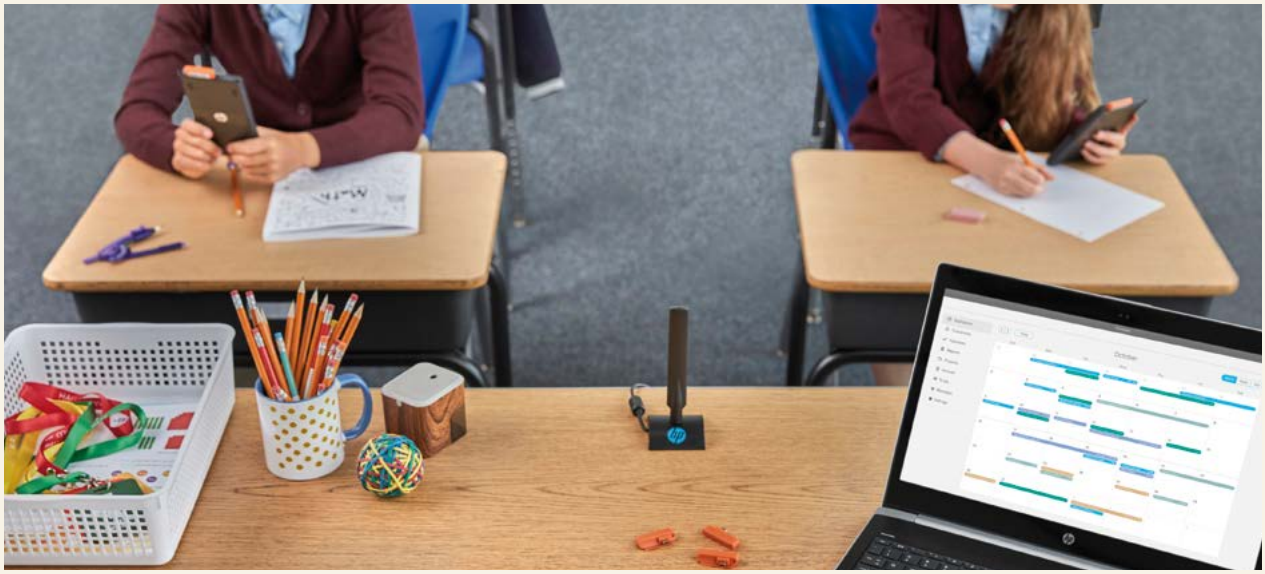
John Mugo, Executive Director at the Zizi Afrique Foundation, presented the Food4Education initiative as a useful case study to explore. The initiative has recently helped ensure delivering nutritious school meals made it onto Kenyan political party manifestos pre-elections. The initiative's leaders worked for two years with leading political parties to achieve this, and organisers said that what proved effective was working out a model that works for Ending Learning Poverty in terms of unit cost/child. This could prove a tried-and-tested model to follow in other countries. We explored how, for example, advocates could say: **"We can clearly estimate costs and communicate those costs and cost/benefit analyses to politicians."**

Gauteng's "Schools of the Future" Project: Extending IT benefits to the whole family through Ending Learning Poverty initiatives

Roche Mogorosi, Chief Director, Schools Technology Support Services at Gauteng Department of Education, presented the "Schools of the Future" case study from the South African province.

The project launched in 2015 with the goal of improving education through infrastructure upgrades, including delivering LED Boards for classrooms, learner tablets and teacher laptops. By 2019, the project had become so successful that it became a political slogan during South Africa's National and Provincial Elections: "1 Teacher – 1 laptop; 1 learner – 1 tablet; 1 classroom – 1 LED Board". Notably, the initiative saw the tablets pitched as a "family device" that could be used by families to access online social services. The project led to sustained increased learner attainment levels, and we explored how it was also successful because it brought benefits to family members as well as young people - a factor that helped to secure buy-in and make this education initiative a vote-winner.

Roche Mogorosi said: **"It started a conversation around: 'Why shouldn't we extend utilisation of these devices to cover social services such as application for free housing?' Positioning the devices as a helpful intervention for families will help to increase ownership and make a learner device a household and, ultimately, societal device."**



Uttar Pradesh's Political Alignment: Branding strategy and infrastructure focus to secure political buy-in for Ending Learning Poverty reforms

Kruti Barucha, founder and CEO of Indian non-profit Peepul, which works on transforming India's public school system in partnership with the government, shared an impactful case study from the organisation's work in **Uttar Pradesh, India.**

This initiative was inspired by the huge amount of work done tackling Ending Learning Poverty in recent years in Delhi. The Dehli reforms have involved starting from scratch, with education experts co-creating new approaches with the local government, deciding on key priorities, then rolling out teacher training, and huge investment.

Barucha explained how the Uttar Pradesh Ending Learning Poverty initiative was successful in part due to getting the state's chief minister on side from the start. This partnership was achieved partly through offering personal branding association with the great initiative for the administrator - an approach Barucha recommended others trial. "It set political alignment", she said. The initiative, led by the state's head of education, also benefited from having a very clear bar/targets to hit, and through focusing on the interaction between infrastructure, quality education and the economy. The initiative saw plans approved by the state cabinet for 9,000 schools to be built, and a commitment of $150 million for the project.

Chapter 3

Our view on what politicians should be asking education and NGO leaders

In order to offer a small but useful, tangible tool to help overcome the current divide in conversation between policymakers and organisations working towards Ending Learning Poverty, our Council collated a list of questions that members would like ministers and policymakers to ask in a meeting. The idea is to open up conversations and spark more meaningful conversations and positive outcomes.

The questions list:

- *What works in improving learning outcomes in your context?*
- *What doesn't work in improving learning outcomes in your context?*
- *Can you tell me about design flaws in current initiatives that you would not want us to replicate in future projects?*
- *Can we discuss the latest figures on economic outcomes per Ending Learning Poverty project, and other data-driven demonstration of return on investmen for the government?*

Suraj Shah, Head, Strategic Partnerships and Thought Leadership, Centre for Innovative Teaching & Learning at Mastercard Foundation in Kenya, shared a real-life example of politicians approaching organisations with an open attitude working well and delivering results. He explained how several African governments looking to create hybrid education models are already reaching out, most for the first time, to organisations like the Mastercard Foundation to ask for advice in this area. **"Initially they [governments] did everything themselves, but now they are changing their minds and asking for advice, opening up policies for discussion with external stakeholders."**

Chapter 4

Financing and support for Ending Learning Poverty initiatives

Learning Poverty is a systemic issue that remains under-reported and under-represented in terms of funding globally, despite strides made in recent decades.

We discussed the importance of delivering funding for the organisations building ELP project ecosystems, and both lack of funding and misplaced funding as causing problems in the sector.

Here, we **explored the current financing models for educational programmes.**

- **We outlined how, in most contexts, around 90% of school running costs still go towards teacher salaries.**

  This has stifled Ending Learning Poverty efforts in countries where education budgets are not increasing year-on-year, and led to continual cost-quality trade-offs, and issues with galvanising politicians around educational issues.

- **We also looked at issues arising as a result of having majority project-based funding in the sector, and explored potential solutions.**

  Contributors discussed how this model can lead to delivery being stuck in "first draft" mode. We discussed iteration, and how implementing an iteration-based delivery model globally could help reduce Learning Poverty. We also explored the importance of reframing away from universal truths, and towards a location/context-based model. For example, many projects tend to look for definitive social truths as opposed to learning from each context and creating programmes that get better over time. They also rarely are taken from project to scale.

Overall, we concluded that systems change requires multiple funding models, greater long-term funding from donors of all hues, and a move away from a focus on short-term projects towards those creating a durable education infrastructure.

Chapter 5

Changing the narrative: Increasing coverage of Learning Poverty and projects making a difference

Learning Poverty has faced a relative lack of coverage and attention as an issue in recent years, both in the media and in civil society. We agreed on the importance of getting beyond cynical narratives of broken education systems, and using media and other exposure – such as major world events like COP - more effectively as a sector.

Our conversation began with examining the amount of space and time given to barriers and solutions in similar sectors such as health and the environment. Council Members shared their views on why other sectors have been more successful at garnering attention in recent years, and posited potential new approaches and solutions for our sector.

We discussed how the education sector needs to be much smarter in delivering a compelling narrative on *why it matters* to reduce Learning Poverty, address social inequalities, and climate change.

Observations and potential solutions included:

The model of philanthropy-backed climate journalism

The Guardian is among the outlets with climate journalism sections and series funded by large charitable foundations. These pieces are often well-researched and widely read, and highlight both ongoing issues and the NGOs and projects working to tackle the problem. There is a notable lack of large, equivalent projects on Learning Poverty being funded by major organisations. As a Council, we recommended that this is something NGOs focus on arranging, and call on education funders to consider a similar approach.

Successful efforts post-pandemic in Latin America to fund training for education journalists and individual reporting projects

Caroline Kronley, CEO of the Tinker Foundation, which funds organisations working to address pressing challenges in Latin America, shared a case study from the region.

> Caroline Kronley said: *"We noted that during the pandemic the absence of good investigative reporting on education in most of LatAm (despite the massive learning crisis unfolding). Given the economic challenges affecting media in the region, few reporters work the education "beat" in a dedicated way, or have subject matter expertise. As a result, reporting is often limited to coverage of disappointing test scores or budgetary and labour battles, and little else, fueling pessimism about the topic. So we partnered with a regional journalism NGO to support training for journalists on education and funding individual reporting projects - with the goal of showing that great educational outcomes are possible and represent a valid electoral demand."*

The project was successful, and the Council agreed that this could be a replicable approach in other contexts, without necessitating a huge amount of investment.

Efforts to give education and Learning Poverty initiatives a broader profile at events such as COP

Beau Crowder, whose work focuses on ensuring that education and learning are integrated at the centre of human development and investment, pointed out that 2023 was the first ever COP with an education day. This represents progress, but the education sector is still not in the same "hot" space as the health sector with relation to perception and positioning across climate adaptation and mitigation policy. Crowder explained that education practitioners are now thinking about how they can create "outside-in" strategic approaches that position education on the agenda at major events, and in the headlines. For example, highlighting how school health and nutrition projects are an important part of domestic food systems and production which are directly linked to climate issues.

> Beau Crowder said: **"So we look from an intersectoral point of view, highlighting to stakeholders the ways education tangibly cuts across other sectors, and then advocate this approach to make win-win policy decisions. A great example is school feeding. It not only improves learning outcomes, student enrollment and reduces dropout, but also stimulates local agricultural production."**

Conclusion

Our Council's key findings and actionable recommendations for delivering more effective and efficient Ending Learning Poverty initiatives around the world include:

Calling on all governments to commit to minimum standards, outcomes and funding levels in education, including offering universal Pre-K and ensuring girls' transition to secondary education. No conversation around Ending Learning Poverty can happen without calling on governments to deliver this baseline.

An outline of key takeaways and insights for global NGOs and education advocates on how to make initiatives working towards Ending Learning Poverty a vote-winner. These include many learnings based on successful case studies in Brazil, Kenya, South Africa and India, and a thesis on the importance of polling and long-term relationship building with multiple parties.

An outline for Ending Learning Poverty initiative leaders to use in collecting and analysing more data on the efficiency and economic impact of Ending Learning Poverty efforts. This is crucial because, in order to survive and grow, the sector needs to speak the language of finance and planning ministers better, and demonstrably prove that Ending Learning Poverty efforts are delivering return on investment.

Calling on media organisations and funders to help amplify Learning Poverty issues and solutions, and share our Council's case studies of successful approaches to emulate. These include funding education journalism and working "outside in" to place education stories in the media alongside issues such as emissions reduction.

Calling on governments and funders to increase efficacy of Ending Learning Poverty efforts by diversifying away from solely pilot-based models, as this is often leading to being stuck in "first draft" mode. We suggest governments explore other financing models including iteration-based delivery models and location/context-based models.

Calling on all Ending Learning Poverty stakeholders to re-centre the role and voice of teachers in Ending Learning Poverty efforts. We highlighted the fact that the current global shortage of teachers is actively undermining long-term efficacy.

Calling on governments and political parties to sign up to apolitical long-term planning on education in their specific country, in order to help deliver long-term policies and outcomes.

Appendices

These are just some of the resources out of many shared during Council discussions.

Further reading on Ceará and the radical education transformation in the state's education system from the World Bank:
https://documents1.worldbank.org/curated/en/540371593598919465/pdf/From-Bad-to-Best-How-One-State-and-One-Municipality-in-Brazil-are-Eradicating-Illiteracy-and-Innumeracy.pdf

A report from the Laidlaw Foundation on 'Building Tomorrow's Healthy, Confident and Productive Citizens':
https://laidlawfoundation.com/report-building-tomorrows-healthy-confident-and-productive-citizens-an-education-for-our-children/

An example of an organisation helping schools measure impact:
https://www.evaluation.impactedgroup.uk

Further reading on successful ELP projects implemented post-Covid 19:
https://www.usaid.gov/rwanda/growing-readers-rwanda-brief-retrospective-decade-usaid-interventions-and-effect?utm_campaign=external_newsletter&utm_medium=email&utm_source=govdelivery

HP Futures Council on Ending Learning Poverty Council Members

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07

HP Futures Council on EdTech for Teachers

A blueprint for enabling Education Technology to finally deliver on its potential

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FOREWORD

Today, we live in a world that is being disrupted by technology at every level, and education is no exception.

The rise of Generative AI, including OpenAI's now-global ChatGPT tool, is already shaking up education policymakers' plans for the future. Before Generative AI exploded onto the scene, Education Technology (EdTech) was being integrated into increasing numbers of classrooms around the world, including in regions where connectivity is unreliable. Now, the emergence of this new, groundbreaking technology is turbocharging EdTech products and ministers' approaches to technology-powered learning.

This is hugely positive news. When delivered effectively, EdTech can be a democratising force. It has already been shown to improve learning outcomes, especially for young people in less economically privileged countries who would otherwise have been unable to access highly-trained educators. **Today, e-learning products enable students around the globe to study at their own pace, access tools tailored for specific educational needs, and learn in new, fun and creative ways online.** And, far from replacing teachers, EdTech is beginning to alleviate the burden of time-consuming tasks such as marking and lesson planning. This frees often-overstretched educators up to spend more time directly engaging with their students.

However, as our Council explored, the current EdTech landscape and strategic deployment of products leaves much to be desired. EdTech companies and schools face huge delivery challenges, especially in areas with low digital fluency among teachers, and methods for data-gathering and management, purchasing and roll-out, urgently need to change. The EdTech market itself, which rarely sees venture-backed companies share their data, also needs to evolve in order to deliver the best learning outcomes for students. In short, this HP Futures Council concluded that going forward it is clear that EdTech products need to be designed more in collaboration with educators, to be distributed more equitably, evaluated more effectively, and purchased in a less "haphazard" way.

In our conversations, we focused on distilling a series of actionable insights and frameworks to help enable better and more impactful EdTech delivery in schools worldwide. We extensively explored questions including: *What needs to happen on a systems level in order to help EdTech really deliver in schools?* ***and*** *How can we successfully build teacher capacity for harnessing EdTech?* We also explored the key pitfalls to avoid when it comes to EdTech implementation, and Council Members shared their personal experiences of approaches that have worked, such as using academic research as the basis for new EdTech products, and bringing teachers into the product creation process itself, not merely for feedback purposes. We looked at how to combat low digital fluency among teachers and suggested new approaches for ensuring EdTech data-gathering is not done in silos.

Council Members also shared examples of EdTech products that they have seen being successful in action, and created a helpful checklist for education bodies and school leaders to use when evaluating a new tool.

These conversations stood out to us for their breadth of perspective and collaborative approach, and we hope this report proves a helpful resource for policymakers in the future.

With many thanks,

Soulaymane Kachani
Senior Vice Provost, Columbia University

Giulia Buttini
Director Government Affairs & Public Policy, HP
Co-leads, HP Futures Council on EdTech for Teachers

Introduction

As a Council, we decided on several core recommendations for system-level enhancements. These included:

Governments need to focus on delivering the digital public infrastructure that underpins digital information systems and EdTech products

This was an early tenet of our discussions, as reliable connectivity sits at the core of any EdTech success long-term.

Companies and governments need to collaborate to deliver more offline EdTech products in areas with low connectivity

We highlighted the need for more offline EdTech tools to serve communities where connectivity is still an issue. Basuti Bolo, Chair in Education Technologies at Africa University in Botswana, explained that a game-changing EdTech platform in African regions would be one that can reliably be used offline while delivering first-rate results, alongside support in implementation for teachers, students and parents.

Both product developers and commissioning policymakers need to be mindful that students want autonomy in education, not automation

We explored a recent global survey, which found that students were clear that they did not want their learning automated, but that they do want autonomy. We explored how EdTech products should help give students voice, choice and agency, and enable asynchronous learning, but not replace interactive learning settings.

Policymakers must recognise the urgent need to reform the narrative around EdTech to support educators

A significant challenge explored was the fear among educators that technology may replace them. We outlined the importance of forming an "in-out" rather than an "out-in" conversation about EdTech with schools, and to position any dialogue as backing the profession, not imposing another requirement on overburdened teachers.

We concluded that governments and leaders must stress that EdTech must clearly address workload and purpose for teachers. We explored how teachers in many systems around the world are overworked - **teachers currently spend just 49% of their time teaching**, and the rest on other tasks. EdTech tools and AI-based assistants can help make teachers' non-teaching often manual, repetitive work faster, and free up time for teaching.

Strategies to combat this fear include starting conversations with this type of positive narrative - one that empowers teachers. Others include actively enhancing educator competence and confidence with technology through training programmes, and ensuring uniform EdTech rollouts that transcend relegation to IT departments.

There is an urgent need to address and improve digital fluency among educators globally

Combatting low digital fluency among teachers was also identified as a pivotal concern. We concluded it is vital that school leaders foster a culture of openness to adaptation and then offer direct support to staff, especially during the initial rollout of new products.

Guilherme Cintra, Innovation and Technology Director at Brazil's Lemann Foundation, shared the example that in Brazil, most teachers score just a 1/5 or 2/5 in confidence in using basic technology. In order for EdTech to have a real impact in the classroom worldwide, and stop EdTech being the preserve of wealthy countries and innovative teachers, we need to overcome this issue and embed digital fluency and education in the curriculum for both teachers and students.

Chapter 1

Outlining principles for improved solution delivery

EdTech procurement and delivery models must evolve

> **"Teachers have to drive the why – and then inform implementation"**

We explored how there are currently widespread systemic issues with EdTech procurement and delivery within education systems.

We explored how, in many countries, it is complex and costly to actually get EdTech products into classrooms, because systems lack a central procurement process to streamline the funding and decision-making on commissioning products. Council Members also shared examples of the issues and product roll-out failures caused by the procurement side of EdTech not talking to school leaders on the ground.

As a Council, we also decided it was important to highlight how it is vital that schools and teachers actually need and want whatever an EdTech product has to offer, and that any new tool should make a demonstrable difference on a specific issue. Council Members shared examples of where district leaders or school groups have commissioned a "flashy" product that has worked elsewhere, only to find that the product does not serve school needs in their area.

We concluded that it is crucial for district leaders and principals to look inwards. **Leaders should do a review of what their district or school, teachers and pupils need first - then look to contract products. By contrast, today, many municipality leaders choose an EdTech product without knowing the reality of day-to-day life in all the schools, and then fail to implement the product effectively as a result.** Council Members explained that this frequently leads to teacher apathy, disengagement with EdTech, and wasted resources. Here, contributors referred to the latest research in the EdTech Evidence Exchange, which highlights the importance of teacher agency, staff culture, and professional development in delivering impactful EdTech projects.

Read more

"Policymakers need to wake up": Improved dialogue is needed to address systemic fragmentation and disjointed EdTech delivery

We explored the tremendous levels of systemic EdTech fragmentation as a key barrier to learning outcomes.

For example, many Council Members said that schools in their regions have 10-15 different systems and EdTech tools at various stages – tools that do not have joined-up data access or security protocols. We explored how this situation leads to missed opportunities for joined-up learning and wasted resources, and needs fixing.

Multiple Council Members blamed this fragmentation on national governments investing in digitalisation of schools, yet failing to ensure communication between districts, school leaders and companies, resulting in EdTech products being rolled out in a disjointed and ineffective manner. Italy-based Council Members pointed to this being an ongoing issue in the Italian school system, for example. Overall, the Council concluded that school systems generally need better and more focused EdTech policies from governments going forward.

- **Reforming the EdTech product creation process:** "End the days of 'the tail wagging the dog' in the sector"

  Council Members also raised the problematic intersection of business and education, and the issue of EdTech products currently being too widely developed for what will sell, rather than what will have the most impact on learners. We determined to emphasise in our report that this conversation needs to be elevated in both industry and policymaking circles in order to better deliver solutions.

- **Sustainability and inclusivity must be centred to establish the best EdTech infrastructure going forward**

  We explored how communication and reporting are key here, with results ideally reported to participating and interested stakeholders, with opportunities for co-interpretation and co-analysis of data with participants to mitigate potential bias and identify limitations of research/results.

Chapter 2

Reforming the EdTech data landscape is essential to future product success in schools

We explored how effective, large-scale, and integrated data gathering and analysis will be key to the future success of EdTech and e-learning projects.

As a Council, we also investigated the challenges associated with current data systems in schools, emphasising the need for simplification and interoperability. Effective data mapping and the creation of roadmaps for data gathering were also identified as crucial strategies to enhance the value of educational data for learning outcomes. Practising teachers on our Council reported experiencing data systems in many schools that are not fit for purpose, and are stressful and time-consuming for teachers to use.

Alex Gray, Head of Sixth Form at Arcadia School, Dubai, said: **"I'm a science teacher, and I love data, but I hate the data systems most schools use. There are so many inconsistencies, different systems, and a lot of the time it's just copying one piece of data from one system to another – and it isn't clear whether the data is used to deliver anything for the long-term learning of schools or students. Data-gathering here needs to be simplified not only to capture how students are doing, but to provide feedback and major repositories for valuable data.**

Lia Glaz, President of Telefonica Foundation in Brazil, pointed out that many issues with data-gathering on Education Technology in schools comes from the fact that the process requires teachers to be able to curate and evaluate tools – but often teachers "don't have the competencies to do that in real life". **Either teachers need more training, or the data-gathering systems have to change.**

Eliud Chemweno, Lead, Centre for Teaching & Learning at Mastercard Foundation in Kenya, pointed out that when it comes to schools' data, including on Education Technology: **"Getting data is like extracting water from a stone". He cited experience of successfully turning to partnering with a local bank to help support the gathering and analysis of education and skills data, and to help evaluate Education Technology solutions.**

Read more

Data interoperability and effective data mapping will be key to successful reform

Jody Britten, the Head of Research and Innovation at The Team4Tech Foundation, cited her experience of working in a US state, watching district leaders and teachers "just copying data from form to form".

She said:**"It has to be mapped, and this should be a big part of the EdTech conversation. We're approaching a time when student-created data will be invaluable. For example, students are saying: 'Don't make me do stuff in the classroom that I could Google'. Having good data would help tools be developed as interactive in the way students want, and help them develop key problem-solving skills. There needs to not be a disconnect between learning and measuring."**

While exploring potential solutions, Chaula Gupta, VP & Chief Program Officer at Digital Promise Global, highlighted how her organisation is exploring building an AI tool that would help educators create Individual Education Plans that are strengths-based and consider the whole child instead of deficit-focused.

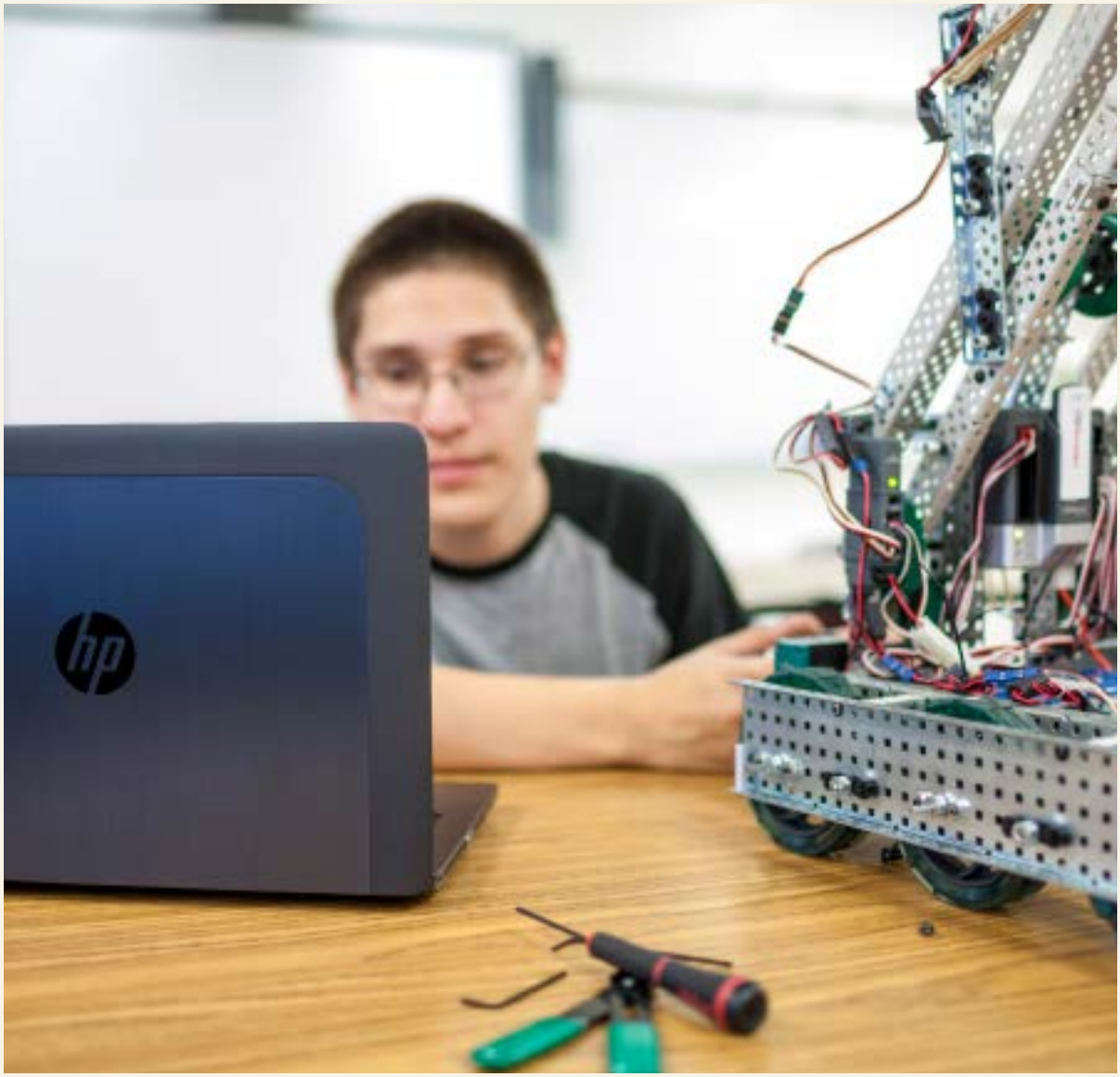
> **"People are operating in the dark"**

Data transparency and open collaboration on the EdTech development side needs to be enhanced

Council Members raised the issue of lack of data transparency on the tool production side as another significant hurdle. **Malvika Bhagwat, Partner & Head of Outcomes at EdTech investor, Owl Ventures, explained that the reality is that many venture-backed startups do not want - or are not able - to share data for fear this will be used by competitors.** Owl Ventures is among those trying to deliver some transparent and helpful outcomes data into the public realm to help both developers and educators.

Chapter 3

Case studies of successful EdTech implementation across contexts



Impulsionar programme, Brazil: A case study on directly supporting implementation

Ana Ligia Scachetti, CEO of Nova Escola in Brazil, highlighted the country's Impulsionar programme, which is focused on learning recovery, as an example of what needs to happen on a systems level in order to help EdTech really deliver in schools.

In 2022, seven municipal education networks were selected for its programme that saw networks choose from a range of EdTech products, before being directly supported with their implementation.

Read more

Key points to highlight include:

Significant funding of **R$100,000** was used to support the implementation of their solutions in schools of the municipal education departments.

The programme saw individualised teacher monitoring, and offered teachers a **"community of practice",** allowing them to exchange on implementation with their peers.

The programme had an "**acceleration process"** with external consultants, which offered diagnosis of implementation, personalised rollouts, mentoring with other education and public procurement experts, legal support, and monthly group training sessions.

Team4Tech USA: A case study on the efficacy of bringing teachers into the EdTech development process

Jody Britten, the Head of Research and Innovation at The Team4Tech Foundation, shared her first-hand experiences of the benefits of involving educators in EdTech development. Britten said that at Team4Tech in the USA they have brought in educators to work alongside them on the creation of their latest products, and are "really seeing amazing synergy" as a result of having teachers as part of both the process and the solution. It is helping the company deliver rapid cycle prototyping.

Dynamilis, Switzerland: A case study on the wins created when EdTech developers, academics, experts and teachers collaborate

We discussed the importance of forging closer connections between academia and industry in EdTech development. We explored how EdTech products and offerings should be based on research, yet very few reach this high bar. Our Council recommends that policymakers/school leaders commissioning EdTech look to buy academic research-based and backed products, and to assess the research basis of tools before purchasing.

Pierre Dillenbourg, Associate VP for Education and Professor of Learning Technologies at Swiss Federal Institute of Technology, Lausanne, has worked in this sector since 1985. He highlighted the case of a highly successful EdTech product, handwriting improvement tool Dynamilis. Dynamilis was designed by two PhDs and honed as a product through eight years of iterative adaptations in conjunction with teachers and handwriting experts.

This approach ensured that a teacher's ability to use the technology was centred on the product development and updates - and the approach paid off. Dillenbourg explained how this EdTech product produced measurable improvements for learners after being delivered with blended teacher learning, yet delivered limited gains when delivered without associated teacher training. After training, the teachers were able to use the technology to help learners reflect while using the technology, "obtaining significant effect".

> Pierre Dillenbourg said: ***"Ministers want us to make teacher-proof tech. We are currently designing EdTech as if there were no teachers in the classroom. This is a problem. This approach means that students whose teachers are not supported in the right way will be left behind and not benefit from EdTech properly."***

Digital Promise Global, Haiti: A case study on the benefits of delivering simple Education Technology tools in complex contexts

We discussed the fact that some EdTech tools do not need complex or detailed training to deliver and use, just confirmed teacher buy-in and clear uses. Chaula Gupta, VP & Chief Program Officer at Digital Promise Global, cited a key case study of EdTech and digitisation being used to great effect in Haiti.

Gupta said that Digital Promise Global collaborated with a group of partners to use EdTech successfully throughout 2022 and 2023 in Haitian primary schools in order to help digitise a local curriculum and deliver more engaging lessons. This was achieved, despite the fact that most teachers in the local schools had never used EdTech before and had only recently had consistent Wi-Fi and connectivity, through an approach rooted in community partnership and local capacity-building.

The pilot in Haiti focused on:

- Improving the capabilities of Haitian teachers to deliver high-quality learning using technology and tools
- Expanding the availability of culturally relevant, standards-aligned, Haitian-Creole digital content to teachers and students
- Improving accessibility to broadband connectivity and electricity for schools and school networks

The approach emphasises applying lessons from past efforts and iterating over time to ensure that the results and impact are sustainable.

EdChat, South Australia: A case study in building EdTech tools at a state government level with positive impact

Mark Sparvell, Director of Marketing Education at Microsoft, shared a rare example of a local government department directly investing in developing and rolling out a successful EdTech product.

The South Australia Department for Education has developed an AI chatbot, EdChat, designed specifically for teaching and learning. It was built in partnership with Microsoft and uses the Azure OpenAI service, powered by the same technology as ChatGPT.

Over **1,500 students** and **180 educators** across **8 schools** took part in the SA Department for Education's 8-week trial of the chatbot in classrooms, which concluded in August 2023. The head of the region's education board said that since using the bot students are **"thinking harder, questioning ideas and learning crucial critical thinking skills that will set them apart in the real world"**. He also reported schools finding that EdChat "helped maintain momentum in the classroom... because students found that they didn't need to wait for the teacher to make their way around the class to check in on them since they could have that initial back-and-forth with EdChat. This freed up the teacher's time so they could spend it on students who need more support and also ensured that the time they do spend with students is used for more complex or in-depth discussions about the student's thinking and how they are using EdChat."

Read more

Chapter 4

Our Council's recommended list of EdTech tools

COVID-19 related disruption to schooling led to challenges of learning loss, while institutions widely face ongoing teacher shortages, and issues around student mental health. EdTech tools are emerging and proving that they can be effective in bridging these gaps and offering solutions.

Many of the tools recommended below are free to use, or low-cost.

Árvore

Árvore is a Brazil-based platform with more than 50,000 books and current content papers in both Portuguese and English. The platform also offers a socio-emotional education programme designed by Rossandro Klinjey, and lesson plans for teachers to use. Council Members reported finding the tool easy to access and use.

Amira Learning

Amira Learning is an intelligent and accurate, AI-powered reading assistant that listens to and supports students as they read aloud. Backed by over 30 years of Carnegie Mellon University research, Amira users are experiencing 2x reading growth, compared to non-Amira users, according to a recent education outcomes report from Owl Ventures.

Co-Grader

This integrated classroom tool advances the use of data visualisation across classes and schools. Recent examples of its success in action include in New York City, where the tool was used by high school teachers to identify why students were performing badly, enabling them to target support with great effect.

Dynamilis

Children who face difficulties in handwriting quickly enter a spiral of school difficulties. This solution, which is based on four years' collaboration with therapists and research published in leading journals, uses AI to analyse the dynamics of handwriting in a way that a human expert cannot do. It sees children write on a tablet, which gives us the speed, pressure, acceleration and tilt of the pen 240 times per second. The AI then extracts features such as the second derivative of pen pressure to help students tailor their learning process. Dynamilis is already used in Swiss public schools in canton Jura, Bern and Solothurn, and private schools such as Florimont in Geneva. The majority of its current sales also come from parents downloading its app on the Apple AppStore, demonstrating a need for the technology. The app already works in five languages and is expanding worldwide.

HP Classeasy

This gamified Learning Management System has been proven to motivate and inspire all student demographics, and is being used by schools and ministries around the world to level up student outcomes. It breaks the classroom walls to provide students with a unique experience and access to limitless educational resources. Features include daily measurement of student engagement.

HP IDEA

The HP Innovation and Digital Education Academy (HP IDEA) programme sits at the intersection of pedagogy and technology, helping teachers to navigate the education landscape's paradigm shift towards blended learning. Applying frameworks developed by Harvard Graduate School of Education's Project Zero and University of Michigan's School of Education, and working with government education ministries, HP IDEA aims to foster empathy, innovation and digital pedagogy skills while facilitating collaboration to gather inspiration.

Ignite Reading

This tool offers one-to-one, virtual, Science of Reading-based tutoring that closes K-8th graders' decoding gaps to get them caught up fast. In just 15 minutes a day, expert tutors teach students the foundational skills they need for a lifetime of independent reading.

Jupyter Notebooks

This is a teacher-focused web-based interactive computing platform largely used by higher education and later-stage K12 teachers. It has been widely adopted due to teachers' ability to use the tool in a way that matches their teaching style, from lectures to discovery learning.

Kahoot!

This is a tried-and-tested interactive learning platform that promotes engagement and retention.

Kyron Learning

With low student achievement, schools struggle to deliver tutoring to bring students back to grade level. Kyron Learning is an AI-powered platform that enables teachers to create interactive videos that feel like a conversational tutoring session, on any topic. The platform is helping educators scale their impact and provide equitable access to high quality 1:1 teaching.

Learner Variability Navigator (LVN)

LVN is a free web-based tool developed by Digital Promise Global, a global non-profit launched with backing of the US Department of Education and funders such as the Bill & Melinda Gates Foundation. It provides easy access to strategies for personalising the learning experience for students for both educators and tool developers, with learner models for maths, literacy, and 21st Century skills such as critical thinking and creativity. LVN spans pre-K to Grade 12 and includes professional learning resources and modules, including a focus on cultural responsiveness and on students with learning differences. Unlike many other tools, LVN shows research-based connections among factors – for example, how sleep or emotion are deeply tied to working memory – and between strategies and factors which can guide teachers to select the best strategies to employ in their teaching practice.

Labster

Labster is a Swiss startup offering high schools and universities virtual (VR) science labs. These are incredibly useful for schools with fewer resources and lack of lab access. Labster was named "Best Technology Learning Platform" in the 2022 Education Technology Breakthrough Awards.

Letrus

This is a literacy and creative writing Education Technology tool that deploys AI and machine learning to speed up the marking process for teachers, and to help educators provide structured, tailored feedback. The tool makes comments, does general essay grading, marks deviations in spelling and grammar, detects and addresses plagiarism and departures from the topic / genre. Letrus offers more freedom for teachers to focus on in-person teaching as a result, and one Council Member reported seeing student grades improve significantly after using Letrus.

LUDIA

LUDIA is an AI chatbot designed to support teachers with the implementation of the popular instructional method, Universal Design for Learning (UDL). It helps educators create flexible routines to eliminate barriers in the classroom and save time on lesson planning.

Microsoft Copilot

This "everyday AI companion" uses advanced artificial intelligence to understand and respond to requests, whether pupils need help with writing, searching for information, or generating creative ideas. It is free, which makes it stand out among other e-learning tools, and positioned as a co-pilot for a digital learning journey.

Mindjoy

Mindjoy is an AI-enabled learning platform that provides personalised instruction and practice and helps educators create customised learning paths for students. It adjusts the content and challenge level to keep students engaged and progressing, and one Council Member described the tool as "like having a tireless, brilliant teaching assistant at my fingertips, constantly adapting to support each student's individual needs". The educator said that the tool has freed him up to focus on teaching and having deeper discussions that make a true difference in education. Experts also reported the tool having helped in lessons to ensure active discovery, as it allows students to be guided towards understanding concepts themselves, rather than handed answers.

Newsela

Newsela is a widely-used content and assessment platform that empowers teachers to select ideal content for their students, while providing administrators with the assurance that all content is vetted and standards-aligned. The Education Technology already serves over 43 million students in US schools today, and is proving effective. It offers content in both English and Spanish.

Panorama Education

Panorama Education helps schools and teachers act on data to improve student outcomes in social-emotional learning, school climate, family engagement, and MTSS. Panorama brings academic, behaviour, attendance, and social-emotional data into one platform, with tools for delivering and monitoring progress. It is already being widely used in several US schools districts with positive reports.

Preply

The offline language learning journey is expensive, inflexible, and offers a limited number of good language teachers. Preply is a global language learning marketplace, connecting tutors with millions of learners from around the world. To date, there have been over 30 million lessons on Preply across over 100 subjects to learners in over 240 countries. As outlined elsewhere in this report, access to language learning is a key educational goal.

Scratch and OctoStudio

Scratch and OctoStudio are free visual coding resources designed by the MIT Lifelong Kindergarten Group. Council Members vouched for their "great quality". Scratch allows pupils to create stories, games, and animations to share with others around the world, while OctoStudio allows students to create interactive animations and games, leading to learning through enjoyment and e-games.

uLesson

uLesson is a Nigerian Education Technology platform providing curriculum-aligned learning content and exam preparation materials for students across Africa. The company offers K-12 pupils access to high-quality video lessons that they can watch at their own pace, and has been celebrated as an African Education Technology success story.

Conclusion

Our Council's key findings and actionable recommendations for policymakers, education ministers, and EdTech entrepreneurs include:

Calling on education ministers to create resources and in-person access projects aimed at helping EdTech entrepreneurs and other business leaders actually understand how schools work. We concluded that a disjointed relationship between these two stakeholders currently leads to the wrong products in schools, under-utilisation of products, and wasted budgets. Investing in this project would help pupils and EdTech companies succeed in countries in which they are based.

Urging EdTech providers to work more closely with academics to ensure that, going forward, EdTech startup products are more often based on proven research and data. As outlined, there is too much 'the tail wagging the dog' in the sector, with too many products based on little proven data on what really works in education settings.

Urging EdTech companies to end the practice of offering free trials of products in less advantaged education systems, only for these products to be unaffordable for those systems and schools at full price. We believe that ending this practice could help improve learning outcomes and the utilisation of EdTech globally.

Calling on governments to enable technology to better deliver in schools by paying for programmes that combat low digital fluency among teachers.

Appendices

These are just some of the resources out of many shared during Council discussions.

Contact information and background on AI for Education, a community working to ensure equitable access and benefits from AI in Education:
https://ai-for-education.org/

The latest Education Outcomes report from Owl Ventures, which dives into this topic in depth:
https://view.genial.ly/6525982780798f0011437cde

Further reading on EdTech and its impact from the EdTech Evidence Exchange Project, which was launched in 2021 with the goal of helping educators make evidence-based EdTech decisions appropriate for their context:
https://www.innovateedunyc.org/success-stories

A link to the helpful K12 Digital Capability Framework, an open-source framework mapping digital capability for K12 educators, leaders and institutions for reference:
https://www.holoniq.com/k12-digital-capability-framework

An interview with the South Australian Department for Education CEO, exploring the state's roadmap for scaling Generative AI :
https://www.bamradionetwork.com/track/what-works-inside-the-australian-department-for-educations-roadmap-for-scaling-ai/

A Microsoft blog on collaborating to bring AI innovation to education:
https://educationblog.microsoft.com/en-us/2023/06/collaborating-to-bring-ai-innovation-to-education

HP Futures Council on EdTech for Teachers Council Members

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AFTERWORD

We are extremely grateful to every Council Member who contributed their time and expertise to create the HP Futures White Paper.

The findings and calls to action shared here by all five HP Futures Councils are practical, actionable, and based on expert consensus. We urge policymakers around the world to take note of the Councils' recommendations and to look to implement relevant key findings to help deliver tangible improvements in global education outcomes.

When we launched this initiative, we aimed to create a unique and parameter-free space for discussion on the future of education. We wanted to bring people with broad and diverse perspectives and expertise together to share their thoughts on how to increase access to quality learning for all. To this end, our Councils had an equitable representation of geographies, backgrounds and genders, and included people working at various levels in multiple and very different education contexts around the world. **Our Councils included teachers working across geographies, former world leaders, current education policymakers, and leaders on education projects at organisations including the World Bank and companies like Microsoft and Intel.**

We believe that there has never been a more important time to host open and representative conversations on the future of education. We stand at a pivotal juncture, with workplaces and societies that are already being disrupted due to rapid technological advances. The issue will only grow more pressing in the coming decade. Education needs to change alongside society, or many of the next generation - especially those least advantaged - could be left behind.

Most curricula are still teaching for economies of yesterday, with siloed subjects and a lack of digital integration. Most schools are nowhere near delivering an effective mix of synchronous and asynchronous learning. Globally, there is a severe lack of quality assessment and data for Education Reform initiatives to build on – and reform advocates are not reaching governments with the data necessary to prove the ROI of investing in Education Reform and Learning Poverty alleviation projects. All of this comes amid a severe global teacher shortage, which is ongoing despite widely increased spending on teacher salaries. The world needs nearly 70 million more teachers to provide quality education to every child, and those teachers need to be digitally fluent. We need to build schools and education systems that equip students for the world of tomorrow – and our report outlines measures and actionable steps to help governments reach that goal.

At HP, we are committed to accelerating digital equity for 150 million people globally by 2030, and to helping forge a path towards creating better technology enabled education settings for young people. To achieve more equitable and inclusive education for all in the new era we are entering, we believe that enterprise has a responsibility to facilitate conversation, listen to sector experts, and amplify their thought leadership.

This White Paper is part of our contribution, and we are here to work with and support educators and policymakers in enacting our Councils' recommendations.

With many thanks,

Mayank Dhingra

Senior Education Business Leader and HP Futures Project Lead. HP Inc.


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